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

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1038.5

RECEIVED JAN 14 1957 D.M.E.A.

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of November, 1956 Docket No. DMEA 3142 Contract No. IGM-E644
Operator's Name Howe Sound Company - Chelan Division Minerals Copper
Address Holden, Washington
Contract Amount, $ 363,840.00 Government Participation: 50% Amount, $ 181,920.00

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:				1/31/57	W.H.K.	
Drilling - Core		37,965.75	37,965.75		37965.75	37965.75
Dia. Drill & Transfer Sta. Bulldozing		9,810.00	9,810.00		9810.00	9810.00
~~Crosscutting~~ As per -)						
~~Drifting~~ Amendment 3)						
Drilling - Core)	22,346.03		22,346.03	16589.33	— 0 —	16589.33
(2) Labor and Supervision:						
Labor		106,278.53	106,278.53		106278.53	106278.53
Supervision		8,160.31	8,160.31		8160.31	8160.31
Technical Services		3,690.82	3,690.82		3690.82	3690.82
(3) Operating Mat'ls. and Supplies:						
Timber		9,966.33	9,966.33		9966.33	9966.33
Explosives		21,330.73	21,330.73		21330.73	21330.73
Pipe		5,398.99	5,398.99	(1240.70)	- 6748.73	5398.99
Track		4,497.47	4,497.47	(1124.36)	- 5621.83	4497.47
Drill Steel & Bits		12,300.71	12,300.71		12300.71	12300.71
Electric Cable Instl'n.		358.64	358.64		358.64	358.64
Vent. Pipe Instl'n.		352.90	352.90		352.90	352.90
(4) Operating Equipment:						
Rental						
Purchase		17,549.07	17,549.07	(1338.98)	20907.09	17549.07
Depreciation		3,873.75	3,873.75		3873.75	3873.75
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment		9,847.12	9,847.12		9847.12	9847.12
Sampling and Analysis		130.32	130.32		130.32	130.32
Payroll Taxes & Med. Aid		3,621.00	3,621.00		3621.00	3621.00
Ind. ~~Xxxxx~~ Insurance		4,834.84	4,834.84		4834.84	4834.84
Tramming		8,832.15	8,832.15		8832.15	8832.15
Compressed Air		13,816.74	13,816.74		13816.74	13816.74
(8) Contingencies (specify):						
Miners' Lamps		593.42	593.42		593.42	593.42
Handling Supplies		2,440.20	2,440.20		2440.20	2440.20
Hoisting (2500 Level)		1,397.84	1,397.84		1397.84	1397.84
TOTALS	$22,346.03	287,047.63	309,393.66	16589.33	287047.63	303636.96

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

Date Dec. 21, 1956 Payee Howe Sound Company - Chelan Division

Per [signature] Title Manager

*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)

red figures indicate costs adjusted by salvage - See attached work sheet for details.

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

$ 8294 67

Signature [signature]
(Authorized Certifying Officer)

Date 1-2-57 Vou. No. 1921
(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 644 in accordance with the terms of the contract.

Signature /S/ John D. Bardill Title Metallurgist Date Dec 26-56

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature /S/ Wm G Agnew Title Acting Exec Date 12-28-56

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

RECEIVED JAN 14 1957 D.M.E.A.

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

Month of November 1956 Docket No. DMEA 3142 Contract No. Idm-E644
Operator's Name Howe Sound Company - Chelan Division Minerals Copper
Address Holden, 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 - 1500 Level	Feet			$177,884.91	3,800			
Crosscutting 2500 "	"			43,837.90	1,365			
~~Raising~~ D.D.Sta-1500 L	Each			4,410.00	9	$490.00	9	$490.00
~~Shafts~~ " 1500 L	"			300.00	1	300.00	1	300.00
~~Winzes~~								
Drilling: Core (1500 Level)	Feet	$1,872.20	✓ 506	1,872.20	506	3.70	1,200	3.70
Core ~~Churn~~ (2500 "	"	11,592.75	X 2,703	11,592.75	2,703	(See	3,000	4.25
Core ~~Auger~~ (Surface)	"	8,881.08	1,000	8,881.08	1,000	Attached)	4,000	(See Attached
~~Stripping~~ Core -1500 Lvl				18,603.75	6,765	2.75	7,416	2.75
~~Trenching~~ " -2500 "				19,362.00	6,454	3.00	7,000	3.00
~~Test Pits~~ D.D.Sta 2500 "				3,600.00	6	600.00	6	600.00
Trsfr. Sta. 2500 " ~~Roads and Trans.~~				1,500.00	3	500.00	3	500.00
TOTAL DISTRIBUTED COSTS		$22,346.03		$291,844.59				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased				17,549.07				
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		$22,346.03		$309,393.66				

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 Dec. 21, 1956 Operator Howe Sound Company - Chelan Division

Per [signature] Title Manager

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)

[signature]

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

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JAN 14 1957
D.M.E.

HOWE SOUND - E644
November 1956 MF-104 - Salvage Data

Operating costs have been reduced by salvage credits as follows:

Pipe	$ 1,349.74
Track	1,124.36
Equipment purchases	13,358.02
Total - 100%-	$15,832.12

Payments due the operator have been withheld to cover above as follows:

From	February 1956 MF-104	$4,891.47
	March 1956 MF-104	774.03
	April 1956 MF-104	2,250.56
		$7,916.06

U25-135	419'
U25-154	541'
U25-139	460'
	1420' ?
U25-140	705' ?

DMEA Field Team, Region I, NW Dist. January 2, 1957

DMEA Certifying Officer, Region I

Contract No. IC,-1644, Docket No. DMEA 3142. Eowo Sound Co.
Monthly operating report for November 1956.

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

A deletion of $9,756.70 has been made from the costs claimed for underground drilling on the 2500 level. This covers holes Nos. U25-138, U25-139, and U25-154 which were drilled in locations not approved by the Government.

The Operator has shown costs on his work sheet for labor, supervision and consultants in one item. These are actual cost items for surface drilling and are shown separately in the contract with the estimated time and cost being given for each. It would be helpful if the Operator would give us a breakdown of this cost for November and for each month in which such costs are claimed. Payrolls are not necessary, but we would appreciate having the time worked and the cost under each heading shown.

Myrtle Purdy

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

RECEIVED JAN 14 1957 D.M.E.A.

We did not pay for these books, but you might like the information anyway.

W. P.

FORM A 1V 2-50 L.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. _____

DATE June 1936

HOLE NO. U-[illegible]-235 MINE Holden LEVEL 1000

LOCATION 350 Crosscut South off 2100 Haulage Drift at Raw Chute Section

BEARING N[illegible]° W DIP -27° LENGTH 419'

LATITUDE OF COLLAR 19,108 DEPARTURE OF COLLAR 6,7[illegible]7 ELEVATION 2,925'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		0-4						No core.
		4-6						Grey medium grained diorite.
		6-15						Amphibole schist.
		15-24½						Phlogopite schist.
		24½-30						Light grey medium grained diorite.
		30-44						Phlogopite schist.
		44-49						Amphibole schist.
		49-57½						Diorite breccia.
		57½-77						Grey to blue-grey medium grained diorite.
		77-86						Phlogopite schist.
		86-92						Light grey medium grained diorite.
		92-118						Phlogopite schist.
		118-143½						Light brown to light grey medium to fine grained diorite.
		143½-160½						Blue-grey fine grained diorite.
		160½-164½						Brown to grey medium to fine grained diorite.
		164½-168						Brown medium grained phlogopite diorite.
		168-180						Phlogopite-biotite schist.
		180-188½						Smeared grey medium grained diorite and phlogopite diorite. Pyrrhotite disseminated.
		188½-197						Blue grey fine grained biotite diorite.
		197-201	0.77	0.10	0.20	Nil	4	Phlogopite schist with pyrite, pyrrhotite and chalcopyrite.
		201-205						Grey, medium grained hornblende diorite.
		205-209						Light grey medium grained phlogopite schist.
		209-210						Phlogopite schist.
		210-215½						Light grey medium grained phlogopite diorite.
		215½-227½						Grey medium grained silicified phlogopite schist. Pyrrhotite and chalcopyrite disseminated.
		215½-221	1.68	0.28	0.25	Nil	5½	
		221-227½	1.44	0.10	0.50	Nil	6½	
		227½-232½						Hornblende diorite.
		232½-237						Silicified phlogopite schist, with pyrite.
		232½-237	0.55	0.14	0.20	Nil	4½	
		237-242½	1.32	Nil	Nil	Nil	5½	
		242½-273						Grey medium grained hornblende diorite.
		273-285						Light grey, medium to coarse grained biotite diorite.

1M 3-5[illegible] P.

HOWE SOUND COMPANY

CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2

BY [illegible]

DATE [illegible] 1946

HOLE NO. U-35-136 MINE Hole 9 LEVEL 2500

LOCATION 356 Crosscut south off 2500 Haulage Level at 240 Shute Section

BEARING N34½°W DIP -67° LENGTH 420'

LATITUDE OF COLLAR 19,108 DEPARTURE OF COLLAR 6,747 ELEVATION 2,525'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		305-307						Dark grey fine grained foliated diorite.
		307-318½						
		307-313	0.73	0.1300	[illegible]	0.38	6	Brown siliceous phlogopite schist with
		313-318½						pyrite, pyrrhotite and chalcopyrite.
		318½-322						Hornblende diorite.
		322-325						Grey medium grained biotite diorite.
		325-330	1.[illegible]	0.2700	[illegible]	0.24	5	Siliceous schist.
		330-333½						Light grey medium grained phlogopite diorite.
		333½-361½						Siliceous schist with sulfides.
		333½-339	0.35	0.1300	[illegible]	[illegible]	5½	
		339-344	1.[illegible]	0.0900	[illegible]	[illegible]	5	
		344-349	1.[illegible]	0.1400	[illegible]	[illegible]	5	
		349-355	1.56	0.3000	[illegible]	[illegible]	6	
		355-361½	1.73	0.5250	[illegible]	0.19	6½	
		361½-368						Light grey medium grained phlogopite diorite.
		368-375	0.[illegible]	0.0700	0.0200	0.64	7	Siliceous schist with sulfides.
		375-378						Light grey medium grained biotite diorite.
		378-383	[illegible]	[illegible]	[illegible]	0.53	5	Siliceous schist with sulfides.
		383-420						Hornblende diorite.

– END OF HOLE –

10,109 6,797 [illegible] [illegible]

0					
20	N41°[illegible]	N18°[illegible]	N06°[illegible]	-66°	
50	N20°[illegible]	N 6°[illegible]	N77°[illegible]	-65°	
100	N11°[illegible]	N11°[illegible]	N55°[illegible]	-71°	
150	N8 [illegible]°	N34°[illegible]	N41°[illegible]	-71°	
200	N10°[illegible]	N35° [illegible]	N35°[illegible]	-71°	
250	N16°[illegible]	N38°[illegible]	N37°[illegible]	-71°	
300	N19°[illegible]	N41°[illegible]	N24°[illegible]	-66°	
350			N26°[illegible]	-71°	Interpolated
400	N18°[illegible]	N38°[illegible]	N20°[illegible]	-75°	

0800

336 XCS

U-25-135 [illegible]

19,100

FORM NSA 1M 6-56 C.P.

RECEIVED JAN 14 1957 D.M.E.A.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1
BY D.M.
June, 1956

HOLE NO. U-25-139 MINE Holden LEVEL 2500

LOCATION 373 Crosscut South off 2500 Haulage Drift at 330 Chute Section

BEARING N82.0° DIP -64° LENGTH 460

LATITUDE OF COLLAR 19,038 DEPARTURE OF COLLAR 7,597 ELEVATION 2,537

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN	WIDTH	GEOLOGY AND REMARKS
		0 - 5						Dark grey medium to fine grained diorite with pale green phenocrysts.
		5 - 12						Altered crystalline schist.
		12 - 16						Grey medium to fine grained crystalline biotite schist.
		16 - 26						Grey medium to fine grained biotite diorite. Core loss: 1' 16-21, 1' 21-26.
		26 - 28						Phlogopite biotite schist.
		28 - 39						Grey to light grey medium grained, foliated, biotite diorite.
		39 - 42½						Biotite Schist.
		42½ - 50						Biotite Diorite. Core Loss: 5' 44-51.
		50 - 55						Interbanded biotite schist and porphyroblastic diorite. Core Loss: 1' 51-54.
		55 - 70						Crystalline amphibole biotite schist. Core loss: 1' 66-67.
		70 -114						Biotite and phlogopite schist. Core loss: 5' 75-80, 2' 80-99.
		114 -126						Grey medium grained foliated biotite diorite. Core : 2' 110-116, 4' 116-122, 1' 122-125.
		126 -135						Dark blue grey, porphyritic diorite. Core loss 4' 126-131, 3' 131-134.
		135 -138						Phlogopite diorite. Core loss: 1' 134-137.
		138 -139½						Amphibole-biotite schist with strong silicification at 139½.
		139½ -148½						Sheared crystalline schist with pyrite. Core loss 1' 147-148/
		148½ -164						Dark blue grey, fine grained diorite with light grey phenocrysts. Core loss: 1' 148-158, 4' 158-164.
		164 -169						Light grey, medium grained biotite diorite.
		169 -175(?)						Biotite Schist.
		175(?)-179						Dark blue grey fine grained intrusive diorite with light green phenocrysts. Core loss: 4' 170-177.
		179 -182						Light grey medium to coarse grained biotite diorite.
		182 -188						Grey medium grained diorite and chloritized schist. Core Loss: 1' 183-188

FORM F-A 1M 6-56 C.P.

RECEIVED JAN 14 1957 D.M.E.A.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. _____ OF _____

DATE June, 1956

HOLE NO. U-25-139 MINE Golden LEVEL 2500

LOCATION 375 Crosscut South off No. 6 Haulage Drift at 380 Chute Section.

BEARING N82°W DIP -61° LENGTH 460

LATITUDE OF COLLAR 19,038 DEPARTURE OF COLLAR 7,597 ELEVATION 2,517

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		188 - 227						Grey fine grained intrusive diorite with light green phenocrysts. Core loss: 2' 186-194, 2' 208-210, 1' [illegible].
		227 - 236						Amphibole schist. Core loss: 1' 228-229, 4' [illegible].
		236 - 251						Crystalline schist with disseminated pyrite. Core loss: 3' 236-239, 3' 239-[illegible].
		251 - 257						Dark blue grey fine grained intrusive diorite with light grey phenocrysts.
		257 - 275						Crystalline schist with disseminated pyrite.
		275 - 277						Blue grey fine grained intrusive diorite.
		277 - 290						Crystalline schist with disseminated pyrite.
		290 - 295½						Light grey medium grained diorite.
		295½ - 296½	0.10	.025	.005	Nil	1	Phlogopite diorite with pyrrhotite.
		296½ - 301						Grey medium grained phlogopite diorite. Sulfides in fractures. 299-301.
		296½ - 299						
		299 - 301	Nil	.050	Tr	Nil		
		301 - 317½						Grey fine grained diorite.
		317½ - 318½						Phlogopite diorite.
		318½ - 328						Sheared crystalline schist with pyrite and pyrrhotite.
		328 - 333½						Grey fine grained diorite.
		333½ - 335	0.07	.125	.010	Nil	1½	Crystalline phlogopite schist with sulfides.
		335 - 335½						Green fine grained diorite.
		335½ - 339						Dark grey fine grained diorite with local sulfides.
		335½ - 337½	0.31	.175	.015	Nil	2	
		337½ - 339						
		339 - 340½						Phlogopite diorite.
		340½ - 346	0.75	.190	.020	0.40	5½	Crystalline phlogopite schist with pyrite and chalcopyrite.
		346 - 349½						Green fine grained diorite.
		349½ - 350½						Grey medium to fine grained biotite schist.
		350½ - 360½						Silicified crystalline schist with pyrrhotite and chalcopyrite.
		350½ - 355½	1.20	.350	.120	0.35	5	
		355½ - 360½	1.40	.300	.070	0.30	5	
		360½ - 367						Green fine grained diorite

FORM 83A 1M 6-56 C.P.

HOWE SOUND COMPANY

CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 3

BY DWW

DATE June, 1956

HOLE NO. U-25-139 MINE Holden LEVEL 2500

LOCATION 373 Crosscut South off 2500 Haulage Drift at 580 Chute Section

BEARING N82[illegible] DIP -34° LENGTH 460

LATITUDE OF COLLAR 19,038 DEPARTURE OF COLLAR 7,597 ELEVATION 2,537

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG	AU.	ZN	WIDTH	GEOLOGY AND REMARKS
		367 - 372	0.30	1.[illegible]	.040	0.25	5	Silicified crystalline schist with pyrrhotite, chalcopyrite and sphalerite.
		372 - 377	1.[illegible]	[illegible]	.030	0.50	5	Core Loss: 1' 373-378, 1' 379-384.
		377 - 382	1.19	[illegible]	[illegible]	0.50	5	
		382 - 387	1.6[illegible]	.025	[illegible]	0.70	5	
		387 - 391	0.[illegible]	.270	.020	.10	4	Dark blue grey [illegible] to fine grained diorite.
		391 - 398(?)	1.[illegible]	.145	.040	1.70	7	Silicified crystalline schist with sulfides.
		398(?) - 4[illegible]						Chloritic diorite.
		401 - 407	1.4[illegible]	.030	.025	4.20	6	Crystalline schist with sulfides
		407 - 411						Amphibole schist.
		411 - 413	0.62	.030	.030	5.10		Amphibole schist with sulfides. Core loss: 2' 406-413.
		413 - 418						Green fine grained diorite.
		418 - 427						Amphibole schist.
		427 - 432						Silicified crystalline schist.
		432 - 439						Light grey medium grained biotite diorite. Core loss 1' 4[illegible]-[illegible]7.
		439 - 452						Crystalline amphibole schist.
		452 - 456						Grey medium to coarse grained biotite diorite.
		456 - 460						No core.

END OF HOLE.

19,038 7,047 U-25-139

RECEIVED JAN 14 1957 D.M.E.A.

0			N82½°W	-64°	
20	N39°W	N16½°W	N81½°W	-63°	
50	N38°W	N15½° W	N81½°W	-63°	
100	N25°W	N2½° W	N68½°W	-63°	
150			N61° W	-62°	Interpolated
200	N10°W	N12½°E	N53½°W	-63°	
250			N56° W	-61°	Interpolated
300	N15°W	N7½° E	N58½°W	-59°	
350			N55°W	-59°	Interpolated
400	N8°W	N14½°E	N51½°W	-58°	

7600

373 XCS

U-25-139

19,050

FORM 23A 1M 6-56 C.P.

W

RECEIVED JAN 14 1957 D.M.E.A.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1
BY DHW
DATE July 1956

HOLE NO. U-25-140 MINE Holden LEVEL 2500
LOCATION 357 Crosscut South off 2500 Haulage Drift East at 360 Chute Section
BEARING S 86½ DIP -70° LENGTH 705
LATITUDE OF COLLAR 19,033 DEPARTURE OF COLLAR 7,201 ELEVATION 2526'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
7-2		0 - 3						No Core.
		3 - 5						Light grey medium grained crystalline biotite schist.
		5 - 7						Green fine grained diorite.
		7 - 12½						Grey medium grained foliated diorite.
		12½ - 16½						Grey medium grained crystalline amphibole biotite schist.
		16½ - 17½						Light grey medium grained diorite.
		17½ - 23						Grey medium grained crystalline amphibole biotite schist.
		23 - 38						Brown medium grained crystalline amphibole phlogopite schist.
		38 - 40						Light grey medium grained biotite diorite.
		40 - 45						Blue grey medium grained to fine grained biotite diorite.
		45 - 49½						Brown grey medium grained crystalline biotite schist.
		49½ - 52						Light grey medium grained irregularly textured biotite diorite.
		52 - 64						Brown grey medium grained crystalline phlogopite schist.
		64 - 65½						Light grey medium grained diorite.
		65½ - 67½						Brown medium grained crystalline phlogopite schist.
		67½ - 72½						Grey medium grained biotite diorite.
		72½ - 76						Grey medium grained to fine grained biotite diorite with occasional schist relicts. 72½-74.
		76 - 79						Green fine grained diorite.
		79 - 87						Brown medium grained crystalline phlogopite schist.
		87 - 97						Light grey medium grained biotite diorite. Core loss 3½' 87-93.
		97 - 98						Grey medium grained to fine grained diorite cut by quartz stringers. Core Loss 1' 93-98.
		98 -100						Light Brown grey medium grained diorite with pyritized schist relicts.
		100 -105						Blue grey medium grained irregularly textuered biotite diorite with numerous biotite schist relicts.
		105 -110						Blue grey medium grained crystalline

FORM 1 A 1M 6-56 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

RECEIVED JAN 14 1957 D.M.E.A.

DIAMOND DRILLING RECORD

SHEET 2
DDH
DATE July, 1956

HOLE NO. U- 25-140 MINE Holden LEVEL 2500

LOCATION 357 Crosscut South off 2500 Haulage Drift East at 360 Chute Section

BEARING S86½°E DIP -70° LENGTH 705

LATITUDE OF COLLAR 19,033 DEPARTURE OF COLLAR 7,201 ELEVATION 2,526

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		110 - 122½						biotite schist. Brown medium grained crystalline phlogopite schist.
		122½ - 124½						Blue fine grained diorite.
		124½ - 126½						Brown medium grained to fine grained crystalline phlogopite schist.
		126½ - 128						Grey medium grained irregularly textured phlogopitized biotite diorite with schist relicts.
		128 - 129						Green medium grained irregularly textured hornblende diorite.
		129 - 130						Grey medium grained to fine grained phlogopite diorite.
		130 - 138						Green medium grained irregularly textured hornblende diorite.
		138 - 139						Light brown medium grained diorite.
		139 - 141						Brown medium grained crystalline phlogopite schist.
7-9		141 - 152½						Brown medium grained crystalline phlogopite schist.
		152½ - 156						Green medium grained to fine grained diorite.
		156 - 163						Light grey medium grained somewhat sheared crystalline schist.
		163 - 170						Grey medium grained to fine grained and light grey medium grained diorite complex.
		170 - 179						Brown medium grained crystalline somewhat dioritized phlogopite schist.
		179 - 186						Light grey medium grained irregulary textured biotite diorite.
		186 - 191						Green fine grained diorite.
		191 - 194						Brown medium grained irregularly textured highly dioritized crystalline phlogopite schist.
7-9		194 - 197						Blue grey medium grained to fine grained diorite.
		197 - 211						Brown medium grained crystalline phlogopite schist. Pyrite and pyrrhotite grains scattered throughout.
		211 - 225						Blue grey medium grained to fine grained diorite.

FORM DGA 1M 6-56 C.P.

RECEIVED JAN 14 1957 D.M.E.A.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 3
BY DWR
DATE July, 1956

HOLE NO. U-25-140 MINE Holden LEVEL 2500
LOCATION 357 Crosscut South off 2500 Haulage Drift East at 360 Chute Section
BEARING S86½° E DIP -70° LENGTH 705
LATITUDE OF COLLAR 19,033 DEPARTURE OF COLLAR 7,201 ELEVATION 2,526

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		225 - 229						Same ast 197-211
		229 - 234						Brown medium grained intensely crenulated crystalline phlogopite schist with disseminated pyrite.
		234 - 235						Green fine grained diorite.
		235 - 236						Same as 229-234.
		236 - 241½						Same as 234-235.
		241½-244						Brown medium grained very intensely crenulated crystalline phlogopite schist about 50% replacement by light grey medium grained irregularly textured phlogopite diorite.
		244 - 247½						Green fine grained diorite.
		247½- 267						Grey medium grained somewhat sheared crystalline schist. Disseminated pyrite. Core loss 1' 253-256. 2' 256-260.
		267 - 268						Green fine grained diorite.
		268 - 272						Light Brown medium grained phlogopite diorite.
		272 - 276½						Brown medium grained crystalline phlogopite schist.
		276½- 279						Brown medium grained crystalline phlogopite schist with disseminated pyrite
		279 - 280½						Grey medium grained to coarse grained phlogopite schist.
		280½- 293						Brown medium grained crenulated crystalline phlogopite schist with pyrite.
7-17		293 - 304						Grey medium grained somewhat sheared silicified crystalline schist with disseminated pyrite.
		304 - 330(?)						Grey medium grained somewhat sheared silicified crystalline schist with disseminated pyrite.
		330(?)-333						Dark grey fine grained diorite.
		333 - 337						Grey medium grained biotite diorite.
		337 - 345½						Same as 304-330.
		345½- 351½						Grey medium grained biotite diorite.
		351½- 357½						Dark blue grey fine grained foliated diorite.
		357½- 366						Grey medium grained sheared crystalline schist with pyrite and some pyrrhotite. 5' 363-366

FORM 32A 1M 6-56 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 4
BY DMM
DATE July, 1956

HOLE NO. U-25-140 MINE Holden LEVEL 2500

LOCATION 357 Crosscut South off 2500 Laulege Drift East at 360 Chute Section

BEARING S86½°E DIP -70° LENGTH 705

LATITUDE OF COLLAR 19,033 DEPARTURE OF COLLAR 7,201 ELEVATION 2,526

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		366 - 374						Light grey medium grained phlogopite diorite. Core loss 1' 365-373.
		374 - 378½						Dark grey medium grained to fine grained crystalline phlogopite schist.
		378½ - 383½						Grey medium grained somewhat sheared and crenulated crystalline schist with disseminated pyrite.
		383½ - 391						Light grey medium grained low mafic diorite. Core loss 3' 384-388.
		391 - 421						Grey medium grained somewhat sheared crystalline schist with finely disseminated pyrite.
		421 - 422½						Dark blue grey medium grained to fine grained diorite.
		422½ - 438½						Grey medium grained somewhat sheared crystalline schist with disseminated pyrite.
		438½ - 449						Brown medium grained crystalline crenulated phlogopite schist.
		449 - 450						Light grey medium grained very irregularly textured diorite.
		450 - 451						Green fine grained porphyritic intrusive diorite.
		451 - 453½						Grey medium grained to fine grained diorite.
		453½ - 456						Light grey medium grained weakly foliated biotite diorite.
		456 - 458½						Green medium grained to fine grained diorite.
		458½ - 459						Green medium grained to fine grained amphibole schist with epidote and pyrite.
		459 - 469						Dark blue grey fine grained diorite.
		469 - 474						Green fine grained diorite with small dark oriented phenocrysts.
		474 - 477						Same as 459-469
		477 - 480	.6%	.040	.020	Nil	3	Green recrystallized hornblende schist. Pyrite pyrrhotite throughout.
		480 - 481½						Grey medium grained irregularly textured biotite diorite.
		481½ - 492						Grey medium grained somewhat silicified amphibole schist with occasional phlogopite bands and pyrrhotite, pyrite,

FORM 9-A 1M 6-56 C.P.

RECEIVED JAN 14 1957 D.M.E.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 5
D.M.
DATE July, 1956

HOLE NO. U-35-140 MINE Holden LEVEL 2500

LOCATION 357 Crosscut off 2500 Haulage Drift East at 360 Chute Section

BEARING S86½°E DIP -70° LENGTH 705

LATITUDE OF COLLAR 19,033 DEPARTURE OF COLLAR 7,201 ELEVATION 2,526

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
7-19		481½ - 486½	1.62	.260	.098	Nil	5	and chalcopyrite.
		486½ - 490½	1.62	.200	.050	Nil	4	
		490½ - 492	.90	.255	.085	Nil	1½	
		492 - 510						Light grey and green medium grained irregularly textured biotite diorite.
		510 - 514½						Light grey medium grained chlorite diorite.
		514½ - 516	.13	.020	Tr	Nil	1½	Green and brown medium grained crystalline amphibole phlogopite schist with finely disseminated sulfides.
		516 - 520½	.90	.040	.010	.06	4½	Green medium grained silicified crystalline amphibole schist with pyrrhotite, chalcopyrite.
		520½ - 522½	.20	Tr	Tr	.10	2	Light grey medium grained irregularly textured diorite with finely disseminated sulfides and remnants of crystalline amphibole schist containing sulfides.
		522½ - 527½						Light grey medium grained irregularly textured somewhat foliated phlogopite diorite.
		527½ - 538½						Grey medium grained silicified
		527½ - 533	.70	.020	.010	.00	5½	crystalline schist.
		533 - 538½	.84	.090	.010	.04	5½	
		538½ - 545						Dark grey medium grained irregularly
		538½ - 543						textured massive amphibole schist.
		543 - 545	.48	Tr	Tr	Nil	2	Very weak sulfides.
		545 - 546½	.75	.080	.005	Nil	1	Dark brown medium grained biotite schist with disseminated sulfides.
7-25		546½ - 549						Light grey medium grained and locally course grained very irregulary textured biotite diorite with scattered coarse grained pyrrhotite, chalcopyrite.
		549 - 550	.70	Tr	Tr	Nil	1	Same as 543-546½.
		550 - 552	.87	Tr	Tr	.10	2	Dark green medium grained irregularly textured massive amphibole schist. Sulfides are disseminated and in fractures.
		552 - 577½						Grey medium grained silicified
		552 - 557	2.12	.340	.040	0.20	5	crystalline schist with pyrrhotite,
		557 - 563	1.37	.120	.030	0.40	6	chalcopyrite throughout. Core Loss 1' -
		563 - 569	1.37	.100	.040	0.25	6	552-556 1' 563-560 2' 569-574
		569 - 574	0.70	.155	.015	0.15	5	
		574 - 577½	1.40	.260	.110	0.40	3½	

FORM 3 A 1M 6-56 C P.

HOWE SOUND COMPANY

CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 6

BY DMW

DATE July, 1956

HOLE NO. U-25-140 MINE Holden LEVEL 2500

LOCATION 357 Cross cut South off 2500 Haulage Drift East at 360 Chute Section

BEARING S86½°E DIP -70° LENGTH 705

LATITUDE OF COLLAR 19,033 DEPARTURE OF COLLAR 7,201 ELEVATION 2,536

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		577½ - 583½						Grey fine grained foliated amphibole diorite.
		583½ - 585	1.30	.220	.005	Nil	1½	Green and brown amphibole diorite. Some sulfides.
		585 - 611½						Grey medium grained somewhat silicified crystalline schist with pyrrhotite, chalcopyrite. Core loss 1' 585-591, 4' 606-611.
		585 - 591	1.62	.145	.060	0.06	6	
		591 - 597	3.60	.495	.085	0.15	6	
		597 - 601	1.12	.330	.020	Nil	4	
		601 - 606	0.75	.295	.015	0.40	5	
		606 - 608	3.00	.610	.100	2.10	2	
		608 - 611	1.37	.030	.010	5.90	3½	
		611½ - 616½	0.70	.275	.050	0.10	5	Brown medium grained biotized crystalline amphibole schist with finely disseminated sulfides.
		616½ - 622	0.40	.115	.005	Nil	5½	Dark green medium grained irregularly textured massive amphibole schist with pyrrhotite in fractures.
		622 - 634½						Green medium grained hornblende diorite.
		622 - 634½	0.37	.100	.010	Nil	2½	
		624½ - 634½						
		634½ - 638½						Light grey medium grained foliated biotite diorite.
		638½ - 640	0.30	.090	Tr	Nil	1½	Green medium grained irregularly textured "quartz soaked" massive amphibole schist(?) or hornblende diorite with scattered pyrrhotite, chalcopyrite.
		640 - 642	1.04	.300	.030	0.10	2	Green medium grained irregularly textured quartz-soaked peridotite.
		642 - 648					Nil	Grey medium grained irregularly textured biotite diorite. Core loss 1' 640-648.
		648 - 667½					Nil	Green medium grained peridotite with disseminated sulfides, Pyrrhotite, chalcopyrite.
		648 - 653	0.62	.215	.035	0.08	Nil 5	
		653 - 658	0.40	.095	.025	Nil	Nil 5	
		658 - 661½	0.45	.050	.030	Nil	Nil 3½	
		661½ - 668						Grey medium grained to fine grained biotite diorite. Core Loss 1' 654-659.
		668 - 674	0.15	.020	.010	Nil	Nil 6	Green medium grained irregularly quartz soaked peridotite with disseminated pyrrhotite, chalcopyrite.
		674 - 678	0.37	.105	.010	Nil	Nil 4	Green medium grained peridotite with scattered grains of pyrrhotite.

FORM NA-M 6-56 C.P.

HOWE SOUND COMPANY

CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 7

BY DWW

DATE July, 1956

HOLE NO. U-25-140 MINE Holden LEVEL 2500

LOCATION 357 Crosscut South off 2500 Haulage Drift East at 360 Chute Section

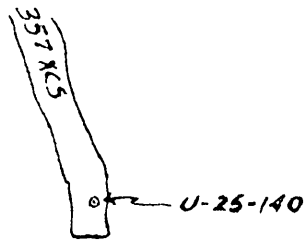
BEARING S86.°3 DIP -70° LENGTH 705

LATITUDE OF COLLAR 10,033 DEPARTURE OF COLLAR 7,201 ELEVATION 2,526

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH Ni.	GEOLOGY AND REMARKS
		678 - 705						Same as 668-674.
		673 - 683	0.30	0.090	.012	0.04	Nil	5
		683 - 688	0.26	0.030	Nil	Nil	Nil	5
		688 - 693	0.13	Tr	Tr	Nil	Nil	5
		693 - 698	0.5[illegible]	0.035	0.05	Nil	Nil	5
		698 - 702	0.10	0.030	Tr	Nil	Nil	4
		702 - 705	0.50	0.040	.005	Nil	Nil	3
								END OF HOLE

0			S86½° E	-70°	
20	S43° E	S20½° E	S86½° E	-70°	
50	S42° E	S19½° E	S85½° E	-70°	
100	S41° E	S18½° E	S84½° E	-71°	
150	S54° E	S31½° E	N82½° E	-72°	
200	S51° E	S28½° E	N85½° E	-74°	
250	S53° E	S30½° E	N83½° E	-73°	
300	S47½° E	S25° E	N85° E	-73°	
350	S53° E	S30½° E	N83½° E	-73°	
400			N81° E	-74°	Interpolated
450	S85½° E	S36° E	N76° E	-75°	
500			N78° E	-74°	Interpolated
550	S58½° E	S36° E	N72° E	-73	
600			N72 E	-73°	Interpolated
650	S71° E	S48½° E	N65½° E	-72°	

7200



19,050

FORM 88A 1M 6-56 C.P.

RECEIVED JAN 14 1957 D.M.E.R.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. DWW

DATE October, 1956

HOLE NO. U-25-154 MINE Holden LEVEL 2500

LOCATION 373 Crosscut South off 2500 Haulage Drift East at 380 Chute Section.

BEARING N40°E DIP -70° LENGTH 541

LATITUDE OF COLLAR 19,040 DEPARTURE OF COLLAR 7,603 ELEVATION 2,537

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
10-5		0 - 5						Dark Blue medium grained to fine grained massive amphibole schist.
		5 - 10½						Brown medium grained to fine grained massive amphibole phlogopite schist. Core loss 2' 0-10.
		10½ - 14½						Same as 0-5.
		14½ - 16½						Dark blue fine grained porphyritic intrusive diorite.
		16½ - 21½						Same as 0-5. Core loss 1' 10-17.
		21½ - 22½						Same as 14½-16½.
		22½ - 31						Brown medium grained crystalline amphibole phlogopite schist. Core loss 1' 17-27.
		31 - 33						Light grey medium grained to fine grained crystalline phlogopite schist.
		33 - 36						Light grey medium grained low mafic chlorite-phlogopite diorite.
		36 - 37						Pinkish brown altered crystalline phlogopite schist. Core loss 2' 27-34, 1', 34-37.
		37 - 44						Brown medium grained crystalline phlogopite schist. Core loss 2' 37-42.
		44 - 49						Dark blue grey fine grained intrusive diorite with small dark green phenocrysts.
		49 - 51						Blue grey medium grained to fine grained diorite. Core loss 1', 46-50.
		51 - 59						Blue grey medium grained crystalline amphibole biotite schist with dioritic phases.
		59 - 63						Green medium grained chloritized partially dioritized crystalline amphibole biotite schist.
		63 - 75						Grey medium grained to fine grained intrusive diorite with irregular medium grained green phenocrysts.
		75 - 81						Dark grey medium grained to fine grained intermittantly dioritized crystalline biotite schist. Core loss 1', 70-74. Pyrite streaks at 76.
		81 - 83						Green medium grained chlorite diorite.
		83 - 89(?)						Same as 75-81.
		89(?)-100						Green highly altered and fractured rock, probably derived from crystalline

FORM 83A 1M 8-56 C.P.

HOWE SOUND COMPANY

CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2

BY DWW

DATE October, 1956

HOLE NO. U-25-154 MINE Holden LEVEL 2500

LOCATION 373 Crosscut South off 2500 Haulage Drift East at 380 Chute Section.

BEARING N40°E DIP -70° LENGTH 541

LATITUDE OF COLLAR 19,040 DEPARTURE OF COLLAR 7,603 ELEVATION 2,537

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AC.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
								schist and/or diorite. Core loss 2', 82-86½, 3', 86½-91, 2', 91-96, 2½', 96-99.
		100 - 113						Dark blue grey fine grained intrusive diorite with small dark green phenocrysts.
		113 - 124						Light green medium grained to fine grained bleached diorite with strong disseminated calcite.
		124 - 130						Green medium grained chlorite diorite with faint foliation.
		130 - 132						Grey medium grained to fine grained faintly foliated diorite cut by numerous calcite bearing fractures. Core loss 2½', 124-131.
		132 - 135½						Green medium grained chlorite diorite.
		135½ - 144						Brown medium grained crystalline phlogopite schist. Core Loss 1', 131-136, 1', 139-142.
		144 - 150						Grey medium grained to fine grained crystalline amphibole(?) schist. Core loss 1', 144-148.
		150 - 159						Brown medium grained to fine grained crystalline phlogopite schist.
		159 - 160						Black fine grained intrusive diorite with bladed black phenocrysts.
		160 - 161						Same as 150-159.
		161 - 163½						Light grey medium grained chlorite diorite.
		163½ - 172						Same as 150-159.
		172 - 177						Blue fine grained massive amphibole schist with foliated black biotite. Core Loss 1', 170-171.
		177 - 181						Light grey medium grained crystalline schist. Core loss 3', 174-181.
		181 - 183						Dark grey fine grained intrusive diorite with black bladed phenocrysts.
		183 - 196						Brown grey medium grained crystalline phlogopite schist, disseminated pyrite. Core loss 1', 181-184, 1', 184-189.
		196 - 197½						Light grey medium grained low mafic replacement diorite.
		197½ - 209						Same as 183-196. Core loss 1', 195-201 1½, 201-207.

FORM 63A 1M 6-56 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 3
BY DWW
DATE October, 1956

HOLE NO. U-23-154 MINE Holden LEVEL 2500
LOCATION 373 Crosscut South off 2500 Haulage Drift East at 380 Chute Section
BEARING N40°E DIP -70° LENGTH 541
LATITUDE OF COLLAR 19,040 DEPARTURE OF COLLAR 7,603 ELEVATION 2,537

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	% CU.	GEOLOGY AND REMARKS
		209 - 210						Dark grey fine grained intrusive diorite with black bladed phenocrysts.
		210 - 234						Same as 197½-209. Core loss 1', 209-217, 1½', 217-220, 1' 220-223, 1', 223-231.
		234 - 245½						Grey medium grained sheared crystalline schist with pyrite, pyrrhotite.
		245½ - 247						Dark grey and green fine grained massive amphibole schist.
		247 - 250						Brown medium grained crystalline phlogopite schist with disseminated pyrite.
		250 - 259						Blue medium grained to fine grained diorite with pyrite in occasional fractures.
		259 - 261						Light yellow grey fine grained bleached diorite.
		261 - 276						Grey medium grained sheared crystalline schist with pyrrhotite, pyrite. Loss Core 1½', 257-265, 1½', 265-268, ½', 268-271.
		276 - 306						Brown grey medium grained crystalline phlogopite schist, sheared and crenulated with disseminated pyrite. Core loss 3', 286-290, 3', 290-294.
		306 - 309						Light green medium grained to fine grained massive altered amphibole schist.
		309 - 316						Grey medium grained sheared crystalline schist with disseminated pyrite. Core loss 2½', 309-316.
		316 - 320½						Yellowish brown medium grained sheared and crenulated micaceous schist.
		320½ - 331						Light grey medium grained irregularly textured low mafic diorite with scattered schist relicts. Core loss 1', 316-320, 3', 320-328, 1', 328-331.
		331 - 347						Dark grey medium grained to fine grained diorite. Core loss 1', 331-335.
		347 - 350						Grey medium grained micaceous crystalline schist with disseminated pyrrhotite, pyrite.
		350 - 351						Same as 331-347. Core loss 6½', 335-349.
		351(?)- 355(?)						White massive quartz.

FORM 6?A 1M 6-56 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 4
BY DWW
DATE October, 1956

HOLE NO. U-25-154 MINE Holden LEVEL 2500
LOCATION 373 Crosscut South off 2500 Haulage Drift East at 380 Chute Section
BEARING N40°E DIP -70° LENGTH 541
LATITUDE OF COLLAR 19,040 DEPARTURE OF COLLAR 7,603 ELEVATION 2,537

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		355(?)- 363						Grey and brown medium grained with local crenulation. Pyrite, pyrrhotite disseminated throughout. Core loss 3', 349-358.
		363 - 369						Light grey medium grained low mafic diorite with pyritic schist remnants.
10-22		369 - 397						Brown medium grained fairly low mafic phlogopite diorite, foliated beyond 380. Core loss 2', 365-372, 1' 372-374, 7½', 380-390.
		397 - 400½						Light yellow brown bleached highly crenulated mica schist.
		400½ - 404						Light grey medium grained low mafic diorite.
		404 - 417						Grey medium grained sheared and crenulated bleached mica schist with pyrrhotite, pyrite, chalcopyrite(?). Core loss 1', 409-415.
		404-406	0.25	0.14	0.020	0.90	2	
		406-410						
		410-415	0.48	0.18	0.015	Nil	4	
		415-417(?)	0.50	0.05	0.025	Nil	2	
		417(?)- 458						Grey medium grained locally chloritized low mafic phlogopite diorite. Heavy core loss {14'} 415-434, 7', 434-443, 2½' 443-449, 1', 451-456.
		458 - 460	0.70	0.23	0.020	0.10	2	Grey medium grained silicified crystalline schist with pyrrhotite, chalcopyrite.
		460 - 462						Light brown medium grained phlogopite diorite.
		462 - 468½	1.80	0.48	0.050	0.65	6½	Light grey medium grained silicified crystalline schist with pyrrhotite, chalcopyrite.
		468½ - 470½						Grey medium grained replacement diorite.
		470½ - 472	1.50	0.38	0.035	0.25	1½	Same as 462-468½
		472 - 505						Diorite complex. Core loss 1', 466-474 7½', 474-484, 4', 484-492, 1' 492-500, 3' 500-505.
		505 - 507						Green and dark grey medium grained interbanded amphibole biotite schist with scattered very minor pyrite.
		507 - 518½						Light grey medium grained foliated phlogopite diorite. Core loss 1½', 505-511, 5' 511-518.

FORM 81A 1M 6-56 C.P.

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HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. _____ BY DWW

DATE October, 1956

HOLE NO. U025-154 MINE Holden LEVEL _____

LOCATION 373 Crosscut South off 2500 Haulage Drift East at 380 Chute Section

BEARING N40°E DIP -70° LENGTH 541

LATITUDE OF COLLAR 19,040 DEPARTURE OF COLLAR 7,603 ELEVATION 2,537

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		518½ - 525						Brown medium grained crystalline phlogopite. Core loss 4½', 518-525.
		525 - 527						Same as 505-507.
		527 - 531						Light brown medium grained crystalline phlogopite schist.
		531 - 535						Light grey medium grained phlogopite diorite. Core Loss 2', 531-534.
		535 - 538						Green medium grained to fine grained crystalline amphibole schist with numberous porphyroblastic hornblende bands
		538 - 539						Green medium grained dioritized amphibole schist.
		539 - 541						Core not recovered.
								END OF HOLE

19,040 7,603 2,537 U-63-134

20	N83½°E	N40°E	-69°	
50	N86½°E	N43°E	-68°	
100	N87½°E	N44°E	-68°	
150	N85½°E	N42°E	-66°	
200	N80½°E	N37°E	-67°	
250	N79½°E	N36°E	-67°	
300	N75½°E	N32°E	-67°	(Survey at 294°)
350		N34°E	-66°	Interpolated
400	N79½°E	N36°E	-66°	
450		N32°E	-65°	Interpolated
500	N70½°E	N27°E	-64°	

7600

373 XCS

U-75-134

19,050

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

1201 N. Division St.
Spokane 2, Washington
November 28, 1956

MEMORANDUM

To: DMEA Field Team, Region I, Northwest District

From: John D. Bardill, Bureau of Mines

Subject: Routine inspection report, Docket No. DMEA-3142 (copper), Howe Sound Company, Holden Mine, Chelan County, Washington, Contract No. Idm-E644 (Amended)

The project was visited November 14, accompanied by R. D. Sample, U. S. Geological Survey. Progress of the diamond drilling, both surface and underground, under Amendment No. 3 (dated October 10, 1956) was discussed with J. S. Roper, general manager, and Richard J. Lampson, assistant geologist.

Attached is a sketch map in plan and section showing five diamond drill holes totaling not more than 3,000 feet, indicated by dotted lines and proposed by the Bureau of Mines and Geological Survey to be drilled below the 2500 level. The map also shows the location and depths of five holes drilled by the Operator. It is my understanding that on June 8, 1956, J. S. Roper, general manager, Frank Ebbutt, consulting geologist, and R. A. Paasch, company resident geologist, met with the Field Team in Spokane and thoroughly discussed the proposal.

It was mutually agreed between the Operator and the Field Team that the holes were to be drilled downward at an angle more or less in a northerly direction to intersect the ore horizon at about 400 feet below the 2500 level from points in the 320, 340 and 360 crosscuts as indicated by the dotted lines on the sketch. The approximate locations of the intersections of the five holes with the ore horizon were marked in red crayon on copies of company maps titled "Proposed Diamond Drilling below 2500 Level" dated March 1956. Marked copies of the map were furnished the Operator and the Field Team.

At the time of my visit to the project on November 14, Mr. Roper explained that the drilling had been completed on the 2500 level and that the total footage was considerably in excess of 3,000 feet. Consequently, he proposed to submit only the following five holes for acceptance by the Field Team in fulfillment of this phase of the contract.

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D.M.E.A.

Hole No.	From	Approx. vertical depth of intersection with ore horizon	Total depth of hole
U25-135	340 XC	325 feet	419 feet
U25-147	360 XC	400 "	578 "
U25-140	360 XC	525 "	702 "
U25-139	380 XC	325 "	460 "
U25-154	380 XC	400 "	541 "

Mr. Roper stated that inasmuch as air and water lines had been removed from the 320 crosscut and the information gathered from shallow holes U25-151 and U25-145 was not promising, holes 1 and 2 were not drilled. Holes U25-139 and U25-154 were substituted for these holes.

Surface drill hole SN-11 in the Northwest Area was reported to be 1,299 feet deep November 14. The hole was collared at approximately N 17270 and W 690 coordinates Mine North at -70° bearing roughly Mine North. At about 1,200 feet the hole had flattened to-48°. Good pyrite mineralization barren of copper was cut between 380 and 1,000 feet, estimated true width of 500 feet. Bottom of the hole at the time was in amphibole schist. The distance through overburden to bedrock was 150 feet and was drilled NX size and reduced to AX in bedrock. Apparently, Mr. Roper stated in the June 8 conference that a thorough geologic study of the area was to precede the drilling to determine drill sites which would have the approval of the Field Team. I have been unable to find in the files the results of this study. /?

The single diamond drill hole provided in the contract from the Buckskin 1500 level east had been advanced 352 feet bearing about N. 50° E. (mine bearings) at 0 inclination.

Operator will probably request a recess of outside surface drilling during the winter and early spring upon the completion of hole SN-11.

John D. Bardill

Attachment

John D. Bardill

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D.C.~~
1201 N. Division St.
Spokane 2, Washington
August 27, 1956

RECEIVED
SEP 12 1956

MEMORANDUM

To: DMEA Field Team, Region I, Northwest District

From: E. G. Erickson, Mining Engineer, Bureau of Mines

Subject: Interim report, Docket No. DMEA-3142 (copper), Howe Sound Company, Holden Mine, Chelan County, Washington, Contract No. Idm-E644

The project site was visited August 7, 8, and 9, 1956. The contract and proposed amendment were discussed with Mr. J. S. Roper, manager, and Mr. J. M. Newman, superintendent. The underground operation, including 2500 level development and upper level mining operations, was visited August 8, 1956, accompanied by Mr. E. Brewer, development shift boss, and Point IV Trainees Michael Tournavitis, Greece Bureau of Mines, and Fung Chi Kung, Formosa.

The Operator considered the exploration work under the present contract as completed during June 1956. Since this inspection an amendment to the contract to provide for additional drilling has been sent to the Operator for signature. The amendment authorizes a drill hole northeasterly, not to exceed 1,200 feet, from a point near the face of the Buckskin 1500 level east drift; five drill holes below the 2500 level not to exceed 3,000 feet; five holes not to exceed 3,000 feet in the Northwest Area; and three holes not to exceed 1,000 feet in the Ebbutt's Breccia Area.

Drill hole U-25-131, drilled downward about 72° and northeasterly from the drill station in the face of 373 XCS on the 2500 level, was successful in disclosing a good ore zone east of the large dike. There was some thought at one time that minable ore may not extend beyond the dike. This disclosure has materially increased the ore reserves. A log and assay tabulation of the core has been sent to Washington with logs of other recently completed holes.

Following is a tabulation of the work items authorized and completed:

	Authorized	Completed
Item I, Stages I and II		
Drifting and crosscutting	4,100 feet	3,800 feet
Drill stations	10	10
Core drilling	7,416 "	6,765 "

Item II, Stages I and II	Authorized	Completed
Crosscutting	1,368 feet	1,365 feet
Transfer stations	3	3
Drill stations	6	6
Core drilling	7,000 "	6,454 "

Effective date of contract: December 7, 1953
Expiration " " " : July 1, 1956 (extension pending)
Amount of contract: $309,990.00
Amount spent: $303,417.24

The results of the exploration project work in the Buckskin area were negative; however, the results of the drilling project below the 2500 level were successful in indicating a substantial ore reserve. Should further drilling prove the ore reserves occur in minable blocks the life of the mine will be extended. Should the Operator mine the reserves indicated below the 2500 level within the repay period, the royalty would repay the Government's contribution to the exploration project.

Discussion of the Proposed Amendment

Present drilling costs and bids received by Mr. Roper have given him concern. The lowest bid submitted for the underground drilling was by Boyles Bros. Drilling Co. It is as follows:

1. Drilling rate shall be $45.00 per 8 hr. shift plus $1.90 per ft. drilled. Shift rate will apply for all shifts worked, breakdowns of over 1 hr. will not be charged for. A shift will be considered as 8 hrs. portal to portal with ½ hr. off for lunch.

2. Reaming - If necessary will be $45.00 per shift plus $1.00 per ft.

3. Cementing - If necessary will be $45.00 per shift plus cost of cement.

4. Surveying - Will be charged for at the shift rate only.

The Operator would furnish the necessary power, transport men and equipment, core boxes, supervision, etc. This indicates at least a $4/ft. cost if figured on an average advance of 30 feet, and Mr. Roper stated a 20-foot average rate of advance is indicated by their experience.

The surface drilling (3 holes, total 3,000 feet), based on bids from the same drill contractor, was estimated to cost not less than $10/ft. in the Northwest Area and not less than $7/ft. in the Ebbutt's Breccia Area. Costs of bits, gasoline, core boxes, supervision, lost casing, etc. were not included. Following is a bid on the surface drilling, including two proposals by the drilling contractor:

Proposal No. 1

1. Mobilization - $750.00 per drill to Chelan. Howe Sound Company will supply transportation for equipment to drill sites from Chelan and return.

2. Drilling rates per foot:

	EX & AX	BX	NX	Overburden
0 - 500 feet	$6.00	$6.80	$7.20	$80.00 per shift,
500 - 1000 "	7.30	7.60		plus $3.00 per foot
1000 - 1500 "	8.60			plus bits & mud.
1500 - 1750 "	9.90			

3. Cementing, if required, will be $9.60 per hour plus cost of cement or cement substitute including drilling mud.

4. Reaming, if required, for AX casing - $2.20 per foot.
Reaming, if required, for EX casing - $2.50 per foot.

5. Moving between holes and from Holden to drill sites, including set-up, $65.00 per shift for each two man crew. Foreman not charged for.

6. Gasoline to be supplied to us at cost plus 10% and delivered to drill sites at no cost to Boyles.

7. Casing lost in hole will be charged for at list price f.o.b. job.

Proposal No. 2

1. Mobilization - $750.00 per drill to Chelan. Howe Sound Company will supply transportation for equipment to drill sites from Chelan and return.

2. Overburden drilling - $80.00 per shift plus $3.00 per foot, plus bits and mud.

3. Drilling rate will be $67.50 per shift plus $3.00 per foot drilled for all sizes.

4. Cementing will be the shift rate plus the cost of cement or cement substitutes including drilling mud.

5. Reaming will be the shift rate plus $1.30 per foot.

6. Moving between holes and from Holden to drill sites, including set-up, $65.00 per shift for each two man crew.

7. Gasoline to be supplied to us at cost plus 10% and delivered to drill sites at no cost to Boyles.

8. Casing lost in hole will be charged for at list price f.o.b. job.

9. Howe Sound Company to supply a jeep for transportation of men to and from Ebbutt's Breccia area.

Rehabilitation and preparation of an access road to the Northwest and Ebbutt's Breccia Areas has been started.

In a memorandum to the Field Team, dated June 13, 1956, Mr. W. Cater, Jr., Geologist, U. S. Geological Survey, recommended five drill holes below the 2500 level to cut the ore at about 400 feet. The holes are tabulated below:

	From	East coordinate of intersection
1.	320 XC	E 6270
2.	320 XC	E 6533
3.	340 XC	E 6933
4.	360 XC	E 7070
5.	360 XC	E 7333

The following holes have been drilled or planned:

From	E. Coordinate intersection	Remarks
320 XC	E 6270	Not started; plan to drill shallow.
320 XC	E 6533	1 in progress; planned to hit ore about 200 feet below 2500 level.
340 XC	E 6933	Hit ore about 200 feet below 200 level.
340 XC	E 6700	Total depth 419 feet; hit ore at about 350 feet.

From	E. Coordinate intersection	Remarks
360 XC	E 7070	1 completed at 200 feet and 1 in progress to hit ore about 450 feet.
360 XC	E 7333	3 holes planned to hit ore at 150', 250' and 600' below 2500 level.
380 XC	E 7500	Total depth about 460 feet; hit ore at 400 feet.
280 XC	E 560	Total depth 526 feet; hit ore at 400 feet.

Eric G. Erickson

E. G. Erickson

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

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

RECEIVED
AUG 13 1956

August 8, 1956

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

Re: Docket No. DMEA-3142 (copper)
Howe Sound Company
Chelan County, Washington
Contract No. Idm-E644-Amended

Dear Mr. Selfridge:

Enclosed are two copies each of drill logs on holes Nos. U-15-222, U-15-223, U-15-224, and U-25-131 requested in your letter of July 18, 1956 to Mr. Weissenborn. These logs were received from the Operator yesterday.

By Field Team, Region I, NW District

A. E. Weissenborn

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

Wing G. Agnew

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

FORM 93A 10M 8-50 C.P.

W

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1
BY D.M.H.
DATE November 1955

HOLE NO. U-15-222 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 625 Chute Section
BEARING North DIP Horizontal LENGTH 536
LATITUDE OF COLLAR 19,915 DEPARTURE OF COLLAR 12,507 ELEVATION 3562

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		0 - 24						Grey medium grained very slightly gneissic diorite. Core loss: 1½' 18-24.
		24 - 26						Black fine grained biotite diorite.
		26 - 32						Brownish altered peridotite.
		32 - 38						Brownish medium to fine grained biotized peridotite. Core loss: 1' 33-38.
		38 - 44½						Light grey medium grained diorite.
		44½ - 48½						Grey slightly gneissic porphyroblastic diorite.
		48½ - 53½						Light grey medium grained diorite with strong chlorite alteration.
		53½ - 59						Grey medium to fine grained diorite.
		59 - 61						Brownish medium to fine grained biotite peridotite.
		61 - 66						Same as 53½-59.
		66 - 68½						Light grey medium grained diorite.
		68½ - 69						Brownish medium to fine grained biotized peridotite.
		69 - 74½						Bluish-grey and greenish grey fine grained diorite.
		74½ - 79						Light grey medium grained diorite. Brownish medium to fine grained, biotized peridotite (?) 77½-78.
		79 - 83						Coarse grained greenish quartz diorite (altered peridotite (?))
		83 - 86						Diorite complex. Grey fine grained diorite 83-83½, 84½-85, light grey medium grained replacement diorite 83½-84½, 85-86.
		86 - 97						Coarse grained greenish quartz diorite (altered peridotite. ?)
		97 - 99						Grey and greenish grey fine grained diorite.
		99 - 106						Light grey and greenish grey medium grained diorite with chlorite alteration.
		106 - 109						Brownish medium to fine grained diorite with chlorite alteration.
		109 - 123						Brownish medium to fine grained biotized peridotite. Light grey medium grained diorite. 109-109½, 112-112½, 114½-115, 120-121. Core loss: 1' 107-112, 1' 112-115, 115-123.

RM 33A 1M-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2
BY D.W.W.
DATE November 1955

HOLE NO. U-15-222 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 625 Chute Section
BEARING North DIP Horizontal LENGTH 536
LATITUDE OF COLLAR 19,915 DEPARTURE OF COLLAR 12,507 ELEVATION 3562

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		123 - 141						Brownish medium to fine grained peridotite (?). Very light grey medium grained replacement diorite 125-125½; greenish grey fine grained diorite 135½-136. Light grey medium grained replacement diorite 136-136½. Core loss: 1½' 123-133, 1½' 133-141.
		141 - 145						Grey medium grained diorite with chlorite alteration.
		145 - 150						Same as 123-141.
		150 - 156						Light grey coarse grained diorite.
		156 - 157						Same as 123-141. Core loss: 2' 149-157.
		157 - 182½						Same as 123-141. Dark greenish grey fine grained diorite 157½-158. Light grey medium grained replacement diorite: 171-172½, 180-180½. Core loss: 1' 157-164, 1½' 178-185.
		182½-185½						Grey medium grained diorite.
		185½ - 255						Brownish medium to fine grained biotized peridotite light grey medium grained diorite. 194½-196, 236-236½, 248-250. Core loss: 1' 202-212, 2' 212-217, 1' 239-248, 2' 248-255.
		255 - 256½						Bluish medium to fine grained biotized peridotite light grey medium grained diorite, 255-255½.
		256½- 263½						Light grey medium to coarse grained very sligtly gneissic diorite.
		263½ - 267						Grey diorite. Grey medium grained very slightly gneissic porphyryblastic diorite 263½-264½.
		267 - 268						Greenish grey medium to fine grained diorite.
		268 - 302						Brownish medium grained biotized peridotite. Light grey medium grained diorite 273-273½, 283-283½. Core loss 6' 273-282.
		302 - 305						Grey medium grained slightly gneissic replacement diorite.
		305 - 308						Grey medium grained diorite and bluish grey fine grained diorite.
		308 - 322						Grey medium grained very slightly gneissic diorite. Core loss: 2' 305-316.

FORM 53A 1M-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 3
BY D.M.H.
DATE December 1955

HOLE NO. U-15-222 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 625 Chute Section
BEARING North DIP Horizontal LENGTH 536
LATITUDE OF COLLAR 19,915 DEPARTURE OF COLLAR 12,507 ELEVATION 3562

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		322 - 325						Greenish grey fine grained chlorite diorite. (altered peridotite (?)). Core loss 1½' 316-324.
		325 - 328						Grey medium to fine grained diorite.
		328 - 340						Dark greenish chloritized peridotite. Very light grey medium to coarse grained diorite. 328-329½, 330½-331, 335-340. Core loss: 4' 332-340.
		340 - 341½						Coarse grained light green diorite.
		341½ - 343						Brownish medium grained biotized peridotite (?).
		343 - 350						Light grey medium and coarse grained diorite.
		350 - 363						Altered peridotite. Core loss: 2½' 348-358.
		363 - 365½						Slightly greenish light grey medium to coarse grained diorite.
		365½ - 371						Grey medium to fine grained diorite.
		371 - 380						Mottled grey and greenish grey medium grained diorite. Core loss: 3' 372-378.
		380 - 383						Light grey medium grained replacement diorite.
		383 - 384						Grey medium to fine grained diorite.
		384 - 388						Greenish altered quartz diorite. Core loss: 1½' 378-388.
		388 - 393						Dark green high mafic slightly sheared quartz diorite. Core loss: 1½ 388-393.
		393 - 396(?)						Mottled greenish and greyish low mafic medium grained diorite.
		396(?)-397(?)						Similar to 388-393 but with less quartz.
		397(?) - 403						Same as 393-396. Core loss: 5' 393-403.
		403 - 408(?)						Grey and greenish grey very slightly gneissic medium grained diorite.
		408 - 431						Greenish grey medium grained diorite. Core loss: 9' 413-431.
		431 - 437(?)						Dark greenish grey fine grained slightly gneissic diorite. Light grey medium to coarse grained replacement diorite. 433-434.
		437(?)-446						Greenish grey medium to coarse grained low mafic diorite. Core loss: 2' 431-441 2', 441-446.
		446 - 455(?)						Dark grey fine grained diorite gneiss. Core loss: 5' 446-454.

ORM 83A 1M 50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 4
BY D.W.W.
DATE December 1955

OLE NO. U-15-222 MINE Holden LEVEL 1500
OCATION 1500 Drift East off No. 3 Transfer at 625 Chute Section
EARING North DIP Horizontal LENGTH 536
ATITUDE OF COLLAR 19,915 DEPARTURE OF COLLAR 12,507 ELEVATION 3562

TE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		455(?) - 460						Greenish and greyish medium grained somewhat mottled diorite.
		460 - 472						Greenish medium grained chloritized diorite.
		472 - 502						Greenish silicified amphibole schist with pyrite. Core loss: 3½ 462-472, 1' 472-475, 1' 475-481.
		472 - 477	Nil.	TR	Nil.	Nil.	5	
		477 - 497	Nil.	Nil	Nil	Nil	20	
		497 - 502	Nil.	.050	Nil.	Nil.	5	
		502 - 533						Dark bluish grey medium to fine grained diorite. Light grey medium grained diorite. 505-506, 506½-507.
		508 - 510	Nil.	.095	Nil.	Nil.	2	Silicified amphibole biotite schist with pyrite.
		510 - 513						Light grey medium grained diorite.
		513 - 515(?)						Grey medium grained to fine grained diorite and schist.
		515(?)-516(?)	Nil.	Nil.	Nil.	Nil.	1	Silicified amphibole biotite schist with pyrite and pyrrhotite.
		516(?)-517(?)						Same as 513-515.
		517½(?)-520(?)						Silcified amphibole biotite schist with pyrite.
		520(?)-531(?)						Light grey medium grained diorite
		531(?)-534(?)						Grey medium grained slightly gneissic diorite.
		534(?)-535½						Light grey medium grained diorite. Core loss: 6' 513-533.
		535½ - 536						Very dark grey, dense amphibole biotite schist.
								- END OF HOLE -

FORM 33A 1M 8-50 C.P.

HOWE SOUND COMPANY

CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1

BY D.W.W. & J.I.B.

DATE APRIL 1956

HOLE NO. U-15-223 MINE Holden LEVEL 1500

LOCATION 1500 Drift East off No. 3 Transfer at 662 Chute section

BEARING N 2° W DIP Horizontal LENGTH 972'

LATITUDE OF COLLAR 19,917 DEPARTURE OF COLLAR 13,237 ELEVATION 3567'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		0 - 2						No Core.
		2 - 7						Light grey medium grained biorite diorite
		7 - 11						Grey medium to fine grained amphibole biotite schist.
		11 - 13						Grey medium grained slightly gneissic biotite diorite. Core loss: 2' 7-15.
		13 - 15						Yellow green medium to fine grained diorite.
		15 - 20						Grey medium grained crystalline amphibole biotite schist.
		20 - 24½						Brown medium grained biotized peridotite. Core loss: ½' 21-23.
		24½ - 26						Green fine grained diorite.
		26 - 34						Same as 20-24½.
		34 - 46½						Diorite complex. Light grey medium grained biotite diorite 34-34½, 36½-37, 40½-42. Blue grey medium to fine grained biotite diorite. 34½ - 36½. Grey coarse grained biotite diorite 36½-39½, medium to coarse grained green and brown very irregulary textured highly altered peridotite 39½-40½, 42-43½.
		46½ - 62						Brown medium grained biotized peridotite.
		62 - 73						Light grey medium grained irregulary textured diorite.
		73 - 75						Same as 62-73.
		75 - 83						Brown medium to fine grained biotite peridotite.
		83 - 94½						Green coarse grained and hornblende diorite.
		94½ - 116						Grey medium grained irregulary textured locally gneissic biotite diorite. Core loss: 1' 99-103.
		116 - 125½						Green medium to fine grained slightly gneissic diorite. Brown medium to fine grained biotite peridotite 120½-121½. Grey medium grained slightly gneiss biotite diorite 121½-122½.
		125½ - 128						Grey medium grained biotite diorite.
		128 - 133						Similar to 116-125½
		133 - 140½						Green and grey medium and fine grained partially chlorotized diorite.

FORM HA 1M 8-50 C.P.

RECEIVED AUG 13 1956

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2
BY D.W.W. & J.I.B.
DATE April 1956

HOLE NO. U-15-223 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 662 Chute Section
BEARING N 2° W DIP Horizontal LENGTH 972
LATITUDE OF COLLAR DEPARTURE OF COLLAR ELEVATION

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		140½ - 149						Light grey medium to coarse grained slightly gneiss chlorite diorite.
		149 - 164						Dark green and brown medium grained highly altered hornblende diorite.
		164 - 180						Brown medium grained and locally medium to fine grained hornblende diorite. Core loss: 2' 105-175.
		180 - 183						Grey medium grained prophyritic irregulary textured biotite diorite.
		183 - 196						Grey interbander medium to fine grained and fine grained diorite.
		196 - 209						Grey medium to fine grained slightly gniess diorite. Grey and light grey medium to coarse grained porphyritic biotite diorite. 198½-200, 200½-201½, 202½-203, 205½-206½.
		209 - 248						Green medium to coarse grained altered peridotite. Light grey low mafic diorite 220½-222, 229-231, 235-237, 242-244. Core loss: 2' 211-220, ½' 220-228, 2' 236-241, ½' 241-248.
		248 - 278						Dark green medium to coarse grained peridotite. Light grey low mafic diorite 251-254'. Brown fine to medium grained biotite peridotite. 254-255½. Grey medium grained irregular textured biotite diorite 265-267'
		278 - 312						Green medium to coarse grained altered peridotite. Light grey medium grained very low mafic diorite. 288½-289½. Light grey medium grained irregulary textured diorite. 292½-295.
		312 - 325				Nil	Nil	Green medium grained hornblende biotite diorite. Occasional minor pyrite streaks.
		325-328½	0.20	.080	TR	Nil	3½	Highly altered gneiss green and brown peridotite. Scattered streaks of pyrite and pyrrhotite throughtout.
		328½- 336					Nil	Light grey medium to coarse grained biotite diorite. Blue grey medium to fine grained and grey medium to fine grained irregulary textured diorite. With traces of sulphides 329½-331½, 332½-333.

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 3
BY D.W.W. & J. I. B.
DATE APRIL 1956

HOLE NO. U-15-223 MINE Holden LEVEL 1500
LOCATION 1500 drift east off No. 3 transfer at 662 chute section
BEARING N 2° W DIP Horizontal LENGTH 972'
LATITUDE OF COLLAR 19,917 DEPARTURE OF COLLAR 12,237 ELEVATION 3567

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	Ni.	WIDTH	GEOLOGY AND REMARKS
		336 - 338	Nil.	Nil.	TR	Nil	2	Green and brown medium to fine grained amphibole biotite schist (?) with disseminated sulphides.
		338 - 342						Green medium grained somewhat gneissic diorite.
		342- 344						Brown medium to fine grained crystalline biotite schist.
		344 - 348½						Grey medium grained somewhat gneissic biotite diorite
		348½ - 360						Grey medium grained and medium to fine grained locally siliceous amphibole biotite schist. Brown fine grained biotized diorite. 348½-349½. Green fine grained diorite 357½-358.
		360 - 362						Blue grey fine grained diorite.
		362 - 367						Green medium grained altered diorite. Dark grey crystalline biotite schist. 363-363½. Green medium to fine grained altered diorite 366½-367.
		367 - 368						Green medium to fine grained somewhat bleached diorite.
		368 - 369						Grey medium grained irregulary textured biotite diorite.
		369 - 372						Green fine grained altered diorite.
		372 - 375						Dark grey medium to fine grained diorite. Core loss: 2' 368-375.
		375 - 396						Green and brown medium to fine grained and fine grained amphibole biotite schis Grey medium grained irreulary textured diorite. 376½-377½. Core loss: 1½' 391-395.
		396 - 400						Grey medium grained slightly gneissic diorite. Core loss: 2' 395-400.
		400 - 403½						Dark grey medium to fine grained slightly porphyritic biotite diorite.
		403½ - 411						Grey medium to fine grained and medium grained dioritized amphibole biotite schist.
		411 - 433½						Grey medium to fine grained biotite diorite. Light grey medium grained irregulary textured biotite diorite 419-422. Core loss: 1' 416-425, 3' 425-433.

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 4
BY D.W.W. & J.I.B.
DATE April 1956

HOLE NO. U-15-223 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 662 Chute Section
BEARING N 2° W DIP Horizontal LENGTH 972
LATITUDE OF COLLAR 19,917 DEPARTURE OF COLLAR 12,237 ELEVATION 3567

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		433½ - 435						Grey medium grained crystalline amphibole schist.
		435 - 440						Green medium to fine grained and fine grained amphibole schist.
		440 - 444½						Grey medium grained slightly gneiss biotite diorite. Blue grey fine grained diorite 443½-444½. Core loss: 2' 435-443
		444½ - 450						Same as 435-440.
		450 - 455½						Grey medium grained locally irregulary textured diorite.
		455½ - 463½						Same as 435-440
		463½ - 465½						Grey medium to fine grained biotite diorite.
		465½ - 466						Same as 435-440
		466 - 474½	Nil.	Nil.	Nil.	Nil.	8½	Brown and green medium to fine grained crystalline amphibole biotite schist with finely disseminated pyrite and some pyrrhotite. Grey medium to fine grained irregulary textured biotite diorite. 470-471.
		474½ - 477						Light grey medium grained biotite diorite.
		477 - 488	Nil.	Nil.	Nil.	Nil	11	Brown and green medium to fine grained crystalline amphibole biotite schist with finely disseminated pyrite and some pyrrhotite.
		488 - 493½						Grey medium biotite diorite.
		493½ - 497						Green medium to coarse grained somewhat biotized hornblende diorite.
		497 - 499						Grey medium to coarse grained somewhat phlogopitized biotite diorite.
		499 - 500	Nil.	Nil.	TR	Nil.	1	Brown medium grained crystalline biotite schist with disseminated pyrite.
		500 - 501						Grey medium to coarse grained crystalline amphibole biotite schist.
		501 - 502						Light grey medium to coarse grained irregulary textured low mafic diorite
		502 - 503½	Nil.	Nil.	TR	Nil.	1½	Grey medium to coarse grained somewhat sheared silicified crystalline amphibole biotite schist with disseminated pyrite.
		503½ - 504½						Dark grey medium to fine grained amphibole biotite schist.

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 5
BY D.W.N. & J.I.B.
DATE April and May, 1956

HOLE NO. U-15-223 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 662 Chute Section
BEARING N 2° W DIP Horizontal LENGTH 972
LATITUDE OF COLLAR 19,917 DEPARTURE OF COLLAR 12,237 ELEVATION 3567

TE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		504½ - 514½	Nil.	TR	TR	Nil.	10	Light grey medium and medium to fine grained sheared silicified amphibole schist with disseminated pyrite.
		514½ - 536						Light grey medium grained irregulary textured biotite diorite. Grey medium to fine grained somewhat porphyritic diorite 517-517½, 518-518½.
		536 - 541						Grey medium to fine grained foliated diorite.
		541 - 548½						Grey medium to coarse grained irregulary textured biotite diorite.
		548½ - 551						Green medium to coarse grained chloritized biotite diorite.
i -	% Nil	551 - 563½						Blue green medium to coarse grained slightly foliated locally chloritized biotite diorite. Grey medium grained silicified crystalline biotite schist with pyorite 556½-557.
l.	Nil	563½ - 583	Nil.	Nil.	Nil.	Nil.	19½	Grey medium to fine grained somewhat silicified phlogopite schist with disseminated pyorite. Light grey medium to fine grained very irregularly textured phlogopite diorite. 567½-568½. altered. Phlogopite schist 568½-566. Core loss: 2' 573-583.
.	% Ni Nil	583 - 587	Nil.	Nil.	Nil.	Nil.	4	Brown medium grained sheared silicified crystalline phlogopite schist with pyrrhotite, pyrite.
.	Nil	587 - 591	Nil.	Nil.	Nil.	Nil.	4	Light grey sheared very highly silicified schist with scattered pyrite.
		591 - 595						Light grey medium low mafic phlogopite, diorite.
.	Nil	595 - 600	Nil.	Nil.	Nil.	Nil.	5	Grey medium grained highly silicified phlogopite schist. Pyrite and pyrrhotite, throughout. Core loss: 1' 591-600.
.	Nil	600 - 603	Nil.	Nil.	Nil.	Nil.	3	Brown medium to fine grained silicified phlogopite schist with dissemiated pyrite.
		603 - 604						Light brown medium grained phlogopite diorite.
		604 - 633						Same as 600-603.

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 6
BY D.W.W. & J.I.B.
DATE May 1956

HOLE NO. U-15-223 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 662 Chute Section
BEARING N 2° W DIP Horizontal LENGTH 972'
LATITUDE OF COLLAR 19,917 DEPARTURE OF COLLAR 13,237 ELEVATION 3567'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
	Nil	604 - 620	Nil.	Nil.	Nil.	Nil.	16	Occasional garnet beyond 630. Core loss
		620 - 625	Nil.	TR	TR	Nil.	5	610 - 621.
		625 - 633	Nil.	Nil.	Nil.	Nil.	8	
	Nil	633 - 640	Nil.	Nil.	Nil.	Nil.	7	Brown and green medium to fine grained amphibole schist phlogopite schist. Very finely disseminated pyrite.
		640 - 641						Grey medium to fine grained silicified biotite schist.
		641 - 650						Blue grey medium to fine grained amphibole biotite schist. Grey medium grained irregulary textured biotite, diorite 648½-649.
		650 - 653½						Grey medium to coarse grained irregulary textured biotite diorite.
		653½ - 656						Blue grey fine grained diorite.
		656 - 664						Same as 650-653½. (grained)
		664 - 669						Grey and dark grey medium/and medium to fine grained irregulary textured diorite. Light grey medium grained biotite diorite 666½-667.
		669 - 673						Grey medium grained irregulary textured biotite diorite. Light grey medium grained irregulary textured biotite diorite. 671½-672, 672½-673.
		673 - 676(?)						Brown medium to fine grained crystalline amphibole biotite schist.
		676(?)-682						Light grey medium to coarse grained somewhat foliated biotite diorite. Core loss: 3' 675-682.
		682 - 692						Grey medium grained some what foliated irregulary textured biotite diorite.
		692 - 694½						Green medium to fine grained crystalline amphibole schist.
		694½ - 699						Light grey medium grained low mafic diorite.
		699 - 702						Same as 692 - 694½. Core loss: 1' 692-702.
		702 - 712						Green medium to fine grained amphibole biotite schist.
		712 - 716½						Grey medium to fine grained porphyritic diorite.
		716½ - 721						Green medium to fine grained calcareous amphibole schist with quartz and garnet.

FORM 63A 1M 8-59 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 7
BY D.W.W. & J.I.B.
DATE May 1956

HOLE NO. U-15-223 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 062 Chute Section
BEARING N 2° W DIP Horizontal LENGTH 972
LATITUDE OF COLLAR 19,917 DEPARTURE OF COLLAR 12,237 ELEVATION 3567

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		721 - 737						Green medium to fine grained amphibole schist. Calcareous with quartz and garnet concentrations 725-726½. Core loss: 3' 731-737.
		737 - 753						Grey medium grained foliated biotite diorite. Green medium to fine grained crystalline amphibole schist 737½-738, 739-739½. Core loss: 1' 737-739.
		753 - 775						Green medium to fine grain crystalline amphibole biotite schist. Grey medium grained biotite diorite. 767-768. Core loss: 3' 762-768, 3' 768-775.
		775 - 787						Green grey medium to fine grained crystalline amphibole biotite schist. Grey medium grained irregulary textured diorite 779-779½.
		787 - 793						Grey medium to coarse grained foliated diorite. Core loss: 3' 787-793.
		793 - 811						Same as 775-787. Core loss: 3' 793-803
		811 - 843						Green grey medium to fine grained amphibole biotite schist. Grey medium grained biotite diorite 820-821. Core loss: 1' 820-830.
		843 - 902						Same as 811-843. Milky quartz bands 849, 855, 869, 871, 892, 894, 896. Minor garnet and epidote 864, 865, 867½. Core loss: 1' 843-847.
		902 - 905						Grey medium grained somewhat foliated biotite diorite.
		905 - 914						Green grey medium to fine grained amphibole biotite schist. Core loss: 1' 905-912.
		914 - 925						Blue grey medium to fine grained hornblende diorite.
		925 - 937						Green medium and medium to fine grained amphibole schist.
		937 - 972						Green fine grained amphibole schist, grey medium grained biotite diorite. 948-949, 952-953. Core loss: 1½' 950-956, 4' 956-963.
								- END OF HOLE-

RM 83A 1M 8-56 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

RECEIVED AUG 13 1956

DIAMOND DRILLING RECORD

SHEET NO. 1
BY D. W. W. & J. I. B.
DATE May 1956

HOLE NO. U-15-224 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 645 Chute Section
BEARING N 4° E DIP + 2° LENGTH 437
LATITUDE OF COLLAR 19,930 DEPARTURE OF COLLAR 12,908 ELEVATION 3566

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		0 - 2						No core.
		2 - 18						Brown medium to fine grained biotized peridotite. (grained)
		18 - 21						Light green grey medium/foliated, somewhat chloritized biotite diorite.
		21 - 25						Dark Grey medium to fine grained slightly foliated diorite.
		25 - 27½						Same as 2-18
		27½ - 30						Dark grey medium to fine grained diorite.
		30 - 37½						Grey medium to fine grained irregular text dioritized amphibole biotite schist (?).
		37½ - 39						Dark grey medium to fine grained slightly foliated diorite.
		39 - 46½						Diorite complex with biotized peridotite 39-39½. Very light grey low mafic medium to coarse grained quartz diorite 39½-40. Very dark grey green medium to fine grained, altered diorite 40-41. Light grey medium grained irregular text. biotite diorite with remnants of biotized peridotite 41-44½. Core loss: 1' 39-44.
		46½ - 54						Green medium grained hornblende diorite. Core loss: 4' 44-54.
		54 - 64						Grey medium grained foliated biotite diorite. Core loss: 5½' 54-64.
		64 - 76						Same as 46½-54. Core loss: 5' 64-74.
		76 - 80						Brown medium to fine grained highly altered "biotized peridotite."
		80 - 84						Grey medium grained altered diorite complex. Core loss: 6½' 74-84.
		84 - 93						Complex of brown medium to fine grained biotized perid. Blue fine grained diorite 91-92. Core loss: 1½' 84-93.
		93 - 98						Light grey medium grained very low mafic chloritized biotite diorite. Core loss: ½' 93-98.
		98 - 110						Same as 84-93. Core loss: 3½' 102-110.
		110 - 122						Brown medium to fine grained biotite perid. Core loss: 1' 116-122.
		122 - 125						Blue grey fine grained slightly foliated diorite.

RM 83A 1M 8-51 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2
BY D.W.W. & J.I.B.
DATE May & June, 1956

HOLE NO. U-15-224 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 transfer at 645 chute section
BEARING N 4° E DIP ∠ 2° LENGTH 437
LATITUDE OF COLLAR 19,930 DEPARTURE OF COLLAR 12,908 ELEVATION 3566

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		125 - 128						Grey medium grained biotite diorite with broken low mafic contacts. Brown medium to fine grained biotized peridotite. 126½-127.
		128 - 156						Brown medium to fine grained biotite peridotite. Core loss: 1½- 124-133, 1' 146-150, 2' 150-156.
		156 - 196						Brown medium to fine grained biotite peridotite. Light grey medium grained low mafic biotite diorite. 164-169. Grey medium to fine grained diorite 158-163. Core loss: 4½' 156-163, 4' 163-168, 4½' 168-175, 1' 175-179, 3' 179-186, 4½' 186-193.
		196- 198½						Blue grey fine grained diorite. Core loss: 1' 193-197.
		198½ - 208						Light grey medium grained foliated biotite diorite. Core loss: 4' 197-207.
		208 - 215						Brown medium to fine grained somewhat banded biotite peridotite. Core loss: 2' 207-215.
		215 - 217½						Blue fine grained diorite.
		217½ - 219½						Grey medium grained irregular textured biotite diorite.
		219½ - 234½						Brown and blue medium to fine grained and fine grained diorite. Grey medium grained foliated biotite diorite: 226-226½.
		234½ - 249						Grey medium grained biotite diorite complex.
		249 - 251						Blue grey medium to fine grained diorite
		251 - 256						Brown medium to fine grained biotized peridotite. Light grey coarse grained recrystalized biotite diorite. 251½-252, 252½-253. (grained)
		256 - 262						Light grey ~~coarse~~/irregulary textured, recrystallized biotite diorite. Brown medium to fine grained biotite peridotite 260-261. Core loss: 1' 252-262.
		262 - 274 (?)						Light green medium grained irregulary textured biotite diorite. Core loss: 6½' 262-270.
		274 - 276						Green medium grained somewhat biotized peridotite.

FORM 83A 1M 8-56 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 3
BY D.W.W. & J.I.B. & A.W.
DATE June 1956

HOLE NO. U-15-224 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 645 chute section
BEARING N 4° E DIP + 2° LENGTH 437
LATITUDE OF COLLAR 19,930 DEPARTURE OF COLLAR 12,908 ELEVATION 3566

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		276 - 278						Grey and light grey medium grained irregulary textured biotite diorite. Core loss: 3½' 270-275.
		278 - 341						Grey medium grained somewhat biotized peridotite. Core loss: 2' 284-292, 5' 318-328, 7½' 328-338. Grey medium grained altered peridotite.
		341 - 370						Grey medium to fine grained irregulary textured diorite 358-359. Green medium grained to coarse grained foliated altered quartz soaked peridotite 365-367. Core loss: 2' 340-350, 2' 350-358, 1½' 358-362.
		370 - 380						Green medium to fine grained irregulary textured somewhat foliated diorite.
		380 - 420						Green medium to fine grained amphibole schist. Core loss: 1½' 412-420.
		420 - 422½						Dark blue grey dense very slightly foliated diorite.
		422½ - 427½						Grey medium grained slightly foliated biotite diorite.
		427½ - 432½						Grey medium grained crystalline amphibole biotite schist.
		432½ - 437						Dark green grey medium grained slightly foliated diorite.
								- END OF HOLE -

FORM 83A [illegible] 50 C.F.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1
BY J.I.B. & D.W.W.
DATE April, 1956

HOLE NO. U-25-131 MINE Holden LEVEL 2500
LOCATION 373 XCS off 2500 Haulage Drift East at 380 Chute Section
BEARING N 70° E DIP - 72° LENGTH 669
LATITUDE OF COLLAR 19,040 DEPARTURE OF COLLAR 7604 ELEVATION 2537

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		0 - 7½						Green fine grained very slightly gneiss diorite.
		7½ - 10						Blue grey medium to fine grained biotit (?) diorite. Core loss 2' 0-10.
		10 - 14						Green fine grained highly altered diorit with biotized contacts. Fractures fille with calcareous material.
		14 - 23½						Green and brown medium grained highly altered and distorted schist (?) calcareous fracture fillings thru-out.
		23½ - 34						Blue grey highly altered diorite comple Brown and green medium grained mottled diorite (?). Dark grey medium grained irregulary textured slightly porphyritic biotite diorite 27-29. Dark green mediu to fine grained irregulary textured diorite(?) 29-34. Calcareous fracture fillin thru-out.
		34 - 36						Green fine grained diorite with small fractures healed with calcite.
		36 - 44½						Dark blue grey medium to fine grained irregulary textured diorite.
		44½ - 71½						Dark blue grey fine grained porphyritic diorite. Fractures healed by calcareous material.
		71½ - 72						Brown medium grained altered amphibole biotite schist.
		72 - 74						Light grey medium grained low mafic diorite. Core loss: 1' 66-72½.
		74 - 79						Green fine grained diorite. Core loss: 1½', 72½-79.
		79 - 96						Brown and green medium grained highly altered amphibole biotite schist. Fractur are healed by calcite. Core loss: 1' 85-90, 3' 90-96.
		96 - 103						Dark grey medium to fine grained diorite intensely bleached to pale yellowish and greenish. Calcareous fracture fillings. Core loss: 1½' 96-102.
		103 - 105½						Dark grey fine grained porphyritic diorite. Calcareous fracture fillings.
		105½ - 112						Medium grained diorite intensely bleach to pale yellowish brown.

FORM 5A-1M 7-55-P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2
BY J.I.B. & D.W.W.
DATE April, 1956

HOLE NO. U-28-131 MINE Holden LEVEL 2500
LOCATION 373 XC off 2500 Haulage Drift East at 38C Chute Section
BEARING N 70° E DIP - 72° LENGTH 669
LATITUDE OF COLLAR 19,040 DEPARTURE OF COLLAR 7604 ELEVATION 2537

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
								Numerous Calcareous fracture filling.
		112 - 125						Dark Grey fine grained porphyritic diorite. Intense bleaching 112-113, 117-125. Fractures healed with calcareous material throughout. Core loss: 2' 114-120.
		125 - 134						Similar to 1[illegible]-112. Intense bleaching 12[illegible]-13[illegible]. Core loss: 1½' 120-126, 2' 1[illegible]-132.
		134 - 157						Same as 112-125. Intensely bleached throughout. Core loss: 1' 132-13[illegible], 8½' 138-14[illegible], 8' 1[illegible]-151, 4' 151-157.
		157 - 170						Green medium grained gneiss diorite similar to 132-134. Calcareous material in fractures. Core loss: 4' 157-163, 4' 163-167.
		170 - 189						Same as 112-125. Intensely bleached. 17[illegible]-180. Green medium grained gneissic diorite. 1[illegible]-180, 182-183, 184-186. Core loss: 2' 162-170, 2' 175-178, 3' 178-182, ½' 183-184, 1' 184-186.
		189 - 190						Blue grey fine grained porphyritic leucophyre (?)
		190 - 195						Green medium grained and medium to fine grained altered diorite. Late fractures healed by calcite. Core loss: ½' 190-194.
		195 - 219						Dark blue grey fine grained porphyritic leucophyre (?). Fracture network healed by yellowish calcite (?). Core loss: 1' 198-206.
		219 - 247						Pale green fine grained diorite with dark green phenocrysts. Calcite heals fractures. Core loss: 1' 231-236.
		247 - 274						Green medium to fine grained highly altered and siliceous amphibole schist (?). Fractures healed by calcite. Core loss: 1½' 244-250, 1' 250-252, 3' 252-256, 5' 256-262.
		274 - 319						Light grey very highly silicified schist (?). Core loss: 3' 270 - 275, 1' 275-276, 4' 276-287, 2' 287-291, 9' 291-3[illegible], 5' 3[illegible]-312, 3' 312-319.

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 3
BY J.L.B. & D.W.L.
DATE April [illegible] May

HOLE NO. U-25-131 MINE Holden LEVEL 2500

LOCATION 373 XCS off 2500 Haulage Drift East at 350 Chute Section

BEARING N 70°E DIP - 72° LENGTH 669

LATITUDE OF COLLAR 19,040 DEPARTURE OF COLLAR 7604 ELEVATION 2537'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		319 - 326						Grey medium grained very irregular text. diorite. Mild bleaching 319-325. Core loss: 4' 319-325.
		326 - 327						Light grey medium grained low mafic diorite.
		327 - 343						Same as 319-326. Calcite occurs in small fractures. Core loss: 1' 328-331, ½' 331-334, 3' 334-341.
		343 - 354						Light grey medium grained low mafic diorite. Core loss: 4½' 343-352, ½' 352-354.
		354 - 363						Similar to 319-326 but with increased frequency of phlogopite bands
		363 - 366½						Grey and red brown medium grained somewhat silicified crystalline amphibole phlogopite schist. Core loss: 1½' 363-367.
		366½ - 369½						Blue grey fine grained diorite.
		369½ - 380						Grey medium grained somewhat sheared and silicified amphibole schist
		380 - 383						Light grey medium grained silicified crystalline schist with phlogopite bands.
		383 - 384						Light grey medium grained slightly chloritic low mafic diorite.
		384 - 385						Same as 383-383
		385 - 386						Grey medium to fine grained somewhat porphyritic diorite.
		386 - 403½						Grey medium grained silicified and locally sheared crystalline schist with phlogopite bands.
		403½ - 407						Light grey medium grained irregular text low mafic phlogopite diorite.
		407 - 410½						Blue grey fine grained hornblende diorite. Core loss: 1½' 403-409.
		410½ - 417						Blue grey fine grained altered diorite Core loss: 3' 411-417.
		417 - 430						Light grey medium grained sheared and crenulated crystalline schist.
		430 - 442						Light grey medium grained sheared and crenulated crystalline phlogopite schist. Core loss: 2' 429-435, 2' 435-442.
		442 - 446						Blue grey fine grained diorite cut by stringers of grey medium grained diorite.

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 4
BY J.I.H. & D.V.H.
DATE May and June, 1956

HOLE NO. U-25-131 MINE Holden LEVEL 2500
LOCATION 373 NE off 2500 Haulage Drift east at 380 Chute Section
BEARING N 70° E DIP - 72° LENGTH 669
LATITUDE OF COLLAR 19,040 DEPARTURE OF COLLAR 7604 ELEVATION 2357

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		440 - 447						Light grey medium grained chloritized diorite. Core loss: 1' 441-447.
		447 - 476½						Light grey medium grained low mafic biotite diorite. Core loss: 1' 447-451, 2' 451-453, 1' 455-461, 5' 461-468, 1' 468-475.
		476½ - 482½						Mildly sheared grey medium grained crystalline schist. Core loss: 3' 475-482.
		482½ - 489						Brown medium grained sheared and crenulated crystalline phlogopite schist.
		489 - 491						Grey medium to fine grained crystalline silicified phlogopite schist. Disseminated sulfides.
		491 - 492						Light grey medium grained low mafic diorite.
		492 - 498						Grey and brown medium to coarse grained very intensely crenulated biotite schist (?)
		498 - 502						Light grey medium grained low mafic micaceous diorite. Core loss: 1½' 499-500.
		502 - 505						Grey fine grained diorite.
		505 - 507½						Grey medium to fine grained diorite.
		507½ - 525						Brown medium to coarse grained silicified crystalline phlogopite schist with pyrrhotite, pyrite, chalcopyrite. Core loss: 2' 507-514, 2' 514-517, 3' 517-525.
			2.00	.765	.175	Nil.	3½	
			.50	.275	.120	Nil.	3	
		525 - 529						Core missing
		529(?)-531	.15	.165	.015	.06	2(?)	Grey medium grained crystalline amphibole phlogopite schist with finely disseminated sulfides
		531 - 535½	.24	[illegible]	.160	Nil	4½	Dark grey medium grained crenulated biotite (?) schist
		535½ - 537						Dark Grey medium to fine grained diorite
		537 - 557						Light grey medium grained silicified crystalline schist, with medium to coarse grained sulfides, pyrrhotite, chalcopyrite, sphalerite.
		557 - 542	3.74	.520	.190	0.32	5	
		542 - 547	2.50	.540	.120	0.04	5	
		547 - 553	2.37	.430	.130	0.[illegible]	6	
		553 - 558	1.32	.250	.070	0.10	5	
		558 - 562	1.35	.195	.040	Nil	4	

RM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 5
BY J.I.B. & D.J.N.
DATE June 1956

HOLE NO. U-25-131 MINE Holden LEVEL 2500
LOCATION 373 XC off 2500 Haulage Drift East at 380 Chute Section
BEARING N 70° E DIP - 72° LENGTH 669
LATITUDE OF COLLAR 19,040 DEPARTURE OF COLLAR 7604 ELEVATION 2557

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		562 - 568	2.32	.660	.085	0.14	6	Core loss: 1½' 545-553, 1' 553-560, 1' 560-568, 1' 575-582, 1' 588-595.
		568 - 573	3.60	.735	.235	0.34	5	
		573 - 578	2.12	.360	.105	0.12	5	
		578 - 583	2.04	.470	.150	0.24	5	
		583 - 588	1.87	.315	.065	0.35	5	
		588 - 591	2.14	.375	.085	0.76	3	
		591 - 595	2.70	.425	.140	0.66	4	
		595 - 600	1.35	.100	.030	0.84	5	
		600 - 605	1.20	.220	.020	0.46	5	
		605 - 610½						Blue medium grained diorite with highly porphyroblastic hornblende. Core loss: 1' 608-609.
		610½ - 615	2.60	.750	.170	0.44	4½	Grey medium grained silicified crystalline schist with pyrrhotite, chalcopyrite.
		615 - 616½						Dark grey medium to fine grained crystalline schist biotite.
		616½ - 621						Light grey medium grained generally low mafic diorite.
		621 - 637						Grey medium grained crystalline schist with pyrrhotite, chalcopyrite, sphalerite.
		621 - 623	2.86	.605	.130	0.38	2	
		623 - 628	1.92	.605	.100	2.40	5	
		628 - 633	2.36	.340	.120	0.42	5	
		633 - 637	2.64	.660	.140	1.12	4	
		637 - 638½	0.72	.095	.020	0.82	1½	Complex of brown medium to fine grained biotite diorite, grey medium grained chlorite diorite, and grey medium grained silicified crystalline schist with sulfides
		638½ - 640½						Grey medium grained slightly foliated diorite. (to fine)
		640½ - 642½						Brown medium to coarse grained somewhat granulated crystalline biotite schist.
		642½ - 645½	3.64	1.230	.140	1.38	3	Green and light grey medium grained locally silicified highly distorted altered amphibole schist with pyrrhotite, chalcopyrite.
		645½ - 654						Brown medium to fine grained crystalline biotite(?) schist which is locally silicified.

RM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

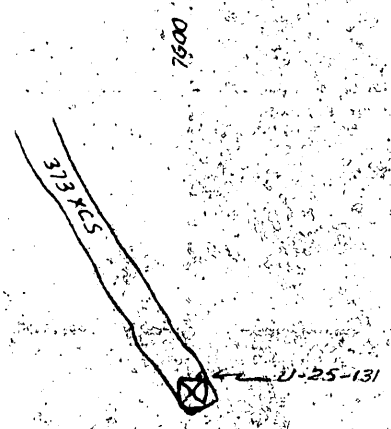
SHEET NO. 6
BY J.L.L. & D.W.M.
DATE June 1956

HOLE NO. U-26-131 MINE Holden LEVEL 2500
LOCATION 373 XC off 2500 Haulage Drift west at 350 Chute Section.
BEARING N 70° E DIP - 70° LENGTH 662'
LATITUDE OF COLLAR 19,040 DEPARTURE OF COLLAR 7004 ELEVATION 2537

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
								Core Loss: 2' 645-651.
		654 - 661						Green fine grained crystalline amphibole
								schist with some bands of porphyroblastic
								hornblende. Core Loss: 2' 657-663.
		663 - 662						Light grey medium grained phlogopite
								diorite. Core Loss: 1' 663-662.
								- END OF HOLE -

RECEIVED
AUG 13 1956

20	S 70° E	S 47½° E	N 66½° E	- 72
50	S 68° E	S 45½° E	N 68½° E	- 72
100	S 68° E	S 45½° E	N 68½° E	- 72
150	S 75° E	S 52½° E	N 61½° E	- 73
200	S 78° E	S 55½° E	N 58° E	- 73
250	S 73° E	S 50½° E	N 65½° E	- 74
300	S 83½° E	S 61° E	N 53° E	- 74
[redacted]				
400	N 88° E	S 65½° E	N 44½° E	- 74
500	N 76° E	S 81½° E	N 32½° E	- 74
600	N 66° E	S 71½° E	N 22½° E	- 75



HOWE SOUND COMPANY
Chelan - Division

Kenwald
~~Kingsbrook~~

RECEIVED
SEP - 4 1956

Betty

July 11, 1956

United States Department of the Interior
Defense Minerals Exploratory Administration
South 157 Howard Street
Spokane 2, Washington

Gentlemen:

Re: Docket No. DMEA 5142 (Copper)
Howe Sound Company
Holden Mine
Chelan County, Washington
Contract No. Idm-E644

The following is a narrative of the work accomplished during June, 1956 for the Buckskin Mountain exploration and in the 2500 level crosscuts.

Diamond Drilling

Exploration core drilling was completed for the Buckskin Mountain exploration program upon stopping hole U-15-224 at 437 feet. The footage for the month on the 1500 level was 119 feet.

The 2500 exploration core drilling was also completed upon reaching 669 feet with hole U-25-151. This gave a diamond drill footage for the month of 172 feet in the 2500 level crosscuts.

The total amount of EX core drilling for the month was 291 feet, completing all drilling for the contract.

	1500 Drift	2500 Crosscuts
EX Core Drilling	119	172
Total EX Core Drilling	6,765	6,454

Yours very truly,

J. S. Roper
Manager

JSR:jhk

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED
SEP - 4 1956

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of June 1956 Docket No. DMEA 3142 Contract No. Idm-E644
Operator's Name Howe Sound Company - Chelan Division Minerals Copper
Address Holden, 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 - 1500 Level	Feet			$180,382.74	3,800	$47.46	4,100	
Crosscutting - 2500 Level	Feet			44,351.66	1,365	32.49	1,368	
~~Raising~~ D.D.Sta) 1500	Each			4,410.00	9	490.00	9	$ 490.00
~~Stations~~ D.D.Sta) Level	Each			300.00	1	300.00	1	300.00
Winzes								
Drilling: Core 1500 Level	Feet	$ 327.25	119	18,603.75	6,765	2.75	7,416	2.75
Core ~~Chip~~ 2500 Level	Feet	516.00	172	19,362.00	6,454	3.00	7,000	3.00
Auger								
~~Stopping~~ D.D.Sta. 2500	Each			3,600.00	6	600.00	6	600.00
~~Trenching~~ Trsfr.)								
Test Pits Sta.) Level	Each			1,500.00	3	500.00	3	500.00
Roads and Trails								
TOTAL DISTRIBUTED COSTS		$ 843.25		$272,510.15				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased				30,907.09				
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		$ 843.25		$303,417.24				

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 7-23-56 Operator Howe Sound Company
Per [signature] Title [signature]

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 872894

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

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S MONTHLY REPORT AND VOUCHER

RECEIVED NOV 13 1956 D.M.E.A.

Month of June, 1956 Docket No. DMEA 3142 Contract No. Idm-E644
Operator's Name Howe Sound Company - Chelan Division Minerals Copper
Address Holden, Washington
Contract Amount, $ 309,990.00 Government Participation: 50 % Amount, $ 154,995.00

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:				1/31/57	W.P.K.	
Drilling - Core	$ 843.25	$ 37,122.50	$ 37,965.75	843.25	37122.50	37965.75
Bulldozing						
Crosscutting						
Drifting						
Dia. Drill & Transfer Sta.		9,810.00	9,810.00		9810.00	9810.00
(2) Labor and Supervision:						
Labor		105,177.98	105,177.98		106278.53	106278.53
Supervision		8,160.31	8,160.31		8160.31	8160.31
Technical Services		3,690.82	3,690.82		3690.82	3690.82
(3) Operating Mat'ls. and Supplies:						
Timber		10,470.23	10,470.23		9966.33	9966.33
Explosives		21,330.73	21,330.73		21330.73	21330.73
Pipe		6,748.73	6,748.73		6748.73	6748.73
Track		5,117.93	5,117.93		5621.83	5621.83
Drill Steel & Bits		12,300.71	12,300.71		12300.71	12300.71
Elec. Cable Installation		358.64	358.64		358.64	358.64
Vent. Pipe Installation		352.90	352.90		352.90	352.90
(4) Operating Equipment:						
Rental						
Purchase		30,907.09	30,907.09		30907.09	30907.09
Depreciation		3,873.75	3,873.75		3873.75	3873.75
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment		9,847.12	9,847.12		9847.12	9847.12
Sampling and Analysis		130.32	130.32		130.32	130.32
Payroll Taxes Med.		4,148.54	4,148.54		3621.00	3621.00
Ind. ~~Disability~~ Insurance & Aid		4,834.84	4,834.84		4834.84	4834.84
Tramming		8,842.10	8,842.10		8832.15	8832.15
Compressed air		13,816.74	13,816.74		13816.74	13816.74
(8) Contingencies (specify):						
Retroactive Pay		1,100.55	1,100.55		— o —	— o —
Miners Lamps		593.42	593.42		593.42	593.42
Handling Supplies		2,440.20	2,440.20		2440.20	2440.20
Hoisting (2500) Level		1,397.84	1,397.84		1397.84	1397.84
Totals	$843.25	$ 302,573.99	$303,417.24	843.25	302,036.50	303,417.24

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

Date 7-23-56 *Payee

Per [signature] Title [signature]

*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: 302,879.75 Correct

$ 421 63

Signature [signature]
(Authorized Certifying Officer)

Date 11-9-56 Vou. No. 1899
(See other side)

Cy 104a + narrative to Wash. 8-23-56

(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 644 in accordance with the terms of the contract.

Signature 151 Eric G. Erickson Title Mining Engr. Date 11-2-56

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature 151 A. E. Weissenborn Title Executive Officer Date 11-8-56

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-104 (Rev.)
(April 1952)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1036.5

RECEIVED
JUL 12 1956

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of May, 1956 Docket No. DMEA 3142 Contract No. Idm E644
Operator's Name Howe Sound Company - Chelan Division Minerals
Address Holden, Washington
Contract Amount, $ 309,990.00 Government Participation: 50 % Amount, $ 154,995.00

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:				7/17/56 WPK.		
Drilling - Core	$ 2,736.00	$ 34,386.50	$ 37,122.50	2736.00	34386.50	37122.50
Bulldozing						
Crosscutting						
Drifting						
Dia. Drill & Transfer Sta.		9,810.00	9,810.00		9810.00	9810.00
(2) Labor and Supervision:						
Labor		105,177.98	105,177.98		106278.53	106278.53
Supervision		8,160.31	8,160.31		8160.31	8160.31
Technical Services		3,690.82	3,690.82		3690.82	3690.82
(3) Operating Mat'ls. and Supplies:						
Timber		10,470.23	10,470.23		9966.33	9966.33
Explosives		21,330.73	21,330.73		21330.73	21330.73
Pipe		6,748.73	6,748.73		6748.73	6748.73
Track		5,117.93	5,117.93		5621.83	5621.83
Drill Steel & Bits		12,300.71	12,300.71		12300.71	12300.71
Electric Cable Instln.		358.64	358.64		358.64	358.64
Vent. Pipe Instln.		352.90	352.90		352.90	352.90
(4) Operating Equipment:						
Rental						
Purchase		30,907.09	30,907.09		30907.09	30907.09
Depreciation		3,873.75	3,873.75		3873.75	3873.75
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment		9,847.12	9,847.12		9847.12	9847.12
Sampling and Analysis		130.32	130.32		130.32	130.32
Payroll Taxes		4,148.54	4,148.54		3621.00	3621.00
Ind. ~~Liability~~ Insurance & Med. Aid		4,834.84	4,834.84		4834.84	4834.84
Tramming		8,842.10	8,842.10		8832.15	8832.15
Compressed Air		13,816.74	13,816.74		13816.74	13816.74
(8) Contingencies (specify):						
Retroactive Pay		1,100.55	1,100.55		-0-	-0-
Miners Lamps		593.42	593.42		593.42	593.42
Handling Supplies		2,440.20	2,440.20		2440.20	2440.20
Hoisting (2500 Level)		1,397.84	1,397.84		1397.84	1397.84
TOTALS	$2,736.00	$299,837.99	$302,573.99	2736.00	299300.50	302036.50

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

Date 6-26-56 *Payee

Per Title

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

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:

$ 1368.00

Signature
(Authorized Certifying Officer)

Date 7-6-56 Vou. No. 1812

(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. E6644 in accordance with the terms of the contract.

Signature (S) Stephen N. Zoldok Title Mining Engr. Date 6-28-56

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature (S) A. E. Weissenborn Title Exec Officer Date 7-2-56

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".

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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

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of May 6 1956 Docket No. DMEA 3142 Contract No. Idm E644

Operator's Name Howe Sound Company - Chelan Division Minerals Copper

Address Holden, 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
- 1500 Level	Feet			$180,382.74	3,800	47.46	4,100	
Drifting -2500 Level	Feet			44,351.66	1,365	32.49	1,368	
Crosscutting D.D.Sta) 1500	Each			4,410.00	9	490.00	9	490.00
Raising D.D.Sta) Level	Each			300.00	1	300.00	1	300.00
Shafts								
Winzes -1500 Level	Feet	2,112.00	768	18,276.50	6,646	2.75	7,416	2.75
Drilling: Core 2500 Level	Feet	624.00	208	18,846.00	6,282	3.00	7,000	3.00
Churn								
Augers D.D.Sta) 2500	Each			3,600.00	6	600.00	6	600.00
Stripping Trsfr.								
Trenching Sta) Level	Each			1,500.00	3	500.00	3	500.00
Test Pits								
Roads and Trails								
TOTAL DISTRIBUTED COSTS		2,736.00		$271,666.90				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased				30,907.09				
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		2,736.00		$302,573.99				

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 6-26-56 Operator Howe Sound Company

Per [signature] Title [signature]

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)

/s/ S. W. Zeller

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

RECEIVED
JUL 12 1956

HOWE SOUND COMPANY - CHELAN DIVISION

HOLDEN, WASHINGTON

June 11, 1956

United States Department of the Interior
Defense Minerals Exploration Administration
South 157 Howard Street
Spokane 4, Washington

Gentlemen:

The following is a narrative of the work accomplished during May, 1956 for the Buckskin Mountain exploration and in the 2500 level crosscuts.

Diamond Drilling

Exploration core drilling from hole U-15 - 223 at the 662 chute section at the east end of the 1500 level was completed at a depth of 975 feet giving an advance of 450 feet in May. Hole U-15 - 224 was collared and drilled to a depth of 318 feet. The total drilling on the 1500 level amounted to 768 feet.

Hole U-25 - 131 from the 373 crosscut station at the east end of 2500 level was advanced 208 feet to a depth of 497 feet.

The total amount of EX core drilling for the month was 976 feet.

	1500 Drift	2500 Crosscuts
EX Core Drilling	768	208
Total EX Core Drilling	6,646	6,282

Yours very truly,

J. S. Roper
Manager

JSR:jhk

RECEIVED
JUL 12 1956

HOWE SOUND COMPANY - CHELAN DIVISION

Salvage Settlement Statement

		Cost per audit	Govt. equity at 25%	Govt. equity at 10%	Total Govt. equity
Equipment					
1	Mancha Mule	$3,662.96	$ 915.74		
1	Charging unit	952.75	238.19		
2	Edison batteries	7,425.40	1,856.35		
1	Battery box	374.36	93.59		
1225 ft.	Type W-600 cable	1,979.60	494.90		
5007 ft.	No. 6 Tyrex cable	7,706.13	1,926.53		
6100 ft.	Messenger cable	684.03	171.01		
1	Tro Pari Survey instrument	1,136.81	284.20		
2	Rock drills	1,617.10		$161.71	
3500 ft.	Vent pipe	5,367.95		536.79	
		$30,907.09	$5,980.51	$698.50	
	Government equity at 25 percent				$5,980.51
	Government equity at 10 percent				698.50
Materials and Supplies					
	Pipe	$6,748.73		$674.87	
	Track	5,621.83		562.18	
	Government equity at 10 percent				1,237.05
	Total government equity in equipment, materials and supplies				$7,916.06

MF-104s Received	Amount 100%	Amount 50%	Pay
February 1956 MF-104	$9,782.94	$4,891.47	$
March " "	1,548.05	774.03	
April " "	4,972.50	2,486.25	235.69
May " "	2,736.00	1,368.00	1,368.00
	19,039.49	$9,519.75	
Less Government equity in equipment, materials & supplies		7,916.06	
Due operator		$1,603.69	$1,603.69

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

RECEIVED
MAY 21 1956

1201 N. Division St.
Spokane 2, Washington
May 7, 1956

MEMORANDUM

To: DMEA Field Team, Region I, Northwest District

From: E. G. Erickson, Mining Engineer, Bureau of Mines

Subject: Interim report, Docket No. DMEA-3142 (copper), Holden Mine, Howe Sound Company, Chelan County, Washington, Contract No. Idm-E644

The exploration project site was inspected May 1, 2 and 3, accompanied by Messrs. Cater and Crowder, geologists, Geological Survey, Mr. R. A. Paasch, company geologist, and Mr. Robertson, Bureau of Mines engineer.

The Operator's application for aid for additional exploration in the Buckskin area, additional drilling below the 2500 level, and exploration of the area west of the present mine workings was discussed with Mr. J. S. Roper, general manager, and Mr. J. M. Newman, mine superintendent.

Progress of the present contract work

1500 Level

The drifting east had been stopped at survey station No. 1352 plus 301.5 feet for a total advance of 3,800 feet under the contract.

Diamond drilling was in progress from the crosscut drill station cut at the face of the drift. After completion of this hole the last hole under the present contract will be drilled from the crosscut drill station located 335 feet west of the present drill site. Both holes have a northerly bearing.

Results of drifting and core drilling have been very disappointing. No significant ore mineralization has been disclosed.

Discussion of additional exploration of Buckskin area proposed by Operator

The possibility of a resistivity survey has been dropped; however, the Operator has received correspondence on an electro-magnetic survey which sounded encouraging. He will submit the details on a proposed electro-magnetic survey. If this survey will give the results indicated in the correspondence, it should be given consideration.

3142

ACTION ON INTERIM
OR FINAL FIELD TEAM REPORT

Date 5-21

Referred to:

1. ~~Mr. Mittendorf~~ Mitt
2. ~~Mr. Johnson~~
3. ~~Mr. Chambers~~
4. ~~Docket Control Mails and Files~~
5. ~~Bus Office~~ Division
6. Docket Control Mails and Files

Note comments in report regarding:

1. Request for amendment may be
2. anticipated
3.
4.

and take appropriate action.

- - - - - - - -

Action taken by Division:

Waiting specific recommendations

WRy

Robert E. Adams

Additional drilling was discussed and extension of about four northerly holes being drilled under the present contract and drilling a hole northeasterly at the face of the drift were given favorable consideration. It appears that at least one or two holes south from the east drift should be drilled.

2500 Level

Core drilling below the 2500 level is continuing. Drilling under the present contract should be completed early in June 1956.

Discussion of additional drilling

The drilling has disclosed about a million tons of ore containing about 1 percent copper and 0.05 ounce gold per ton. The drilling has also indicated that dikes may be cutting up the ore body to an extent that profitable-sized stopes may not be in sufficient numbers to warrant the expense of opening a new level.

The present drill pattern has left a considerable unexplored area between drill sites. The Operator has proposed 28,000 feet of drilling to probe the intervening unexplored areas. This additional amount of drilling is believed excessive for exploration.

Discussion of exploration of the Northwest Area

Ebbutt's Breccia Area

Cores from previous drilling in the area were examined and some sulfide ore minerals were found. Records indicated the holes were directed away from the brecciated area. Field Team representatives believe a modest drilling program to test the breccia area is warranted.

The Seismic survey was discussed; however, it appears churn drilling would give more positive information. A project including a churn drill hole, to be followed by core drilling if the overburden is not over 200 feet deep, is believed warranted by Field Team representatives.

The Operator plans on submitting an amended proposal asking for additional exploration aid. Specific recommendations will be made when the amended application is received.

E. G. Erickson

E. G. Erickson

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

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

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of April, 1956 Docket No. DMEA 3142 Contract No. Idm-E644

Operator's Name Howe Sound Company - Chelan Division Minerals Copper

Address Holden, Washington

Contract Amount, $ 309,990.00 Government Participation: 50 % Amount, $ 154,995.00

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
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Bulldozing						
Crosscutting						
Drifting						
Dia. Drill & Transfer Sta.		9,810.00	9,810.00		9810.00	9810.00
(2) Labor and Supervision:						
Labor		105,177.98	105,177.98		106278.53	106278.53
Supervision		8,160.31	8,160.31		8160.31	8160.31
Technical Services		3,690.82	3,690.82		3690.82	3690.82
(3) Operating Mat'ls. and Supplies:						
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Explosives		21,330.73	21,330.73		21330.73	21330.73
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Drill Steel & Bits		12,300.71	12,300.71		12300.71	12300.71
Electric Cable Instln.		358.64	358.64		358.64	358.64
Vent Pipe Instln.		352.90	352.90		352.90	352.90
(4) Operating Equipment:						
Rental		30,907.09	30,907.09		30907.09	30907.09
Purchase		3,873.75	3,873.75		3873.75	3873.75
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
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Sampling and Analysis		130.32	130.32		130.32	130.32
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Ind. ~~xxxxx~~ Liability Insurance & Med. Aid		4,834.84	4,834.84		4834.84	4834.84
Tramming		8,842.10	8,842.10		8832.15	8832.15
Compressed Air		13,816.74	13,816.74		13816.74	13816.74
(8) Contingencies (specify):						
Retroactive Pay		1,100.55	1,100.55		—o—	—o—
Miners Lamps		593.42	593.42		593.42	593.42
Handling Supplies		2,440.20	2,440.20		2440.20	2440.20
Hoisting (2500 Level)		1,397.84	1,397.84		1397.84	1397.84
TOTALS	4,972.50	294,865.49	299,837.99	4972.50	294328.00	299300.50

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

Date 5-23-56 *Payee Howe Sound Co., Chelan Division

Per [signature] Title [signature]

*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)

Part of payment due operator applied against equipment purchase. See Statement attached

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

$ 235 69

Signature [signature]
(Authorized Certifying Officer)

Date 7-6-56 Vou. No. 1812

(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. E644 in accordance with the terms of the contract.

Signature /S/ Eric G. Erickson Title Mining Engr Date 5/28/56

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature /S/ A. E. Weissenborn Title Exec. Officer Date 7/2/56

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

RECEIVED
JUL 12 1956

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of April 1956 Docket No. DMEA 3142 Contract No. Idm-E644
Operator's Name Howe Sound Company Minerals Copper
Address Holden, 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 -1500 Level	Feet			180,382.74	3,800	47.46	4,100	
Crosscutting -2500 Level	Feet			44,351.66	1,368	32.42	1,368	
D.D. Sta)1500	Each			4,410.00	9	490.00	9	490.00
D.D. Sta)Level	Each			300.00	1	300.00	1	300.00
Drilling: Core -1500 Level	Feet	1,402.50	510	16,164.50	5,878	2.75	7,416	2.75
Core 2500 Level	Feet	3,570.00	1190	18,222.00	6,074	3.00	7,000	3.00
Auger								
D.D. Sta)2500	Each			3,600.00	6	600.00	6	600.00
Trsfr								
Sta)Level	Each			1,500.00	3	500.00	3	500.00
Roads and Trails								
TOTAL DISTRIBUTED COSTS		4,972.50		268,930.90				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased				30,907.09				
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		4,972.50		299,837.99				

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 5-23-56 Operator Howe Sound Company
Per [signature] Title [signature]

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/ Eric G Erickson

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

RECEIVED
JUL 12 1956

United States Department of the Interior
Defense Minerals Exploration Administration
1201 North Division Street
Spokane 2, Washington.

Gentlemen:

Re: Docket No. DMEA 3142 (Copper)
Howe Sound Company
Holden Mine
Chelan County, Washington
Contract No. Idm-E644

The following is a narrative of the work accomplished during April, 1956 for the Buckskin Mountain exploration and in the 2500 level crosscuts.

Diamond Drilling

Exploration core drilling from hole U-15-225 at the 682 chute section at the east end of the 1500 level amounted to 510 feet. This hole is now at a depth of 525 feet.

From the 2500 level crosscuts drilling amounted to 1190 feet. This is broken down by holes as follows:

U-25-130, 458 feet; U-25-131, 289 feet; and U-25-132, 445 feet. Hole U-25-130 was drilled from the west station in 294 crosscut south and completed at depth of 548 feet. Hole U-25-131 was drilled from the station in 373 crosscut south to a depth of 289 feet.

Hole U-25-132 was drilled from the west station in 294 crosscut south and completed at a depth of 445 feet.

The total amount of EX core drilling for the month amounted to 1700 feet.

	1500 Drift	2500 Crosscuts
EX Core Drilling	510	1,190
Total EX Core Drilling	5,878	6,074

Yours very truly

J. S. Roper
Manager

JSR:jhk
Enclosures

Budget Bureau No. 42-R1151.2

RECEIVED MAY 31 1956

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of April 1956 Docket No. DMEA 3142 Contract No. Idm-E644

Operator's Name Howe Sound Company Minerals Copper

Address Holden, 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 -1500 Level	Feet			160,382.74	3,600	47.46	4,100	
Crosscutting -2500 Level	Feet			44,351.66	1,365	32.49	1,368	
~~Raising~~ D.D. Sta)1500	Each			4,410.00	9	490.00	9	490.00
~~Shafts~~ D.D. Sta)Level	Each			300.00	1	300.00	1	300.00
~~Winzes~~								
Drilling: Core -1500 Level	Feet	1,402.50	510	16,164.50	5,878	2.75	7,416	2.75
Core 2500 Level	Feet	3,570.00	1190	18,222.00	6,074	3.00	7,000	3.00
Auger								
~~Stripping~~ D.D. Sta)2500	Each			3,600.00	6	600.00	6	600.00
~~Trenching~~ Trsfr								
~~Test Pits~~ Sta)Level	Each			1,500.00	3	500.00	3	500.00
~~Roads and Trails~~								
TOTAL DISTRIBUTED COSTS		4,972.50		268,930.90				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased				30,907.09				
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		4,972.50		299,837.99				

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 5-23-56 Operator Howe Sound Company

Per [signature] Title [signature]

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.

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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

RECEIVED
MAY 3 1 1956

United States Department of the Interior
Defense Minerals Exploration Administration
1201 North Division Street
Spokane 2, Washington.

Gentlemen:

Re: Docket No. DMEA 3142 (Copper)
Howe Sound Company
Holden Mine
Chelan County, Washington
Contract No. Idm-E644

The following is a narrative of the work accomplished during April, 1956 for the Buckskin Mountain exploration and in the 2500 level crosscuts.

Diamond Drilling

Exploration core drilling from hole U-15-223 at the 662 chute section at the east end of the 1500 level amounted to 510 feet. This hole is now at a depth of 525 feet.

From the 2500 level crosscuts drilling amounted to 1190 feet. This is broken down by holes as follows:

U-25-130, 456 feet; U-25-131, 289 feet; and U-25-132, 445 feet. Hole U-25-130 was drilled from the west station in 294 crosscut south and completed at depth of 548 feet. Hole U-25-131 was drilled from the station in 373 crosscut south to a depth of 289 feet.

Hole U-25-132 was drilled from the west station in 294 crosscut south and completed at a depth of 445 feet.

The total amount of EX core drilling for the month amounted to 1700 feet.

	1500 Drift	2500 Crosscuts
EX Core Drilling	510	1,190
Total EX Core Drilling	5,878	6,074

Yours very truly

J. S. Roper
Manager

JSR:jhk
Enclosures

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

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED
JUL 12 1956

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of March, 1956 Docket No. DMEA 3142 Contract No. Idm-E644
Operator's Name Howe Sound Company - Chelan Division Minerals Copper
Address Holden, Washington
Contract Amount, $ 309,990.00 Government Participation: 50 % Amount, $ 154,995.00

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 - core	1,871.25	27,542.75	29,414.00	1871.25	27542.75	29414.00
Bulldozing						
Crosscutting						
Drifting						
Dia. Drill & Transfer Sta.		9,810.00	9,810.00		9810.00	9810.00
(2) Labor and Supervision:						
Labor	55.51	105,122.47	105,177.98	1156.06	105122.47	106278.53
Supervision		8,160.31	8,160.31		8160.31	8160.31
Technical Services		3,690.82	3,690.82		3690.82	3690.82
(3) Operating Mat'ls. and Supplies:						
Timber		10,470.23	10,470.23	[illegible]	10470.23	9966.33
Explosives		21,330.73	21,330.73		21330.73	21330.73
Pipe		6,748.73	6,748.73		6748.73	6748.73
Track		5,117.93	5,117.93	503.90	5117.93	5621.83
Drill Steel & Bits		12,300.71	12,300.71		12300.71	12300.71
Electric Cable & Instl'n		358.64	358.64		358.64	358.64
Vent Pipe - Instl'n.		352.90	352.90		352.90	352.90
(4) Operating Equipment:						
Rental		30,907.09	30,907.09		30907.09	30907.09
Purchase		3,873.75	3,873.75		3873.75	3873.75
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment	152.64	9,694.48	9,847.12	152.64	9694.48	9847.12
Sampling and Analysis		130.32	130.32		130.32	130.32
Payroll Taxes	2.78	4,145.76	4,148.54	524.76	4145.76	3621.00
Ind. ~~Liability~~ Insurance & Med. Aid	3.36	4,831.48	4,834.84	3.36	4831.48	4834.84
Tramming		8,842.10	8,842.10	9.95	8842.10	8832.15
Compressed Air		13,816.74	13,816.74		13816.74	13816.74
(8) Contingencies (specify):						
Retroactive Pay		1,100.55	1,100.55	1100.55	1100.55	— 0 —
Miners Lamps		593.42	593.42		593.42	593.42
Handling Supplies		2,440.20	2,440.20		2440.20	2440.20
Hoisting (2500 Level)		1,397.84	1,397.84		1397.84	1397.84
TOTALS	2,085.54	292,779.95	294,865.49	1548.05	292779.95	294328.00

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

Date 7-23-56 *Payee Howe Sound Company - Chelan Division

Per [signature] Title [signature]

*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 MEP
(Authorized Certifying Officer)

Date 7-6-56 Vou. No. 1812
(See other side)

Payment due applied against equipment purchased by operator

1Cy 104 Ds and negative to Washington 7-23-56

adjusted to audit report

(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 644 in accordance with the terms of the contract.

Signature (S) Eric G. Erickson Title Mining Engr. Date 4/27/56

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature (S) A. E. Weissenborn Title Exec. Officer Date 7-2-56

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.

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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-194A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED
MAY 31 1956

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of March 1956 Docket No. DMEA 3142 Contract No. Idm-E644
Operator's Name Howe Sound Company Minerals Copper
Address Holden, 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 - 1500 Level	Feet	214.29		180,382.74	3,800	47.46	4,100	
Crosscutting -2500 Level	Feet			44,351.66	1,365	32.49	1,368	
~~Raising~~ D.D. Sta.) 1500	Each			4,410.00	9	490.00	9	490.00
~~Shaft~~ D.D. Sta.) Level	Each			300.00	1	300.00	1	300.00
Winzes								
Drilling: Core -1500 Level	Feet	41.25	15	14,762.00	5,368	2.75	7,416	2.75
Core ~~Core~~ -2500 Level	Feet	1,830.00	610	14,652.00	4,884	3.00	7,000	3.00
Auger								
~~Sinking~~ D.D. Sta.) 2500	Each			3,600.00	6	600.00	6	600.00
~~Trenching~~ Trsfr.)								
~~Raise~~ Sta.) Level	Each			1,500.00	3	500.00	3	500.00
~~Miscellaneous~~								
TOTAL DISTRIBUTED COSTS		2,085.54		263,958.40				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased				30,907.09				
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc								
TOTAL COSTS		2,085.54		294,865.49				

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 4-23-56 Operator Howe Sound Company - Chelan Division
Per [signature] Title [signature]

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 872894

April 5, 1956

United States Department of the Interior
Defense Minerals Exploration Administration
1201 North Division Street
Spokane 2, Washington

RECEIVED
MAY 3 1 1956

Gentlemen:

Re: Docket No. DMEA 3142 (Copper)
Howe Sound Company
Holden Mine
Chelan County, Washington
Contract No. Idm-E644

The following is a narrative of the work accomplished during March, 1956 for the Buckskin Mountain exploration and in the 2500 Level Crosscuts.

Diamond Drilling

Core drilling has been contracted to an outside company effective March 1st. Drilling was resumed on March 5th.

Hole U-15-223 at 662 chute section at the east end of the 1500 level was collared and drilled 15 feet.

From the 2500 Level Crosscuts drilling amounted to 610 feet. This is broken down into holes as follows: U-25-128, 518; and U-25-130, 92 feet. Hole U-25-128 was drilled from the east drill station of 294 crosscut south. U-25-130 was collared from the west drill station of 294 crosscut south.

The total amount of EX core diamond drilling for the month amounted to 625 feet.

	1500 Drift	2500 Crosscuts
EX Core Drilling	15	610
Total EX Core Drilling	5,368	4,884

Yours very truly,

J. S. Roper
Manager

JSR:ms

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

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED JUL 12 1956

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of February, 1956 Docket No. DMEA 3142 Contract No. Idm-E644
Operator's Name Howe Sound Company - Chelan Division Minerals Copper
Address Holden, Washington
Contract Amount, $309,990.00 Government Participation: 50 % Amount, $ 154,995.00

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:				7/19/56 [illegible]		
Drilling - Core	1,236.00	26,306.75	27,542.75	1236.00	26306.75	27542.75
Bulldozing						
Crosscutting						
Drifting						
Dia. Drill & Transfer Sta.	490.00	9,320.00	9,810.00	490.00	9320.00	9810.00
(2) Labor and Supervision:						
Labor	3,876.15	101,246.32	105,122.47	3876.15	101246.32	105122.47
Supervision	523.22	7,637.09	8,160.31	523.22	7637.09	8160.31
Technical Services	79.14	3,611.68	3,690.82	79.14	3611.68	3690.82
(3) Operating Mat'ls. and Supplies:						
Timber	669.70	9,800.53	10,470.23	669.70	9800.53	10470.23
Explosives	389.94	20,940.79	21,330.73	389.94	20940.79	21330.73
Pipe	295.78	6,452.95	6,748.73	295.78	6452.95	6748.73
Track	507.71	4,610.22	5,117.93	507.71	4610.22	5117.93
Drill Steel & Bits	375.56	11,925.15	12,300.71	375.56	11925.15	12300.71
Electric Cable Instl'n	-	358.64	358.64		358.64	358.64
Vent Pipe Instl'n	5.13	347.77	352.90	5.13	347.77	352.90
(4) Operating Equipment:						
Rental						
Purchase		30,907.09	30,907.09		30907.09	30907.09
Depreciation	76.50	3,797.25	3,873.75	76.50	3797.25	3873.75
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment	316.83	9,377.65	9,694.48	316.83	9377.65	9694.48
Sampling and Analysis	-	130.32	130.32		130.32	130.32
Payroll Taxes	223.92	3,921.84	4,145.76	223.92	3921.84	4145.76
Ind. ~~Sickness~~ Insurance & Med. Aid	215.38	4,616.10	4,831.48	215.38	4616.10	4831.48
Tramming	174.42	8,667.68	8,842.10	174.42	8667.68	8842.10
Compressed Air	262.78	13,553.96	13,816.74	262.78	13553.96	13816.74
(8) Contingencies (specify):						
Retroactive Pay	-	1,100.55	1,100.55		1100.55	1100.55
Miners Lamps	14.80	578.62	593.42	14.80	578.62	593.42
Handling Supplies	49.98	2,390.22	2,440.20	49.98	2390.22	2440.20
Hoisting (2500 Level)	-	1,397.84	1,397.84		1397.84	1397.84
TOTALS	9,782.94	282,997.01	292,779.95	9782.94	282997.01	292779.95

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

Date 3-19-56 *Payee Howe Sound Company - Chelan Division

Per [signature] Title [signature]

*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 MJP
(Authorized Certifying Officer)

Date 7-6-56 Vou. No. 1812
(See other side)

one 10 ½ a - Narrative
4 maps to Washington
[illegible] 26-56

amount due operator applied against purchase of equipment, etc. by operator - see statement attached

(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. 6644 in accordance with the terms of the contract.

Signature 151 Stephen W. Zoldok Title Mining Engr. Date 7-2-56

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature 151 A. E. Weissenborn Title Exec. Officer Date 7-2-56

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

Unsowell
Betty

RECEIVED
APR 5 - 1956

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

Month of February 1956 Docket No. DMEA 3142 Contract No. Idm-E644
Operator's Name Howe Sound Company Minerals Copper
Address Holden, 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 - 1500 Level	Feet	3,056.94	? 102	180,168.45	3,800	47.41	4,100	
Crosscutting - 2500 Level	Feet			44,351.66	1,365	32.49	1,368	
Raising D. D. Sta.) 1500	Each	490.00	1	4,410.00	9	490.00	9	490.00
D.D. Sta.) Level	Each			300.00	1	300.00	1	300.00
Drilling: Core - 1500 Level	Feet			14,720.75	5,353	2.75	7,416	2.75
Core - 2500 Level	Feet	1,236.00	412	12,822.00	4,274	3.00	7,000	3.00
D.D. Sta.) 2500	Each			3,600.00	6	600.00	6	600.00
Trafr.)								
Sta.) Level	Each			1,500.00	3	500.00	3	500.00
Total Distributed Costs		9,782.94		261,872.86				Total Costs Authorized by Contract
Operating Equipment Purchased		-		30,907.09				34,539.14
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
Total Costs		9,782.94		292,779.95				

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 3-19-56 Operator Howe Sound Company - Chelan Division
Per [signature] Title [signature]

Remarks: 4/10/56. WPR

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)

Payment being withheld temporarily. Project nearing completion. Fund will be released at a later date as soon as vouchers come in.

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

March 8, 1956

RECEIVED

APR 2 - 1956

United States Department of the Interior
Defense Minerals Exploration Administration
1201 North Division Street
Spokane 2, Washington

Gentlemen:

Re: Docket No. DMEA 3142 (Copper)
Howe Sound Company
Holden Mine
Chelan County, Washington
Contract No. Idm-5644

The following is a narrative of the work accomplished during February, 1956 for the Buckskin Mountain exploration and in the 2500 level crosscuts.

Buckskin Mountain Exploration

Drifting on the 1500 level was halted after an advance of 102 feet was made in altered peridotite and in diorite. Overbreak amounted to 4,116 cubic feet. Timber in the heading was extended 104 feet to within 10 feet of the face and 10 rock bolts were installed in this last 10 feet of the drift.

A diamond drill station was cut at the end of the drift; 13 rock bolts were used in the back of the station.

The final work on tenus was done on February 23. During the remainder of the month the crew replaced broken timber, installed new timber to relieve heavily loaded sets, and removed equipment and material from the heading.

2500 Level Crosscuts

Diamond drilling from the station at the end of the 357 crosscut south was finished, and the shorter hole from the station at the 6000 coordinate in the 284 crosscut south was completed.

Miscellaneous Information

In the table below are data pertaining to the projects on both the 1500 and 2500 levels.

	1500 Drift	2500 Crosscuts
Advance	102	-
Rounds blasted	16	-
Total advance under DMEA	3,800	1,535
Average tram to haulage drift	6,580	-
Length of newly timbered section	104	-
Rock bolts used	10	-
Total rock bolts used	1,751	77
EX Core drilling	-	412
Total EX Core drilling	5,353	4,274
Total No. car transfers	-	3
Total No. diamond drill stations	10	6

Maps are appended to this report.

Yours very truly,

J. S. Roper
Manager

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

Budget Bureau No. 42-R1036.5

RECEIVED
MAR - 8 1956

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of January, 1956 Docket No. DMEA 5142 Contract No. Idm-E644
Operator's Name Howe Sound Company - Chelan Division Minerals Copper
Address Holden, Washington
Contract Amount, $ 309,990.00 Government Participation: 50 % Amount, $ 154,995.00

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:						Margaret Betty
Drilling - Core	2,235.00	24,071.75	26,306.75	2235.00	24071.75	26306.75
Bulldozing						
Crosscutting						
Drifting						
Dia. Drill & Transfer Sta.	-	9,320.00	9,320.00		9320.00	9320.00
(2) Labor and Supervision:						
Labor	5,456.98	95,789.34	101,246.32	5456.98	95789.34	101246.32
Supervision	701.49	6,935.60	7,637.09	701.49	6935.60	7637.09
Technical Services	102.63	3,509.05	3,611.68	102.63	3509.05	3611.68
(3) Operating Mat'ls. and Supplies:						
Timber	1,133.42	8,667.11	9,800.53	1133.42	8667.11	9800.53
Explosives	646.54	20,294.25	20,940.79	646.54	20294.25	20940.79
Pipe	179.22	6,273.73	6,452.95	179.22	6273.73	6452.95
Track	40.20	4,570.02	4,610.22	40.20	4570.02	4610.22
Drill Steel & Bits	550.52	11,374.63	11,925.15	550.52	11374.63	11925.15
Electric Cable Inst'n	-	358.64	358.64		358.64	358.64
Vent Pipe Inst'n	17.13	330.64	347.77	17.13	330.64	347.77
(4) Operating Equipment:						
Rental						
Purchase		30,907.09	30,907.09		30907.09	30907.09
Depreciation	131.25	3,666.00	3,797.25	131.25	3666.00	3797.25
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment	413.58	8,964.07	9,377.65	413.58	8964.07	9377.65
Sampling and Analysis		130.32	130.32		130.32	130.32
Payroll Taxes	312.34	3,609.50	3,921.84	312.34	3609.50	3921.84
Ind. ~~Insurance~~ Insurance & Med. Aid	287.48	4,328.62	4,616.10	287.48	4328.62	4616.10
Tramming	299.25	8,368.43	8,667.68	299.25	8368.43	8667.68
Compressed Air	612.81	12,941.15	13,553.96	612.81	12941.15	13553.96
(8) Contingencies (specify):						
Retroactive Pay	-	1,100.55	1,100.55		1100.55	1100.55
Miners Lamps	25.90	552.72	578.62	25.90	552.72	578.62
Handling Supplies	85.75	2,304.47	2,390.22	85.75	2304.47	2390.22
Hoisting (2500 Level)	-	1,397.84	1,397.84		1397.84	1397.84
TOTALS	$13,231.49	$269,765.52	$282,997.01	13231.49	269765.52	282997.01

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

Date 2-27-56 *Payee Howe Sound Company - Chelan Division

Per [signature] Title [signature]

*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:

$ 6615.75

Signature MAP
(Authorized Certifying Officer)

Date 3/5/56 Vou. No. 1720
(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. E644 in accordance with the terms of the contract.

Signature (S) Eric G. Erickson Title Mining Engr Date 2/24/56

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature (S) A. E. Weissenborn Title Exec. Officer Date 2/27/56

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 872893

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED
MAR - 8 1956

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of January 195 6 Docket No. DMEA 5142 Contract No. Idm-E844
Operator's Name Howe Sound Company Minerals Copper
Address Holden, 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 - 1500 Level	Feet	10,996.49	175	172,111.51	3,698	46.54	4,100	
Crosscutting - 2500 Level	Feet			44,351.66	1,365	32.49	1,338	
Raising D.D. Sta.) 1500	Each			3,920.00	8	490.00	9	490.00
Shafts D.D. Sta.) Level	Each			500.00	1	500.00	1	500.00
Drilling: Core 1500 Level	Feet			14,720.75	5,353	2.75	7,416	2.75
Core 2500 Level	FEET	2,235.00	745	11,586.00	3,862	3.00	7,000	3.00
D.D. Sta.) 2500	EACH			3,600.00	6	600.00	6	600.00
Trafr.) Level								
Sta.)	EACH			1,500.00	3	500.00	3	500.00
TOTAL DISTRIBUTED COSTS		13,231.49		252,089.92				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased				30,907.09				34,539.14
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		13,231.49		282,997.01				

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 2-21-56 Operator Howe Sound Company - Chelan Division
Per [signature] Title [signature]

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)

151 Eric G. Erickson

3862
2623
1239

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

February 7, 1956

RECEIVED

MAR - 8 1956

United States Department of the Interior
Defense Minerals Exploration Administration
1201 North Division Street
Spokane 2, Washington

Gentlemen:

Re: Docket No. DMEA 3142 (Copper)
Howe Sound Company
Holden Mine
Chelan County, Washington
Contract No. Idm-E644

The following is a narrative of the work accomplished during January, 1956 for the Buckskin Mountain exploration and in the 2500 level crosscuts.

Buckskin Mountain Exploration

The 1500 drift east was advanced 175 feet in diorite and altered peridotite. Numerous transverse faults and slips were encountered; overbreak from both the ribs and the back was extreme, amounting to 5,851 cubic feet. Timber in the drift was extended 168 feet to within 10 feet of the face.

To make room for a car transfer the south rib of the drift was sideswiped opposite the diamond drill station at the 12905 east coordinate. Although the drill station and transfer were located in sound diorite 26 rock bolts were needed to stabilize the widened section of the drift and another 2 bolts were put in the drill station.

Repairs were made on the air-operated booster pump which is used on the water line in the east drift.

2500 Level Crosscuts

Rock bolting was completed in the 2 diamond drill stations in the 294 crosscut south. An additional 21 bolts were installed in the east station and 24 were put in the west station.

Diamond drilling from the station at the end of the 357 crosscut is nearly finished. The steeper hole was completed on passing through the copper-nickel footwall zone and the flatter hole has reached the zone.

Miscellaneous Information

In the table below are data pertaining to the projects on both the 1500 and 2500 levels.

	1500 Drift	2500 Crosscuts
Advance	175 Ft.	-
Rounds Blasted	27	-
Total advance under DMEA	3,698 Ft.	1,365 Ft.
Average tram to haulage drift	6,480 Ft.	-
Length of newly timbered section	168 Ft.	-
Rock Bolts Used	26	-
Total rock bolts used	1,741	77

(Continued next page)

Miscellaneous Information (Continued)

	1500 Drift	2500 Crosscuts
EX Core Drilling	-	745 Ft.
Total EX Core Drilling	5,353 Ft.	3,862 Ft.
No. of car transfers Cut	-	3
No. of diamond drill stations cut	9	6

Maps are apponded to this report.

Yours very truly,

J. S. Roper
Manager

JSR:ms

DIAMOND DRILL LOGS AND MAPS.

2500 LEVEL.

ORM 83A 1M 5-50 C.P.

W

HOWE SOUND COMPANY
CHELAN DIVISION

RECEIVED
MAY 31 1956

DIAMOND DRILLING RECORD

SHEET NO. 1
BY DWW
DATE April 1956

HOLE NO. U-25-130 MINE Holden LEVEL 2500
LOCATION 294 XCSW Off 2500 Heulage Drift East at 285 Chute Section
BEARING North DIP LENGTH 548'
LATITUDE OF COLLAR 19,034 DEPARTURE OF COLLAR 5,698 ELEVATION 2,532'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		0 - 2						No Core.
		2 - 40						Grey irregulary textured medium grained biotite diorite. Core broken and blocky. Loss: 1' 2-12, 5' 12-20, 3½' 24-33, 2' 35-40.
		40 - 58						Amphibole biotite schist to amphibole phlogopite schist-strong bleaching 44-46. Loss: 4' 40-46, 2½' 46-51, 1' 51-55, 3' 55-58.
		58 - 62½						Green medium grained amphibole biotite schist. Core broken. Loss: 2½' 58-62.
		62½ - 75						Light grey medium grained biotite diorite. Strong yellowish bleedhing 62½-63, 65-66, 68-73. Core broken. Loss: 1' 62-66, 4' 66-72. Driller reports caving 55-75.
		75 - 91						Dark blue grey medium fine grained diorite. Loss: 4' 80-92.
		91 -117						Dark blue grey medium grained to fine grained slightly gneissic diorite with small white flecks. Loss: 2' 107-114.
		117 -119						Very dark grey medium grained diorite and light grey medium grained biotite diorite. Core broken throughout.
		119 -136						Dark blue grey medium grained fine grained crystalline amphibole biotite schist. Core Loss: 1' 119-128.
		136 -150						Similar to 91-117, but shows inter-bending with lighter coarser grained phases. Loss: 1' 141-150.
		150 -158						Green and dark brown medium grained and medium grained to fine grained crystalline amphibole biotite schist.
		158 -160½						Light grey medium grained irregulary textured biotite diorite.
		160½ -172						Green medium grained to fine grained diorite.
		172 -173						Dark blue grey medium grained crystalline amphibole biotite schist.
		173 -176½						Same as 160½-172. Core loss: 1' 168-177.
		176½ -181						Light grey medium grained very irregulary textured biotite diorite.

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2
BY DWW
DATE April 1956

HOLE NO. U-25-130 MINE Holden LEVEL 2500
LOCATION 294 XCSW Off 2500 Haulage Drift East at 285 Chute Section
BEARING North DIP LENGTH 548'
LATITUDE OF COLLAR 19,034 DEPARTURE OF COLLAR 5,698 ELEVATION 2,532'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		181 -184½						Same as 176½-181. Core generally broken
		184½ -193						Brown medium grained to fine grained diorite. Loss: 1' 181-185
		193 -196						Remnants of green medium grained to fine grained diorite almost completely altered to brown. 70% replaced by stringers of grey medium grained diorite.
		196 -204½						Gray medium grained porphyritic diorite.
		204½ -207						Grey medium grained locally siliceous amphibole biotite schist. Scattered very minor sulfide mineralization.
		207 -214½						Blue grey very slightly porphyritic medium grained diorite.
		214½ -223						Grey medium grained crystalline amphibole biotite schist.
		223 -227						Green medium grained to fine grained amphibole biotite schist. Scattered pyrite.
		227 -228½						Same as 214-222.
		228½ -230						Grey medium grained to fine grained slightly gneissic porphyritic diorite with pyrite streaks.
		230 -239						Grey medium grained crystalline amphibole biotite schist. Scattered pyrite and chalcopyrite. 236-239. Core blocky 237-239.
		239 -240						Same as 228½-230. Loss: 2' 230-240
		240 -258						Grey biotite diorite complex. Core Loss: 3½' 240-250.
		258 -262						Light grey highly siliceous low mafic schist. Scattered pyrite, pyrrhotite.
		262 -273						Red Brown medium grained to coarse grained crenulated siliceous phlogopite schist; scattered pyrite, 262-266.
		273 -280						Light grey medium grained amphibole schist partly changed to irregulary textured diorite.
		280 -282½						Red brown medium grained to coarse grained crystalline crenulated phlogopite schist with distorted quartz granules and scattered pyrite.

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 3
BY DEW
DATE April 1956

HOLE NO. U-25-130 MINE Holden LEVEL 2500
LOCATION 294 XCSW Off 2500 Haulage Drift East at 285 Chute Section
BEARING North DIP LENGTH 546'
LATITUDE OF COLLAR 19,034 DEPARTURE OF COLLAR 5,698 ELEVATION 2,532'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		282½ -286½						Light grey slightly gneissic medium grained low mafic phlogopite diorite.
		286½ -294						Same as 273-280 with numerous medium grained to coarse grained phlogopite bunds and very minor sulfide mineralizatio
		294 -299						Grey medium grained to fine grained somewhat irregulary textured diorite with occasional schist relicts. Loss: 1½' 283-295
		299 -314						Blue grey medium grained to fine grained diorite grades to medium grained diorite.
		314 -323						Somewhat sheared and crenulated light
	A6287	314-319	Nil	Nil	Nil	Nil	5	grey medium grained amphibole schist
	6288	319-323	Nil	Nil	Nil	Nil	4	scattered pyrite and pyrrhotite throughout
		323 -333						Green fine grained diorite with scattered low mafic diorite streaks. Loss 1': 326-333.
		334 -341½						Light grey medium grained low mafic
	A6289	334-338	Nil	Nil	Tr	Nil	4	phlogopite diorite with remnants of
	A6290	338-341½	Nil	.040	Tr	Nil	3½	phlogopite schist containing weak sulfide mineralization.
		341½ -344						Grey and blue grey medium grained to fine grained biotite diorite.
		344 -366						Brown medium grained crystalline
	A6291	344-349	Nil	.030	Tr	Nil	5	phlogopite schist with pyrite, pyrrhotite
	A6292	349-356	Nil	Nil	Tr	Nil	7	chalcopyrite. Loss: 2' 344-354
	A6293	356-366	Nil	Nil	Tr	Nil	10	7' 356-366
		366 -379½						Blue fine grained diorite, cut by numerous small light grey medium grained low mafic diorite stringers.
		379½ -386						Light Pinkish grey medium grained phlogopite diorite with local concentrations of biotite flecks.
	A6294	386-388	Nil	.145	.005	Nil	2	Brown medium grained crystalline phlogopite schist. Very weak sulfides.
		388 -392						Blue grey medium grained diorite with phlogopite schist remnants. Loss: 1½' 382-392.
	A6295	392-394	Nil	.060	Tr	Nil	2	Same as 386-388.
		394 -397						Same as 388-392.

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 4
BY DWW
DATE April 1956

HOLE NO. U-25-130 MINE Holden LEVEL 2500
LOCATION 294 XCS4 Off 2500 Haulage Drift East at 285 Chute Section
BEARING North DIP LENGTH 548'
LATITUDE OF COLLAR 19034 DEPARTURE OF COLLAR 5,698 ELEVATION 2,532'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
	A6296	397-402	0.25	.110	.010	Nil	5	Same as 386-388. Moderate pyrrhotite at 397½. Some chalcopyrite.
		402 -408						Core lost-run over ½" recovered. Contains some sulfides.
	A6297	408 -415	0.87	.130	.020	Nil	7	Siliceous crystalline grey medium grained amphibole schist with pyrite, pyrrhotite, chalcopyrite. Core loss: 4' 408-415.
		415 -422½						Light grey medium grained slightly gneissic irregulary textured biotite diorite with occasional relicts of schist. Schist remnant with pyrite, pyrrhotite, chalcopyrite.
		422½ -437½						Grey medium grained siliceous amphibole schist with occasional phlogopite bands. Pyrrhotite, pyrite, chalcopyrite throughout.
	A6298	422½-427½	2.24	.225	.025	0.10	5	
	A6299	427½-432½	1.43	.240	.030	0.08	5	
	A6300	432½-437½	1.62	.240	.080	0.14	5	
		437½ -438						Grey medium grained biotite diorite.
	A6301	438-439½	1.62	.130	.055	0.18	1½	Grey siliceous schist with pyrrhotite chalcopyrite, sphalerite.
		439½ -441						Grey medium grained irregulary textured biotite diorite.
	A6302	441-447	1.00	.060	.020	0.12	6	Same as 438-439½.
		447 -450						Light grey medium grained biotite diorite. Loss: 2' 439-449.
	A6303	450-451½	1.06	.080	.030	0.20	1½	Same as 438-439½.
		451½ -457						Blue grey medium grained diorite cut by numerous stringers of blue grey diorite and grey medium grained biotite diorite.
	A6304	457-458	1.06	.285	.035	0.22	1	Grey medium grained somewhat siliceous amphibole schist, with pyrrhotite, chalcopyrite.
		458 -458½						Grey medium grained irregulary textured biotite diorite.
	A6305	458½-464½	0.81	.240	.035	0.16	6	Grey siliceous schist with pyrrhotite chalcopyrite, sphalerite.
		464½ -477						Dark grey medium grained to fine grained locally porphyritic diorite.
		477 -488						Grey medium grained hornblende diorite
		488 -495½						Light grey medium grained biotite diorite grades to medium grained coarse grained phase at center.

FORM 63A 1M 6-51 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

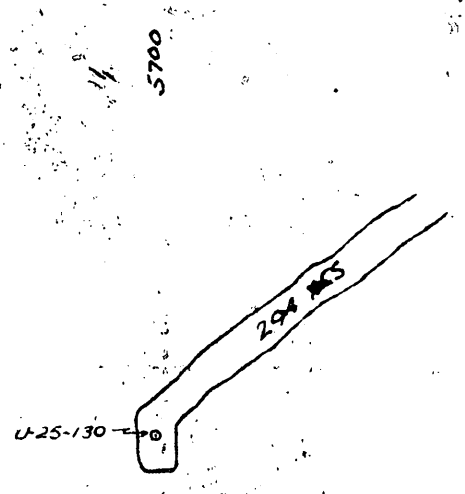
DIAMOND DRILLING RECORD

SHEET NO. 5
BY DWW
DATE April 1956

HOLE NO. U-25-130 MINE Holden LEVEL 2500
LOCATION 294 XCSW Off 2500 Haulage Drift East at 285 Chute Section
BEARING North DIP LENGTH 548'
LATITUDE OF COLLAR 19,034 DEPARTURE OF COLLAR 5,698 ELEVATION 2,532'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
	A6306	495½-500	0.40	.045	.050	0.60	4½	Light grey siliceous schist with pyrrhotite, chalcopyrite, sphalerite.
	A6307	500-500½	0.45	.245	.015	2.50	½	Same as 495½-500
		500½ -503						Very dark grey fine grained diorite.
		503 -521½						Light grey highly siliceous schist with pyrrhotite, chalcopyrite, sphalerite. Very high silicification 516-521½.
	A6308	503-507	0.40	.245	.020	1.05	4	
	A6309	507-511	0.56	.245	.025	0.90	4	
	A6310	511-516	0.80	.345	.045	0.70	5	
	A6311	516-521½	0.28	Nil	Nil	0.70	5½	
		521½ -529						Blue grey medium grained gneissic hornblende biotite.
		529 -529½						Same as 521½-529.
	A6312	529½-532	0.20	.225	.045	0.36	2½	Grey siliceous crystalline schist with pyrrhotite, chalcopyrite, sphalerite.
		532 -537						Red brown medium grained irregulary textured phlogopite diorite.
		537 -548						Brown medium grained to fine grained amphibole biotite schist. Loss: 1½' 533-541 5' 541-548 (Dropped in Hole) Core blocky throughout.
		END						

0	[illegible]	[illegible]	Due South	-86°
50	S58½°W	S81°W	S15°W	-85°
100	S59½°W	S82°W	S16°W	-87°
150	S61½°W	S84°W	S18°W	-88°
200	N53½°W	N33°W	S81°W	-86°
250	N40½°E	N63°E	N3°W	-84°
300	-	-	-	-
350	N42°E	N64½°E	N1½°W	-77°
400	-	-	-	-
450	N42°E	N64½°E	N1½°W	-72°
500	-	-	-	-
550	N39½°E	N62°E	N4°W	-69°



ORM 83A 1M 8-50 C.P.

RECEIVED
MAY 3 1 1956

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HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1
BY DWW
DATE April 1956

HOLE NO. U-25-130 MINE Holden LEVEL 2500
LOCATION 294 XCSW Off 2500 Haulage Drift East at 285 Chute Section
BEARING North DIP LENGTH 548'
LATITUDE OF COLLAR 19,034 DEPARTURE OF COLLAR 5,698 ELEVATION 2,532'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		0 - 2						No Core.
		2 - 40						Grey irregulary textured medium grained biotite diorite. Core broken and blocky. Loss: 1' 2-12, 5' 12-20, 3½' 24-33, 2' 35-40.
		40 - 58						Amphibole biotite schist to amphibole phlogopite schist-strong bleaching 44-46. Loss: 4' 40-46, 2½' 46-51, 1' 51-55, 3' 55-58.
		58 - 62½						Green medium grained amphibole biotite schist. Core broken. Loss: 2½' 58-62.
		62½ - 75						Light grey medium grained biotite diorite. Strong yellowish bleedhing 62½-63, 65-66, 68-73. Core broken. Loss: 1' 62-66, 4' 66-72. Driller reports caving 55-75.
		75 - 91						Dark blue grey medium fine grained diorite. Loss: 4' 80-92.
		91 -117						Dark blue grey medium grained to fine grained slightly gneissic diorite with small white flecks. Loss: 2' 107-114.
		117 -119						Very dark grey medium grained diorite and light grey medium grained biotite diorite. Core broken throughout.
		119 -136						Dark blue grey medium grained fine grained crystalline amphibole biotite schist. Core Loss: 1' 119-128.
		136 -150						Similar to 91-117, but shows inter-bending with lighter coarser grained phases. Loss: 1' 141-150.
		150 -158						Green and dark brown medium grained and medium grained to fine grained crystalline amphibole biotite schist.
		158 -160½						Light grey medium grained irregulary textured biotite diorite.
		160½ -172						Green medium grained to fine grained diorite.
		172 -173						Dark blue grey medium grained crystalline amphibole biotite schist.
		173 -176½						Same as 160½-172. Core loss: 1' 168-177.
		176½ -181						Light grey medium grained very irregulary textured biotite diorite.

ORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2
BY DWW
DATE April 1956

OLE NO. U-25-130 MINE Holden LEVEL 2500
OCATION 294 XCSW Off 2500 Haulage Drift East at 285 Chute Section
EARING North DIP LENGTH 548'
ATITUDE OF COLLAR 19,034 DEPARTURE OF COLLAR 5,698 ELEVATION 2,532'

TE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		181 -184½						Same as 176½-181. Core generally broken
		184½ -193						Brown medium grained to fine grained diorite. Loss: 1' 181-185
		193 -196						Remnants of green medium grained to fine grained diorite almost completely altered to brown. 70% replaced by stringers of grey medium grained diorite.
		196 -204½						Grey medium grained porphyritic diorite.
		204½ -207						Grey medium grained locally siliceous amphibole biotite schist. Scattered very minor sulfide mineralization.
		207 -214½						Blue grey very slightly porphyritic medium grained diorite.
		214½ -223						Grey medium grained crystalline amphibole biotite schist.
		223 -227						Green medium grained to fine grained amphibole biotite schist. Scattered pyrite.
		227 -228½						Same as 214-222.
		228½ -230						Grey medium grained to fine grained slightly gneissic porphyritic diorite with pyrite streaks.
		230 -239						Grey medium grained crystalline amphibole biotite schist. Scattered pyrite and chalcopyrite. 236-239. Core blocky 237-239.
		239 -240						Same as 228½-230. Loss: 2' 230-240
		240 -258						Grey biotite diorite complex. Core Loss: 3' 240-250.
		258 -262						Light grey highly siliceous low mafic schist. Scattered pyrite, pyrrhotite.
		262 -273						Red Brown medium grained to coarse grained crenulated siliceous phlogopite schist; scattered pyrite, 262-266.
		273 -280						Light grey medium grained amphibole schist partly changed to irregulary textured diorite.
		280 -282½						Red brown medium grained to coarse grained crystalline crenulated phlogopite schist with distorted quartz granules and scattered pyrite.

ORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

RECEIVED
MAY 3 1 1956

DIAMOND DRILLING RECORD

SHEET NO. 3
BY DEW
DATE April 1956

HOLE NO. U-25-130 MINE Holden LEVEL 2500
LOCATION 294 XCSW Off 2500 Haulage Drift East at 285 Chute Section
BEARING North DIP LENGTH 548'
LATITUDE OF COLLAR 19,034 DEPARTURE OF COLLAR 5,698 ELEVATION 2,532'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		282½ -286½						Light grey slightly gneissic medium grained low mafic phlogopite diorite.
		286½ -294						Same as 273-280 with numerous medium grained to coarse grained phlogopite bands and very minor sulfide mineralizatio
		294 -299						Grey medium grained to fine grained somewhat irregulary textured diorite with occasional schist relicts. Loss: 1½' 283-295
		299 -314						Blue grey medium grained to fine grained diorite grades to medium grained diorite.
		314 -323						Somewhat sheared and crenulated light grey medium grained amphibole schist scattered pyrite and pyrrhotite throughout.
	A6287	314-319	Nil	Nil	Nil	Nil	5	
	6288	319-323	Nil	Nil	Nil	Nil	4	
		323 -333						Green fine grained diorite with scattered low mafic diorite streaks. Loss 1': 326-333.
		334 -341½						Light grey medium grained low mafic phlogopite diorite with remnants of phlogopite schist containing weak sulfide mineralization.
	A6289	334-338	Nil	Nil	Tr	Nil	4	
	A6290	338-341½	Nil	.040	Tr	Nil	3½	
		341½ -344						Grey and blue grey medium grained to fine grained biotite diorite.
		344 -366						Brown medium grained crystalline phlogopite schist with pyrite, pyrrhotite chalcopyrite. Loss: 2' 344-354 7' 356-366
	A6291	344-349	Nil	.030	Tr	Nil	5	
	A6292	349-356	Nil	Nil	Tr	Nil	7	
	A6293	356-366	Nil	Nil	Tr	Nil	10	
		366 -379½						Blue fine grained diorite, cut by numerous small light grey medium grained low mafic diorite stringers.
		379½ -386						Light Pinkish grey medium grained phlogopite diorite with local concentrations of biotite flecks.
	A6294	386-388	Nil	.145	.005	Nil	2	Brown medium grained crystalline phlogopite schist. Very weak sulfides.
		388 -392						Blue grey medium grained diorite with phlogopite schist remnants. Loss: 1½' 382-392.
	A6295	392-394	Nil	.060	Tr	Nil	2	Same as 386-388.
		394 -397						Same as 388-392.

ORM 83A 1M 8-50 C.F.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 4
BY DWW
DATE April 1956

HOLE NO. U-25-130 MINE Holden LEVEL 2500
LOCATION 294 XCSW Off 2500 Haulage Drift East at 285 Chute Section
BEARING North DIP LENGTH 548'
LATITUDE OF COLLAR 19034 DEPARTURE OF COLLAR 5,698 ELEVATION 2,532'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
	A6296	397-402	0.25	.110	.010	Nil	5	Same as 386-388. Moderate pyrrhotite at 397½. Some chalcopyrite.
		402 -408						Core lost-run over ½" recovered. Contains some sulfides.
	A6297	408 -415	0.87	.130	.020	Nil	7	Siliceous crystalline grey medium grained amphibole schist with pyrite, pyrrhotite, chalcopyrite. Core loss: 4' 408-415.
		415 -422½						Light grey medium grained slightly gneissic irregulary textured biotite diorite with occasional relicts of schist. Schist remnant with pyrite, pyrrhotite, chalcopyrite.
		422½ -437½						Grey medium grained siliceous amphibole schist with occasional phlogopite bands. Pyrrhotite, pyrite, chalcopyrite throughout.
	A6298	422½-427½	2.24	.225	.025	0.10	5	
	A6299	427½-432½	1.43	.240	.030	0.08	5	
	A6300	432½-437½	1.62	.240	.080	0.14	5	
		437½ -438						Grey medium grained biotite diorite.
	A6301	438-439½	1.62	.130	.055	0.18	1½	Grey siliceous schist with pyrrhotite chalcopyrite, sphalerite.
		439½ -441						Grey medium grained irregulary textured biotite diorite.
	A6302	441-447	1.00	.060	.020	0.12	6	Same as 438-439½.
		447 -450						Light grey medium grained biotite diorite. Loss: 2' 439-449.
	A6303	450-451½	1.06	.080	.030	0.20	1½	Same as 438-439½.
		451½ -457						Blue grey medium grained diorite cut by numerous stringers of blue grey diorite and grey medium grained biotite diorite.
	A6304	457-458	1.06	.285	.035	0.22	1	Grey medium grained somewhat siliceous amphibole schist, with pyrrhotite, chalcopyrite.
		458 -458½						Grey medium grained irregulary textured biotite diorite.
	A6305	458½-464½	0.81	.240	.035	0.16	6	Grey siliceous schist with pyrrhotite chalcopyrite, sphalerite.
		464½ -477						Dark grey medium grained to fine grained locally porphyritic diorite.
		477 -488						Grey medium grained hornblende diorite
		488 -495½						Light grey medium grained biotite diorite grades to medium grained coarse grained phase at center.

ORM 83A 1M 8-57 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 5
BY DWW
DATE April 1956

HOLE NO. U-25-130 MINE Holden LEVEL 2500
LOCATION 294 XCSW Off 2500 Haulage Drift East at 285 Chute Section
BEARING North DIP LENGTH 548'
LATITUDE OF COLLAR 19,034 DEPARTURE OF COLLAR 5,698 ELEVATION 2,532'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
	A6306	495½-500	0.40	.045	.050	0.60	4½	Light grey siliceous schist with pyrrhotite, chalcopyrite, sphalerite.
	A6307	500-500½	0.45	.245	.015	2.50	½	Same as 495½-500
		500½ -503						Very dark grey fine grained diorite.
		503 -521½						Light grey highly siliceous schist with pyrrhotite, chalcopyrite, sphalerite. Very high silicification 516-521½.
	A6308	503-507	0.40	.245	.020	1.05	4	
	A6309	507-511	0.56	.245	.025	0.90	4	
	A6310	511-516	0.80	.345	.045	0.70	5	
	A6311	516-521½	0.28	Nil	Nil	0.70	5½	
		521½ -529						Blue grey medium grained gneissic hornblende biotite.
		529 -529½						Same as 521½-529.
	A6312	529½-532	0.70	.225	.045	0.36	2½	Grey siliceous crystalline schist with pyrrhotite, chalcopyrite, sphalerite.
		532 -537						Red brown medium grained irregulary textured phlogopite diorite.
		537 -548						Brown medium grained to fine grained amphibole biotite schist. Loss: 1½' 533-541 5' 541-548 (Dropped in Hole) Core blocky throughout.
		END						

19,034 5,698 2,532 U-25-130

0	[illegible]	[illegible]	Due South	-86°
50	S58½°W	S81°W	S15°W	-85°
100	S59½°W	S82°W	S16°W	-87°
150	S61½°W	S84°W	S18°W	-86°
200	N55½°W	N33°W	S81°W	-86°
250	N40½°E	N63°E	N3°W	-84°
300	-	-	-	-
350	N42°E	N64½°E	N1½°W	-77°
400	-	-	-	-
450	N42°E	N64½°E	N1½°W	-72°
500	-	-	-	-
550	N39½°E	N62°E	N4°W	-69°

5720

294 KCS

19,050

U-25-130

W

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1
BY JIB & D.W
DATE April 1956

HOLE NO. U-25-132 MINE Holden LEVEL 2500
LOCATION 294 XCS# Off 2500 Haulage Drift East at 285 Chute Section
BEARING North DIP LENGTH 445'
LATITUDE OF COLLAR 19,035 DEPARTURE OF COLLAR 5,698 ELEVATION 2,532'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		0 - 2						No core.
		2 - 24						Grey medium grained biotite diorite becomes coarse grained and somewhat porphyritic 9-24. Core broken 13-14½, 17, 19-21½. Core loss: 2' 2-6. 1' 13-21.
		24 - 26½						Blue grey medium grained to coarse grained somewhat crenulated crystalline amphibole biotite schist.
		26½ - 35						Blue grey fine grained diorite cut by occasional stringers of light grey medium grained biotite diorite.
		35 - 65						Grey medium grained to fine grained amphibole biotite schist. Core loss: 20'
		65 - 85						Blue grey medium grained crystalline amphibole biotite schist. Strong bleaching. 66-67, 70(?). Core generally broken 65-78, 85. Core loss: 8' 67-78'. 1' 78-85.
		85 - 94						Dark blue grey medium grained amphibole biotite schist.
		94 - 116½						Blue grey fine grained diorite. Core loss: 3' 88'-98'.
		116½ - 133						Blue grey medium grained crystalline amphibole biotite schist. Core loss: 1' 119-126.
		133 - 165						Fine grained to medium grained blue grey slightly gneissic diorite. Core loss: 2' 154-163.
		165 - 187						Light grey medium grained sheared diorite with pyrite and pyrrhotite.
		187 - 194						Blue green fine grained diorite with pyrite and pyrrhotite.
		194 - 199½						Blue grey medium grained to fine grained locally porphyritic, occasionally slightly gneissic diorite.
	A6314	199½-202½	Nil	.045	.005	Nil	3	Brown medium grained to fine grained crystalline biotite schist, with scattered pyrite throughout.
	A6315	202½-207	Nil	.020	Tr	.04	4½	Light grey medium grained somewhat sheared diorite with pyrite, pyrrhotite.

FORM 55A 1M 1-53 C.P.

HOWE SOUND COMPANY

CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2

BY JIB & DWW

DATE April 1956

HOLE NO. U-25-132 MINE Holden LEVEL 2500

LOCATION 294 XCSW Off 2500 Haulage Drift East at 285 Chute Section

BEARING North DIP LENGTH 445'

LATITUDE OF COLLAR 19,035 DEPARTURE OF COLLAR 5,698 ELEVATION 2,532'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		207 - 216						Light grey medium grained sheared to irregulary textured diorite with disseminated pyrite and pyrrhotite.
		216 - 231½						Brown medium grained to coarse grained somewhat crenulated crystalline phlogopite schist with scattered pyrite and pyrrhotite.
		231½ - 269½						Blue grey medium grained to fine grained very slightly gneissic diorite.
		269½ - 288						Blue grey medium grained diorite. Core loss: 1' 276-282 1' 282-288.
		288 - 319						Brown grey and blue grey medium grained mildly porphyritic biotite diorite. Strong bleaching 314-319. Core loss: 1' 300-308, 2' 308-313, 3' 313-319.
		319 - 324						Blue grey medium grained very slightly gneissic diorite.
		324 - 330½						Red brown medium grained somewhat phlogopitized biotite diorite with occasional stringers and grains of sulphides.
	A6316	330½-332	0.50	.025	.005	0.06	1½	Brown medium grained to coarse grained crenulated phlogopite schist. scattered sulphides.
		332 - 343						Grey medium grained sheared crystalline schist with pyrite, pyrrhotite, chalcopyrite, [redacted] Core loss: 3' 325-338.
	A6317	332-338	1.75	.125	.075	0.10	6	
	A6318	338-343	2.37	.090	.070	0.08	5	
		343 - 345						Light grey medium grained somewhat phlogopitic low mafic irregulary textured diorite.
		345 - 360						Grey medium grained amphibole schist with pyrite, pyrrhotite, chalcopyrite and occasional phlogopite bands. Core loss: 3' 343-349 2' 354 357.
	A6319	345 -349	1.62	.355	.065	0.08	4	
	A6320	349 -353	1.44	.450	.040	0.12	4	
	A6321	353 -357	3.75	.615	.205	0.35	4	
	A6322	357 -361	3.60	.670	.120	0.30	4	
		361 - 373						Diorite complex. Grey medium grained irregulary textured diorite. 361-364, 364-367. Blue grey fine grained diorite 367-373. Core Loss: 1' 360-364, 1' 364-367.
		373 - 386½						Grey medium grained siliceous crystalline schist with pyrrhotite, pyrite, chalcopyrite, sphalerite ascending beyond 383. Core Loss: [illegible]
	A6325	373 - 378	1.44	.270	.040	.50	5	
	A6326	378 -383	1.00	.275	.065	1.85	5	
	A6327	383 -386½	2.50	.175	.025	0.30	3½	

FORM 60A 1M-55 C.P

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 3
BY JIB & DWW
DATE April 1956

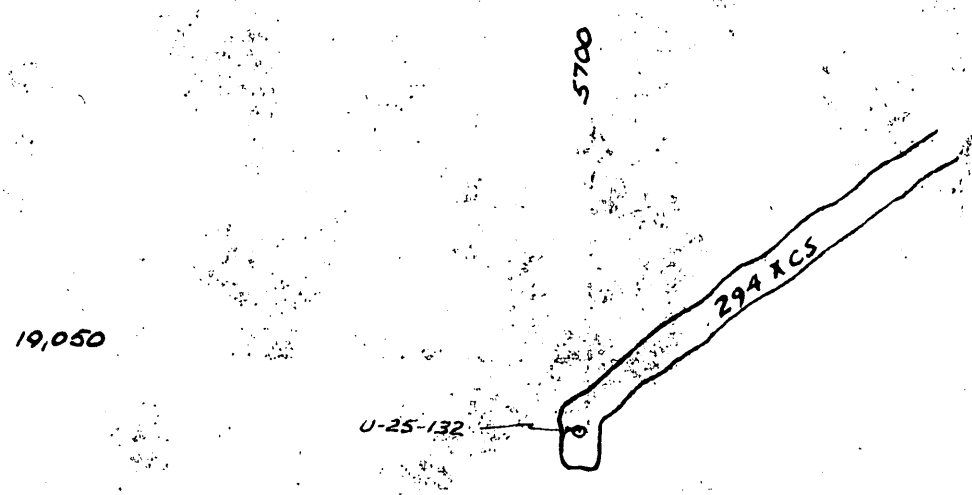
HOLE NO. U-25-132 MINE Holden LEVEL 2500
LOCATION 294 XCSA Off 2500 Haulage Drift East at 385 Chute Section
BEARING North DIP LENGTH 445'
LATITUDE OF COLLAR 19,035 DEPARTURE OF COLLAR 5,698 ELEVATION 2,532

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		386½ - 389						Blue grey medium grained biotite diorite.
		389 - 403½						Grey medium grained siliceous crystalline schist with pyrrhotite, chalcopyrite, sphalerite bands of light grey medium grained phlogopitized biotite diorite.
	A6328	389 -394	0.56	.130	.020	0.20	5	
	A6329	394 -399	0.62	.155	.015	0.15	5	
	A6330	399 -403½	0.28	.070	.010	0.40	4½	
		403½ - 404½						Light grey medium grained phlogopitized biotite diorite.
	A6331	404½-409	0.87	.320	.050	0.50	4½	Same as 389-403½.
		409 - 410						Grey medium grained somewhat gneissic biotite diorite.
	A6332	410 - 413	0.44	.165	.015	0.80	3	Green grey medium grained highly silicified schist with medium grained to coarse grained calcified silicates (?).
		413 - 415½						Blue grey fine grained diorite.
		415½ - 422½						Light grey medium grained slightly gneissic biotite diorite. Loss: 1½' 410-413.
		422½ - 424						Grey medium grained siliceous crystalline biotite schist with traces of sulphides.(pyrrhotite, pyrite.)
		424 - 430						Green medium grained amphibole biotite schist.
		430 - 434						Dark grey medium grained to fine grained somewhat porphyritic diorite.
		434 - 445						Green medium grained amphibole biotite schist. Loss 1' 430-437 2' 437-445

END

19,050 5,690 2,505 U-25-132

0			Due North	-86°
50	N64½°E	N69°E	N21°E	-83°
100	N51½°E	N74°E	N8°E	-83°
130	N42½°E	N75°E	N9°E	-82°
200	N43°E	N65½°E	N2½°E	-81°
250	N38°E	N60½°E	N5½°E	-76°
300	N44°E	N66½°E	N2½°E	-76°
400	N38°E	N60½°E	N5½°W	-74°



HOWE SOUND COMPANY
CHELAN DIVISION

RECEIVED
MAY 31 1956

DIAMOND DRILLING RECORD

SHEET NO. 1
BY JIB & DAW
DATE April 1956

HOLE NO. U-25-132 MINE Holden LEVEL 2500
LOCATION 294 XCSW Off 2500 Haulage Drift East at 285 Chute Section
BEARING North DIP LENGTH 445'
LATITUDE OF COLLAR 19,035 DEPARTURE OF COLLAR 5,698 ELEVATION 2,532'

TE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		0 - 2						No core.
		2 - 24						Grey medium grained biotite diorite becomes coarse grained and somewhat porphyritic 9-24. Core broken 13-14½, 17, 19-21½. Core loss: ½' 2-6. 1' 13-21.
		24 - 26½						Blue grey medium grained to coarse grained somewhat crenulated crystalline amphibole biotite schist.
		26½ - 35						Blue grey fine grained diorite cut by occasional stringers of light grey medium grained biotite diorite.
		35 - 65						Grey medium grained to fine grained amphibole biotite schist. Core loss: 20'
		65 - 85						Blue grey medium grained crystalline amphibole biotite schist. Strong bleaching. 66-67, 70(?). Core generally broken 65-78, 85. Core loss: 8' 67-78'. 1' 78-85.
		85 - 94						Dark blue grey medium grained amphibole biotite schist.
		94 - 116½						Blue grey fine grained diorite. Core loss: 3' 88'-98'.
		116½ - 133						Blue grey medium grained crystalline amphibole biotite schist. Core loss: 1' 119-126.
		133 - 165						Fine grained to medium grained blue grey slightly gneissic diorite. Core loss: 2' 154-163.
		165 - 187						Light grey medium grained sheared diorite with pyrite and pyrrhotite.
		187 - 194						Blue green fine grained diorite with pyrite and pyrrhotite.
		194 - 199½						Blue grey medium grained to fine grained locally porphyritic, occasionally slightly gneissic diorite.
	A6314	199½-202½	Nil	.045	.005	Nil	3	Brown medium grained to fine grained crystalline biotite schist, with scattered pyrite throughout.
	A6315	202½-207	Nil	.020	Tr	.04	4½	Light grey medium grained somewhat sheared diorite with pyrite, pyrrhotite.

FORM 83A 1M 9-51 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2
BY JIB & DWW
DATE April 1956

HOLE NO. U-25-132 MINE Holden LEVEL 2500
LOCATION 294 XCSW Off 2500 Haulage Drift East at 285 Chute Section
BEARING North DIP LENGTH 445'
LATITUDE OF COLLAR 19,035 DEPARTURE OF COLLAR 5,698 ELEVATION 2,532'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		207 - 216						Light grey medium grained sheared to irregulary textured diorite with disseminated pyrite and pyrrhotite.
		216 - 231½						Brown medium grained to coarse grained somewhat crenulated crystalline phlogopite schist with scattered pyrite and pyrrhotite.
		231½ - 269½						Blue grey medium grained to fine grained very slightly gneissic diorite.
		269½ - 288						Blue grey medium grained diorite. Core loss: 1' 276-282 1' 282-288.
		288 - 319						Brown grey and blue grey medium grained mildly porphyritic biotite diorite. Strong bleaching 314-319. Core loss: 1' 300-308, 2' 308-313, 3' 313-319.
		319 - 324						Blue grey medium grained very slightly gneissic diorite.
		324 - 330½						Red brown medium grained somewhat phlogopitized biotite diorite with occasional stringers and grains of sulphides.
	A6316	330½-332	0.50	.025	.005	0.06	1½	Brown medium grained to coarse grained crenulated phlogopite schist. scattered sulphides.
		332 - 343						Grey medium grained sheared crystallin schist with pyrite, pyrrhotite, chalcopyrite, [redacted] Core loss: 3' 325-338.
	A6317	332-338	1.75	.125	.075	0.10	6	
	A6318	338-343	2.37	.090	.070	0.08	5	
		343 - 345						Light grey medium grained somewhat phlogopitic low mafic irregulary textured diorite.
		345 - 360						Grey medium grained amphibole schist with pyrite, pyrrhotite, chalcopyrite and occasional phlogopite bands. Core loss: 3' 343-349 2' 354 357.
	A6319	345 -349	1.62	.355	.065	0.08	4	
	A6320	349 -353	1.44	.450	.040	0.12	4	
	A6321	353 -357	3.75	.615	.205	0.35	4	
	A6322	357 -361	3.60	.670	.120	0.50	4	
		361 - 373						Diorite complex. Grey medium grained irregulary textured diorite. 361-362, 364-367. Blue grey fine grained diorite 367-373. Core Loss: 1' 360-364, 1' 364-367.
		373 - 386½						
	A6325	373 - 378	1.44	.270	.040	0.30	5	Grey medium grained siliceous crystalline schist with pyrrhotite, pyrite, chalcopyrite, sphalerite decreasing beyond 383. Core Loss: 2' 367-374, 1' 374-383.
	A6326	378 -383	1.00	.275	.065	1.85	5	
	A6327	383 -386½	0.50	.175	.025	0.30	3½	

HOWE SOUND COMPANY
CHELAN DIVISION

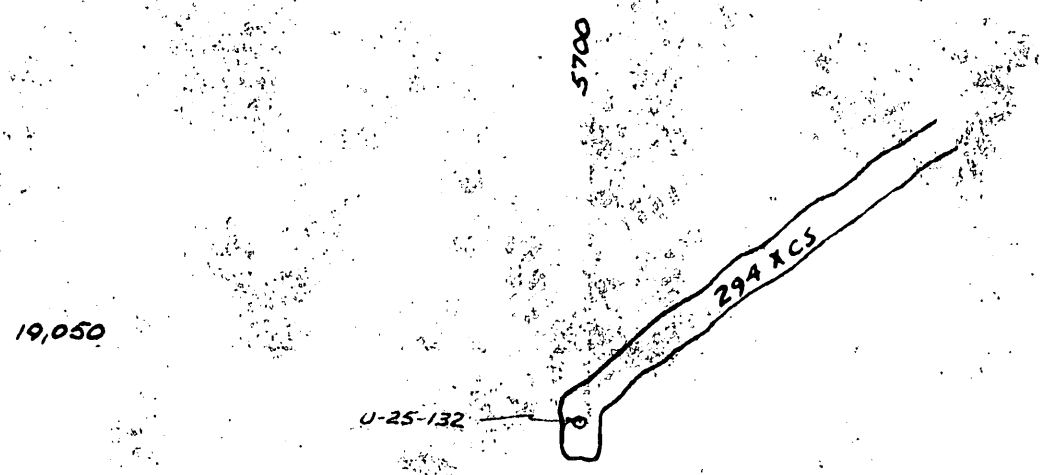
DIAMOND DRILLING RECORD

SHEET NO. 3
BY JIB & DWW
DATE April 1956

HOLE NO. U-25-132 MINE Holden LEVEL 2500
LOCATION 294 XCSW Off 2500 Haulage Drift East at 285 Chute Section
BEARING North DIP LENGTH 445'
LATITUDE OF COLLAR 19,035 DEPARTURE OF COLLAR 5,698 ELEVATION 2,532

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		386½ - 389						Blue grey medium grained biotite diorite.
		389 - 403½						Grey medium grained siliceous crystalline schist with pyrrhotite, chalcopyrite, sphalerite bands of light grey medium grained phlogopitized biotite diorite.
	A6328	389 -394	0.56	.130	.020	0.20	5	
	A6329	394 -399	0.62	.165	.015	0.15	5	
	A6330	399 -403½	0.28	.070	.010	0.40	4½	
		403½ - 404½						Light grey medium grained phlogopitized biotite diorite.
	A6331	404½-409	0.87	.320	.050	0.50	4½	Same as 389-403½.
		409 - 410						Grey medium grained somewhat gneissic biotite diorite.
	A6332	410 - 413	0.44	.165	.015	0.80	3	Green grey medium grained highly silicified schist with medium grained to coarse grained calcified silicates (?).
		413 - 415½						Blue grey fine grained diorite.
		415½ - 422½						Light grey medium grained slightly gneissic biotite diorite. Loss: 1½' 410-418.
		422½ - 424						Grey medium grained siliceous crystalline biotite schist with traces of sulphides.(pyrrhotite, pyrite.)
		424 - 430						Green medium grained amphibole biotite schist.
		430 - 434						Dark grey medium grained to fine grained somewhat porphyritic diorite.
		434 - 445						Green medium grained amphibole biotite schist. Loss 1' 430-437 2' 437-445
		END						

0			Due North	-85°
50	N64½°E	N69°E	N21°E	-85°
100	N61½°E	N74°E	N8°E	-68°
150	N64½°E	N75°E	N8°E	-85°
200	N63°E	N53½°E	N½°E	-81°
250	N58°E	N60½°E	N5½°W	-76°
300	N64°E	N66½°E	N½°E	-76°
400	N55°E	N60½°E	N5½°W	-74°



FORM 83A 1M 8-50 C.P.

Dwlt-3142 Grunwald Betty

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1
BY DWW
DATE March 1956

HOLE NO. U-25-128 MINE Holden LEVEL 2500
LOCATION 294XCSE off 2500 Drift East at 300 Chute Section.
BEARING South DIP -82°S LENGTH 518'
LATITUDE OF COLLAR 19,068 DEPARTURE OF COLLAR 6001 ELEVATION 2533

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
3-7		0 - 32½	W	W	W	W	32½	Bluish grey medium grained amphibole-biotite Schist with minor silicification. Core Loss 1½' 0-5, 2½' 5-9.
3-8		32½ - 36½	W	W	W	W	4	Grey medium grained amphibole biotite schist.
		36½ - 42½	W	W	W	W	6	Grey medium grained biotite diorite complex. Grey Medium grained gneissic biotite diorite banding parallel to regional structure. 36½ - 38. Core loss ½': 34-38.
		42½ - 45	W	W	W	W	2½	Brownish grey medium and medium to coarse grained somewhat crystalline phlogophite schist.
		45 - 59½	W	W	W	W	14½	Grey light grey, and bluish grey medium and medium to fine grained biotite diorite Core loss: 2' 45-51.
		59½ - 91	W	W	W	W	31½	Dark bluish grey crystaline high amphibole biotite schist.
2-9		91 - 122½	W	W	W	W	31½	Dark bluish grey crystaline amphibole-biotite schist with occasional minor light grey diorite. Core loss 3' 111-121.
2-10		122½ - 124	W	W	W	W	1½	Greenish fine grained diorite with sharp conformable contacts.
		124 - 128	W	W	W	W	4	Grey medium grained crystalline amphibole-biotite schist.
		128 - 132	W	W	W	W	4	Grey medium grained biotite diorite with gradational contacts.
		132 - 141	W	W	W	W	9	Grey medium grained amphibole-biotite schist with frequent gradations into grey medium grained biotite diorite.
		141 - 148	W	W	W	W	7	Grey medium grained biotite-diorite. Grey medium grained amphibole-biotite schist 144-145.

FORM 53A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2
BY DWW
DATE March 1956

HOLE NO. U-25-128 MINE Holden LEVEL 2500
LOCATION 294XCSE off 2500 Haulage Drift East at 300 Chute Section.
BEARING South DIP -82°S LENGTH 518'.
LATITUDE OF COLLAR 19,068 DEPARTURE OF COLLAR 6,001 ELEVATION 2,533

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		148 - 151½	W	W	W	W	3½	Greenish fine grained diorite with introduction of minor pyrite in tight fractures.
		151½ - 153	W	W	W	W	1½	Grey medium grained amphibole-biotite schist.
		153 - 161½	W	W	W	W	8½	Migmatite complex. Interbanding of greenish fine grained diorite with various phases of medium grained biotite diorite.
		161½ - 164½	W	W	W	W	3	Grey medium grained amphibole-biotite schist, partially replaced by grey medium grained biotite-diorite.
		164½ - 176½	W	W	W	W	12½	Grey medium grained biotite-diorite. Light grey medium to coarse grained low mafic phase 164½-165.
3-12		176½ - 178½	W	W	W	W	2	Medium grey, medium grained diorite cut by several small quartz bands.
		178½ - 188	W	W	W	W	9½	Biotite schist with pyrite.
		188 - 191	W	W	W	W	3	Diorite, medium grey, medium grained.
		191 - 201	W	W	W	W	10	Biotite schist with pyrite. Somewhat dioritic.
		201 - 202	W	W	W	W	1	Bleached zone, healed fractures containing pyrite.
		202 - 203	W	W	W	W	1	Biotite schist with 3" quartz band.
3-13		203 - 213	W	W	W	W	10	Light grey sheared silicified amphibole schist, with very faint scattering of pyrite.
		213 - 219	W	W	W	W	6	Light grey medium grained silicified amphibole schist with scattered phlogophite bands and amphibole-phlogophite schist adjacent to contacts.

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 3
BY DWW
DATE March 1956

HOLE NO. U-25-128 MINE Holden LEVEL 2500
LOCATION 294 XCSE Off 2500 Haulage Drift East at 300 Chute Section.
BEARING South DIP -82°S LENGTH 518'
LATITUDE OF COLLAR 19,068 DEPARTURE OF COLLAR 6,001 ELEVATION 2,533

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		219 - 222	W	W	W	W	3	Dark bluish grey fine grained "diorite" with relicts of amphibole-biotite schist and light grey medium grained diorite replacement bands, throughout. ~~Numerous biotite~~ Occasional pyrite.
		222 - 246	W	W	W	W	24	Silicified amphibole phlogophite schist. Core loss 5' 203-213, 4' 223-233, 3' 233-240, 1½ 213-223.
		246 - 250	W	W	W	W	4	Light grey medium grained biotite diorite.
		250 - 251	W	W	W	W	1	Same as 241-246'. Core broken 250-250½.
		251 - 257	W	W	W	W	6	Bluish medium to fine grained occasionally porphyritic diorite, with bands of light grey medium grained diorite and bluish fine grained diorite.
		257 - 258½	W	W	W	W	1½	Reddish brown medium to coarse grained phlogophite schist with scattered pyrite.
		258½ - 260	W	W	W	W	1½	Light grey low mafic diorite with interbanded contacts.
		260 - 264	W	W	W	W	4	Brownish coarse grained crenulated amphibole-phlogophite schist.
		264 - 270	W	W	W	W	6	Light grey sheared and crenulated amphibole schist.
3-14		270 - 289	W	W	W	W	19	Grey medium grained sheared crystalline amphibole schist ~~[illegible]~~ with disseminated pyrite and pyrrhotite. Appears to be generally impregnated with light grey diorite.
		289 - 294	W	W	W	W	5	Light reddish medium grained slightly gneissic phlogophite (?) Diorite.
		294 - 304½	W	W	W	W	10½	Sheared and somewhat crenulated grey medium grained crystalline amphibole

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 4
BY DWW
DATE March 1956

HOLE NO. U-25-128 MINE Holden LEVEL 2500
LOCATION 294XCSE off 2500 Haulage Drift East at 300 Chute Section.
BEARING South DIP -82°S LENGTH 518'
LATITUDE OF COLLAR 19,068 DEPARTURE OF COLLAR 6,001 ELEVATION 2,533

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
								schist with scattered pyrite. Quartz vein at 294.
		304½ - 305½	W	W	W	W	1	Light grey medium to fine grained biotite diorite.
		305½ - 307	W	W	W	W	1½	Greenish black medium to fine grained biotite
		307 - 309½	W	W	W	W	2½	Bluish grey medium to fine grained porphyritic biotite diorite with light grey coarse grained acidic bands along contacts
		309½ - 316	W	W	W	W	6½	Sheared light grey medium grained amphibole schist with occasional bands of phogophite and white quartz veins. Core loss 1':310-317
		316 - 322	W	W	W	W	6	Light grey medium to fine grained slightly gneissic altered diorite.
		322 - 324	W	W	W	W	2	Sheared grey medium grained crystalline amphibole schist with pyrite and pyrrhotite.
3-16		324 - 329	W	W	W	W	5	Same as 322-324. Contact at 324 obscured by broken core, but appears to be alternating diorite and phlogophite schist
		329 - 331	W	W	W	W	2	Grey medium grained biotite diorite. Core broken 328-330.
		331 - 350						Reddish brown medium to coarse grained somewhat crenulated, phlogophite schist-containing distorted granules of quartz.
	A-6277	331 - 343	0.13	.115	.005	Nil	12	Minor amounts of pyrite and pyrrhotite
	A-6266	343 - 350	0.28	.025	.005	Nil	7	scattered throughout. Core loss 1': 324-334, 6' 334-350.
		350 - 362						Grey medium grained somewhat sheared
	A-6265	350-353½	0.40	.010	Tr	Nil	3½	crystalline amphibole schist with pyrrho-
	- 67	353½-357	0.30	.050	.010	Nil	3½	tite and pyrite scattered throughout.
	- 68	357 - 362	0.30	.080	.010	Nil	5	Core loss 1':350-358.

FORM 93A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 5
BY DWW
DATE March 1956

HOLE NO. U-25-128 MINE Holden LEVEL 2500
LOCATION 294XCSE off 2500 Haulage Drift East at 300 Chute Section.
BEARING South DIP -82°S LENGTH 518'.
LATITUDE OF COLLAR 19,068 DEPARTURE OF COLLAR 6,001 ELEVATION 2,533

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		362 - 365	W	W	W	W	3	Altered locally crystalline amphibole biotite schist.
		365 - 366	W	W	W	W	1	Greenish fine grained diorite.
		366 - 372½	W	W	W	W	6½	Bluish grey medium grained, somewhat gneissic horn blende diorite(?) With occasional low mafic diorite bands.
		372½ - 374½	W	W	W	W	2	Grey medium to fine grained generally gneissic diorite. Core loss 2½': 362-372.
		374½ - 383½	W	W	W	W	9	Greenish medium to fine grained amphibole schist, cut by small but dense parallel stringers of grey medium grained gneissic diorite.
		383½ - 388	W	W	W	W	4½	Bluish grey fine grained diorite with gradational contacts.
		388 - 395						Silicified amphibole-biotite schist with pyrite, pyrrhotite, and chalcopyrite.
	A-6269	388-391½	1.62	.295	.035	0.10	3½	
	-70	391½-395	1.30	.400	.120	0.10	3½	
5-19		395 - 401	W	W	W	W	6	Grey medium to fine grained diorite. (Dense fine grained amphibole schist?)
		401 - 406	W	W	W	W	5	Light grey medium grained very slightly gneissic biotite diorite. Core loss 8': 392-402.
		406 - 409	W	W	W	W	3	Bluish grey fine grained diorite.
	A-6278	409 - 410	0.75	.190	.030	0.20	1	Light grey highly silicified crystalline schist with chalcopyrite, and sphalerite. Sulfide concentration at contacts.
		410 - 412	W	W	W	W	2	Same as 397-401
		412 - 423						Light grey highly silicified schist with pyrrhotite chalcopyrite and sphalerite.
	A-6271	412-417	0.80	.380	.050	0.28	5	
	72	417-423	0.52	.135	.055	0.30	6	

FORM A 1M

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 6
BY DAW
DATE March 1956

HOLE NO. U-25-128 MINE Holden LEVEL 2500
LOCATION 294XCSE off 2500 Haulage Drift East at 300 Chute Section.
BEARING South DIP -02°S LENGTH 518'
LATITUDE OF COLLAR 19,068 DEPARTURE OF COLLAR 6,001 ELEVATION 2,535

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		423 - 429½	W	W	W	W	6½	Grey medium to fine grained diorite.
		429½ - 444	W	W	W	W	14½	Bluish grey medium grained slightly gneissic hornblende diorite cut by numerous stringers of light grey medium grained biotite diorite. Core loss 2': 433-443.
		444 - 459	W	W	W	W	15	Light grey medium grained biotite diorite and grey medium to fine grained diorite, with occasional remnants of hornblende diorite. Core loss 1': 446-451, 5' 451-459.
		459 - 468	W	W	W	W	9	Same as 429½ - 444.
		468 - 470	W	W	W	W	2	Greenish medium to fine grained amphibole schist.
	A-6275	470 - 473	0.48	.250	.070	1.10	3	Light grey highly silicified crystalline schist with scattered chalcopyrite and sphalerite.
		473 - 477	W	W	W	W	4	Dark grey medium to fine grained gneissic diorite, cut by occasional stringers of light grey medium grained diorite.
	A-6274	477 - 482½	0.25	.080	.050	0.70	5½	Same as 470-473. Sharp contacts.
		482½ - 490	W	W	W	W	7½	Same as 473-477. Core loss 2': 459-486.
		490 - 491	W	W	W	W	1	Grey coarse grained slightly gneissic biotite diorite.
		491 - 499	W	W	W	W	8	Brownish medium to fine grained amphibole biotite schist. Core loss 2½': 486-497.
		499 - 502	W	W	W	W	3	Light grey medium grained gneissic biotite diorite.
		502 - 508	W	W	W	W	6	Light green fine grained calcareous calcium silicate, rock. Garnet masses up

FORM 83A 1M 8-50 C.F.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 7
BY DWW
DATE March 1956

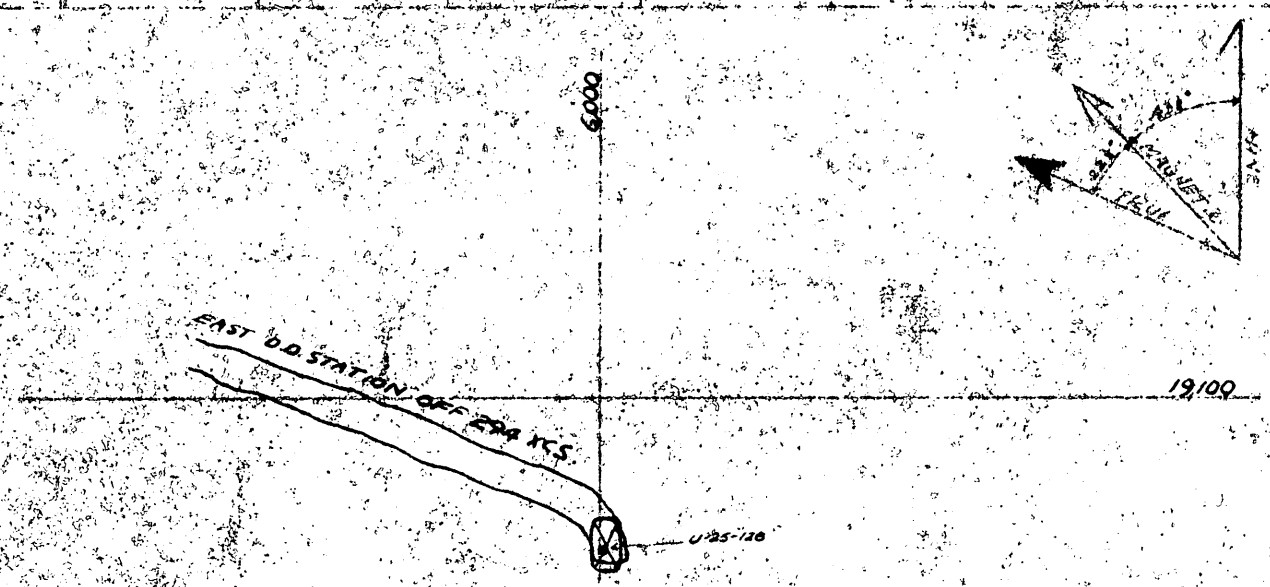
HOLE NO. U-25-128 MINE Holden LEVEL 2500
LOCATION 294XCSE off 2500 Haulage Drift East at 300 Chute Section.
BEARING South DIP -82°S LENGTH 518'
LATITUDE OF COLLAR 19,068 DEPARTURE OF COLLAR 3,001 ELEVATION 2,533

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE				WIDTH	GEOLOGY AND REMARKS
			CU.	AG.	AU.	ZN.		
								to 1/2" in diameter.
		508 - 518					10	Core lost.
		END						

DIAMOND DRILL HOLE SURVEY

LATITUDE 19,069 LONGITUDE 6,002 ELEVATION 2,553 HOLE NO U-25-128

FEET FROM COLLAR	MAGNETIC BEARING	TRUE BEARING	MINE BEARING	INCLINATION	REMARKS
50	S80° W	S48½° W	S25½° E	-85°	Inclination at collar -82° S
50	S 28½° W	S16° W	S20° E	-84°	
100	S 27½° E	S5° E	S71° E	-87°	
150	N 57° E	S 70½° E	N 48½° E	-84°	
200	N 67½° E	East	N 24° E	-80°	
250	N 70½° E	S 87° E	N 27° E	-77°	
300	N 59° E	N 74½° E	N 8½° E	-74°	
400	N 47° E	N 68½° E	N 5½° E	-70°	
500	N 46° E	N 68½° E	N 2½° E	-70°	



Contract E 644

W

FORM 83A 1M 8-50 C.P.

Gwacoold
Betty

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HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

Dwett - 3142

SHEET NO. 1/6
BY DWB
DATE February 1956

HOLE NO. U-25-127 MINE Holden LEVEL 2500
LOCATION 294 Crosscut Southeast off 2300 haulage Drift East at 300 Chute Section
BEARING North DIP - 84° N LENGTH 382'
LATITUDE OF COLLAR 19,069 DEPARTURE OF COLLAR 6,003 ELEVATION 2,533

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		0 - 10						Bluish-grey medium grained crystalline amphibole-biotite schist.
		10 - 21½						Brownish grey medium to fine grained diorite. Relict bands of Biotite and quartz scattered throughout, parallel to adjacent schist structure.
		21½ - 28						Medium grained crystalline biotite schist. Bluish grey with black biotite gradually changes to grey with reddish brown phlogophite.
		28 - 32½						Reddish-brown medium grained amphibole phlogophite schist.
		32½ - 36						Grey medium grained biotite diorite.
		36 - 44						Same as 28½-32. Occasional minor pyrite.
		44 - 47						Greenish fine grained diorite. Occasional streaks of pyrite.
		47 - 48						Same as 28½ - 32.
		48 - 57						Grey medium to fine grained and light grey medium grained diorite. Core broken 51-53.
		57 - 62						Bluish grey medium to fine grained and fine grained biotite diorite.
		62 - 68½						Grey medium grained biotite diorite. Irregular texture.
		68½ - 75						Reddish brown, medium grained amphibole phlogophite schist. Core broken 69½-70. Core loss: 1½' 70-75.
		75 - 77						Strongly bleached zone. Probably original medium grained diorite.

FORM [illegible]

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2/6
BY DWW
DATE February 1956

HOLE NO. U-25-127 MINE Holden LEVEL 2500
LOCATION 294 Crosscut Southeast off 2500 Haulage Drift East at 300 chute section
BEARING North DIP - 84° N. LENGTH 382'
LATITUDE OF COLLAR 19,069 DEPARTURE OF COLLAR 6,003 ELEVATION 2,533

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		77 - 81						Grey medium grained amphibole biotite schist.
		81 - 85						Grey medium to fine grained biotite diorite.
		85 - 88½						Reddish brown medium grained amphibole phlogophite schist.
		88½ - 93½						Light grey medium to fine grained strongly dioritized amphibole-phlogophite Schist.
		93½ - 96						Light grey medium grained slightly gneissic low mafic biotite diorite.
		96 - 99						Same as 88½ - 93½.
		99 - 101						Light grey medium grained biotite diorite.
		101 - 102						Bluish grey medium grained biotite diorite.
		102 - 103						Brownish amphibole phlogophite schist.
		103 - 106						Greenish fine grained diorite cut by stringers of light grey low mafic diorite. Occasional streaks of pyrite.
		106 - 107						Dark grey medium to fine grained amphibole biotite gneiss.
		107 - 116						Grey medium grained biotite Diorite.
		116 - 129						Grey medium grained amphibole-biotite schist. Core loss: 2' 107-117
		129 - 132						Grey medium grained altered schist.
		132 - 141						Grey medium grained diorite with variable texture and color.

FORM 83A 1M 9-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 3/6
BY DWW
DATE February 1956

HOLE NO. U-25-127 MINE Holden LEVEL 2500
LOCATION 294 NCSE off 2500 haulage drift east at 300 chute section
BEARING North DIP - 84° N LENGTH 382'
LATITUDE OF COLLAR 19,069 DEPARTURE OF COLLAR 6,003 ELEVATION 2,333

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		141- 143½						Bluish medium to fine grained diorite with relatively sharp replacement contacts.
		143½ - 154						Light grey medium grained diorite.
		154 - 160						Medium to coarse grained somewhat granulated brownish amphibole-phlogophite schist, impregnated with quartz and scattered pyrite.
		160 - 162½						Greenish fine grained diorite with biotized contacts. Pyrite in fractures close to contacts.
		162½ - 163½						Light grey medium grained phlogophite diorite with scattered grains of pyrite.
		163½ - 170½						Similar to 154-160, but with higher concentration of phlogophite and increased pyrite.
		170½ - 171½						Brownish medium grained phlogophite diorite.
	A 6249	171½ - 176	Nil	.040	.010	0.06	4½	Very coarse grained amphibole-phlogophite schist with concentrations of brown phlogophitite(?) pyrite and quartz.
		176 - 196						Grey medium grained "dioritized" amphibole schist. Scattered pyrite throughout. Core loss: ½' 176-186
	A 6250	196 - 198	Nil	Nil	Nil	Nil	2	Brownish medium to coarse grained amphibole - phlogophite schist, somewhat dioritized, with moderate amounts of pyrite
		198 - 199						Medium to fine grained amphibole phlogophite schist with scattered pyrite.
		199 - 205						Massive milky quartz with scattered remnants ofpyritized amphibole-phlogophite schist.

FORM 83A 1M 8-50 C.P.

RECEIVED APR 23 1956

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2/6
BY DVW
DATE February 1956

HOLE NO. U-25-127 MINE Holden LEVEL 2500

LOCATION 294 XCSE off 2500 haulage drift East at 300 chute section

BEARING North DIP - 84° N LENGTH 382'

LATITUDE OF COLLAR 19,069 DEPARTURE OF COLLAR 6,003 ELEVATION 2,533

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		205 - 214½						Grey medium grained sheared amphibole schist, with scattered pyrite. Core loss: 1' 196-207
		214½ - 217½						Grey medium to fine grained diorite. Tourmaline at 214½.
		217½ - 220						Medium grained reddish brown phlogophite schist. Contains irregular granules of quartz.
		220 - 227						Grey medium grained sheared and crenulated amphibole schist. Scattered pyrite and pyrrhotite.
		227 - 230						Light grey medium grained sheared amphibole schist or sheared diorite (?) with minor sulfides.
	A 6251	230 - 234	Nil	Nil	Nil	Nil	4	Irregularly textured amphibole-phlogophite schist with scattered pyrite and pyrrhotite.
		234 - 235						Bluish fine grained diorite cut by grey medium to fine grained diorite with brownish biotite contact phases.
		235 - 240						Variably textured amphibole-phlogophite schist with scattered pyrite and pyrrhotite. Core loss 1' 237-240
		240 - 246½						Bluish grey medium to fine grained diorite.
		246½ - 254½						Light grey medium grained and medium to coarse grained biotite diorite.
	A 6252	254½ - 258	Nil	.050	Tr	0.08	3½	Brownish medium to coarse grained crenulated, crystalline phlogophite schist with quartz grains.
		258 - 262½						Bluish grey fine grained diorite, grades to medium to fine grained diorite beyond 260½.

FORM 83A 1M 3-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

5/6

DIAMOND DRILLING RECORD

SHEET NO. _____
BY DEW
DATE February 1956

HOLE NO. U-25-127 MINE Holden LEVEL 2500
LOCATION 294 XCSE off 2500 haulage drift east at 300 chute section
BEARING North DIP - 84° N LENGTH 382'
LATITUDE OF COLLAR 19,069 DEPARTURE OF COLLAR 6,003 ELEVATION 2,533

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		262½ - 270½						Grey medium grained biotite diorite. Core broken 263½-264, 265 - 265½
	A 6253	270½ - 274½	0.62	.045	.005	Nil	4	Grey dioritized amphibole schist with pyrite, pyrrhotite, and chalcopyrite.
		274½ - 283						Bluish black very slightly gneissic fine grained diorite. Light grey medium grained biotite diorite with sharp replacement contacts 279-279½. Core loss: 2' 270 - 280.
	A 6254	283 - 288	2.74	.370	.030	Nil	5	Dioritized amphibole schist with pyrite, pyrrhotite, and chalcopyrite. Chalcopyrite concentrated in schist along contacts.
		288 - 289						Grey medium grained gneissic biotite diorite.
		289 - 292						Bluish grey medium to fine grained hornblende (?) diorite.
		292 - 293						Same as 288-289.
	A 6255	293 - 295	0.52	.085	.005	Nil	2	Brownish, medium to coarse grained silicified phlogophite schist with pyrrhotite and chalcopyrite.
		295 - 297						Dark grey medium to fine grained porphyritic biotite diorite with pyrrhotite and chalcopyrite in fractures near upper contact.
		297 - 305						Light grey medium grained slightly gneissic biotite diorite. Core loss: 6½' 297-305
		305 - 315						Greenish medium grained hornblende diorite and silicified schist with pyrrhotite and chalcopyrite. Core loss 9' 305-315

FORM 83A 1M 8-51 C.P.

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HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 6/6
BY DMW
DATE February 1956

HOLE NO. U - 25 - 127 MINE Holden LEVEL 2500

LOCATION 294 XCSF off 2500 haulage drift east at 300 chute section

BEARING North DIP - 84° N LENGTH 382'

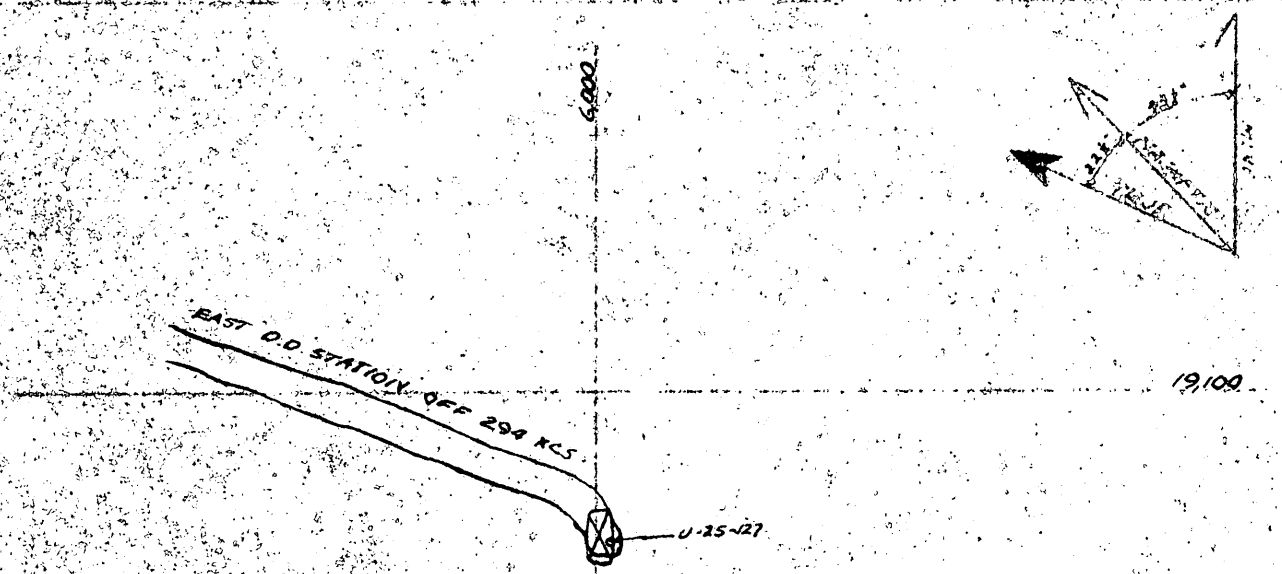
LATITUDE OF COLLAR 19,069 DEPARTURE OF COLLAR 6,003 ELEVATION 2,533

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
	A 6256	315 - 320½	0.96	.275	.080	0.30	5½	Grey highly silicified amphibole shhist with scattered pyrrhotite and chalcopyrite.
		320½ - 322						Light grey medium grained biotite diorite (gneissic)
								Core loss: 1' 315 - 320
		322 - 347						Same as 315 - 320½ with pyrite, pyrrhotite, chalcopyrite and sphalerite frequent bands of low mafic medium to coarse grained biotite diorite with vague contacts.
	A 6257	322 - 325	0.40	.195	.015	0.20	3	
	58	325 - 330	0.56	.165	.025	0.60	5	
	59	330 - 335	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	60	335 - 341	1.20	.470	.090	0.52	6	
	61	341 - 347	0.87	.345	.055	0.46	6	
		347 - 358						Diorite complex.
	A 6262	358 - 362½	0.50	.135	.025	0.54	4½	Highly silicified grey amphibole schist with scattered pyrrhotite, chalcopyrite and sphalerite.
		362½ - 363						Light grey medium to coarse grained low mafic biotite diorite.
		363 - 370						Grey highly silicified amphibole schist with scattered very weak pyrrhotite, chalcopyrite and sphalerite.
	A 6263	363 - 367	0.62	.350	.020	0.92	4	
	64	367 - 370	0.56	.435	.050	1.06	3	
		370 - 371½						Brownish and greenish medium to fine grained amphibole biotite schist. (footwall at 370')
		371½ - 382						Light grey medium grained slightly gneissic biotite diorite.
		End						

DIAMOND DRILL HOLE SURVEY

LATITUDE 19,069 LONGITUDE 6,005 ELEVATION 2,553 HOLE NO U-25-127

FEET FROM COLLAR	MAGNETIC BEARING	TRUE BEARING	MINE BEARING	INCLINATION	REMARKS
20	N 54½° E	N 77° E	N 11° E	-82°	Collar inclination -84° N
50	N 62½° E	N 85° E	N 19° E	-80°	
100	N 64½° E	N 87° E	N 21° E	-78°	
150	N 62° E	N 84½° E	N 19½° E	-76°	
200	N 57½° E	N 80° E	N 14° E	-71°	
250	N 49½° E	N 72° E	N 6° E	-65°	
300	N 47° E	N 69½° E	N 3½° E	-64°	
350	N 49½° E	N 71° E	N 5° E	-61°	



ORM P3A 1M 8-50 C.P.

HOWE SOUND COMPANY

CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1/3

BY TLM

DATE May-June - 1955

HOLE NO. U-25-117 MINE Holden LEVEL 2500

LOCATION 375 FCS Off 2500 Haulage Drift East at 580 Chute section.

BEARING North (collar) DIP -64° (collar) LENGTH 507'

LATITUDE OF COLLAR 19045 N DEPARTURE OF COLLAR 7600 E ELEVATION 2537'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		0 - 20						Chloritized lamprophyre. Zone from 5 - 15 contains much highly replaced biotite schist. Badly broken core. Core loss: 3½' 0-10; 1' 10-15; 2' 15-20.
		20 - 31						Biotite schist cut by numerous fractures. Leached and altered 21-23. Broken core. 1' core loss.
		31 - 37						Phases of replacement diorite. Broken core. 2' core loss.
		37 - 39						Lamprophyre. Broken core.
		39 - 40½						Somewhat gneissic gray biotite diorite. Fractured and chloritized.
		40½ - 61						Siliceous biotite amphibole schist with small granitization zones. Chloritized around numberous fractures. Fractures strike approximately N30°E and dip 80°E. Bedding dips 62°S at 50'.
		61 - 64						Black, fine grained diorite with similar fractures and chloritization as above.
		64 - 67						Fractured and chloritized medium-coarse grained, gray diorite. Lamprophyre dikes 65-65½, 66-66½.
		67 - 73						Siliceous biotite schist with small granitization zones. Occasional chloritized fractures.
		73 - 78						Black fine grained diorite with replacement contacts. Chloritized fractures here and there.
		78 - 93						Predominantly biotite schist but with intermingled black, fine grained diorite. Lineated alaskite (?) 88-89.
		93 - 94						Coarse grained replacement diorite.
		94 - 98½						Altered, medium grained peridotite with tiny cream colored kaolin (?) spots.
		98½ - 105						Medium to dark gray, medium to fine grained diorite.
		105 - 123						Altered and somewhat quartz socked peridotite. Tiny kaolin spots. Occasional pyrite blebs. Black fine grained diorite 112-113. Pyritized biotite schist 113-114 1' core loss.
		123 - 128						Biotite schist with pyrite and pyrrhotite. Alaskite (?) 124-125. 1' core loss.

FORM 92A 1M 8 50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2/3
BY TLB
DATE May - June - 1955

HOLE NO. U-25-117 MINE Holden LEVEL 2500
LOCATION 373 XCS off 2500 Haulage Drift East at 380 Chute section.
BEARING North (collar) DIP -62° (collar) LENGTH 307'
LATITUDE OF COLLAR 10043 N DEPARTURE OF COLLAR 7600 S ELEVATION 2637'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		128 - 136						Black, fine grained diorite. Somewhat altered to biotite. Core loss: 1½' 128-131; 1' 131-136.
		136 - 159						Siliceous biotite schist. 10-20% sulfides. Predominantly pyrrhotite. Some pyrite. Black fine grained diorite 138-139, 142-143. Light gray, course grained, replacement diorite 139-142. Broken core. Core loss: 1' 137-144; 2' 144-151; 3' 151-159.
		159 - 160						Almost completely dioritized biotite schist. Fine grained, brown and sprinkled with pyrite. Broken core. Core loss 4'.
		160 - 175						Same as 136-159. Broken core.
		175 - 181						Fine grained, medium gray, somewhat biotized diorite.
		181 - 194						Siliceous biotite schist with appreciable pyrrhotite. 4' core loss.
		194 - 207						Siliceous biotite (phlogopitic) schist with quartz augens. Pyrite, pyrrhotite, scattered chalcopyrite. Replacement diorite 195-195½, 202-202½, 204-205. Broken core. Core loss: 5' 185-190; 1' 193-205.
	A5947	194-195	Nil	Nil	Nil	Nil	1	
	A5948	195-205	Nil	Nil	Nil	Nil	10	
	A5949	205-207	0.10	.045	.005	Nil	2	
		207 - 215						Predominantly medium gray, medium grained replacement diorite with several small biotite schist inclusions. Broken core. 2' core loss.
	A5950	215 - 220	0.30	.175	.005	Nil	5	Siliceous biotite schist with pyrite pyrrhotite, minor chalcopyrite. Gray replacement diorite 216-217. 2' core loss.
		220 - 227						Black fine grained diorite. Gray replacement diorite 221-222. 1½' core loss 220-225.
	A5951	227 - 232	0.10	.240	.010	0.10	5	Siliceous biotite schist with pyrite, pyrrhotite, chalcopyrite.
		232 - 242½						Black to light gray, fine grained diorite with replacement contacts. Siliceous biotite schist with sulfides 255½-234½. Lamprophyre 255½-236. Core loss: ½' 227-232; 1' 232-233; 2' 233-242½.
		233½-234½	0.10	.100	Nil	Nil	1	
		242½ - 255½						Siliceous biotite schist with pyrite, pyrrhotite, chalcopyrite, sphalerite.
	A5953	242½-245	0.87	.175	Nil	0.70	2½	

ORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

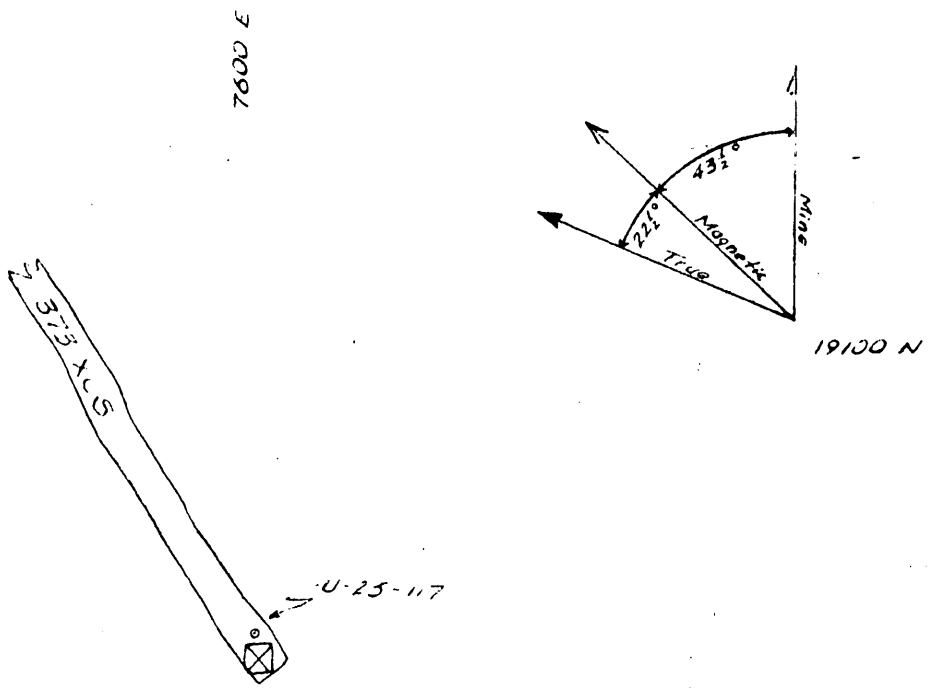
DIAMOND DRILLING RECORD

SHEET NO 3/3
BY [illegible]
DATE May - June - 1955

HOLE NO. U-25-117 MINE Holden LEVEL 2500
LOCATION 373 XCS off 2500 Haulage Drift East at 380 chute section.
BEARING North (collar) DIP -64° (collar) LENGTH 307'
LATITUDE OF COLLAR 19043 N DEPARTURE OF COLLAR 7600 E ELEVATION 2557'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
	A5957	245-245½	0.93	.095	.005	0.06	½	Chloritized, black, fine grained
	A5958	247-252	1.75	.200	.020	0.32	5	diorite 245½-247.
	A5959	252-255½	1.80	.070	.030	0.32	3½	
		255½ - 262						Black, fine grained diorite. Chalcopyrite in fracture 258½-259.
	A5960	262 - 265	1.50	.300	.050	0.63	3	Highly replaced siliceous biotite schist. In less replaced zones, core is massive pyrrhotite with chalcopyrite, pyrite, sphalerite.
		265 - 285						Course grained, gneissic, quartz biotite diorite that is a definite replacement of biotite schist, particularly 267-271. Broken core. 4' core loss 275-285.
		285 - 292						Border phase of above and amphibole schist, broken by slips and small gray diorite dikes. ½' core loss.
		292 - 307						Amphibole schist. Some alteration to biotite. Sprinkled with pyrite occasionally. Core loss: 3' 292-307.

From Collar					
20	N44°E	N66½°E	N½°E	-62°	Collared at -64°.
50	N40°E	N62½°E	N3½°W	-58°	
100	N42°E	N64½°E	N1½°W	-54°	
150	N44½°E	N67°E	N1°E	-52°	
200	N40½°E	N63°E	N3°W	-49°	
250	N41½°E	N64°E	N2°W	-46°	
300	N41°E	N63½°E	N2½°W	-44°	



HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1/4
BY TLW - DWW
DATE June-July, 1955

HOLE NO. U-25-118 MINE Holden LEVEL 2500
LOCATION 373 XCS off 2500 Haulage Drift East at 380 chute section.
BEARING N 17° W (collar) DIP -84° (collar) LENGTH 624'
LATITUDE OF COLLAR 19042 N DEPARTURE OF COLLAR 7599 E ELEVATION 2537'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		0 - 18						Lamprophyre. Broken core. Core loss: 1' 0-9; ½' 9-17.
		18 - 96						Biotite-amphibole schist in various stages of transformation to diorite. Especially 70-96. Rock varies from schist to dark gray, gneissic, medium grained diorite with short (1"-1') zones of white, gneissic diorite. All contacts are obscure. Faulted and/or leached 23-24, 30-32, 62-63, 70-71, 94-95. Core loss: 1' 31-40; 1½' 54-60; 2' 61-69; ½' 69-77; ½' 77-83; 1' 83-89; 2' 89-96.
		96-123						Same as above but predominatly schist. Leached 96-98, 111-112, 122-123. Broken core. Core loss: 2' 96-109; 1½' 109-117.
		123-130						Quartz soaked, peridotite with tiny cream colored kaolin specks. Replacement diorite 126-127, 129-130. Broken core. Core loss: 1' 126-130.
		130-133						Amphibole-biotite schist.
		133-135						Light gray-white, medium grained, replacement diorite. 1' core loss.
		135-143						Black, fine grained diorite with sc schist remnants. Replacement diorite 141-142. 1' core loss.
		143-164						Siliceous biotite schist. Leached 158-161. Core loss: 1' 149-155; 1' 158-164.
		164-166						Peridotite.
		166-169½						Coarse grained, somewhat gneissic, medium gray diorite. ½' core loss.
		169½-219						Siliceous biotite schist with pyrrhotite, pyrite, trace of chalcopyrite. Diorite 214½-216. Core loss: 2½' 171-178; 1' 208-216.
	A6036	169½-174½	0.05	Nil	Tr.	0.06	5	
	A6037	174½-179½	Nil	Tr	Tr.	Nil	5	
	A6038	179½-184½	Nil	Nil	Nil	Nil	5	
	A6039	184½-190½	Nil	Nil	Nil	Nil	6	
	A6040	190½-197	Nil	Nil	Nil	Nil	6½	
	A6041	197-202	0.02	Nil	Tr	Nil	5	
	A6042	202-207	Nil	Nil	Nil	Nil	5	
	A6043	207-212	0.02	Nil	Nil	Nil	5	
	A6044	212-216	Nil	Nil	Nil	Nil	4	
	A6045	216-219	0.05	Tr	Nil	Nil	3	

RM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2/4
BY TLW-DWW
DATE June - July, 1955

HOLE NO. U-25-118 MINE Holden LEVEL 2500
LOCATION 375 XCS off 2500 Haulage Drift East at 380 chute section.
BEARING N 17° W (collar) DIP -84° (collar) LENGTH 624'
LATITUDE OF COLLAR 19042 N DEPARTURE OF COLLAR 7599 E ELEVATION 2537'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		219-224						Transition zone between above and following section. Highly granitized or replaced schist.
		224-234						Leached fault zone. Fault nearly parallel with hole??. Original rock fine grained diorite ?? Core loss: 2' 224-228; 1½' 228-231; 1' 231-234.
		234-241						Originally black, fine grained diorite. Now broken and altered to a gray tinge. Replacement contact at 241. 2½' core loss 237-241.
		241-262						Hanging wall siliceous biotite schist Pyrrhotite, pyrite, widely scattered chalcopyrite specks. Altered black, fine grained diorite 253½-255½, 258-261. Core loss: 1' 245-252; ½' 252-261.
		262-264						Replacement diorite.
		264-271						Granitized biotite-muscovite schist. Heavily pyrrhotized. 1½' core loss.
	A6046	271-277	0.05	Nil	Tr	Nil	6	Siliceous phlogopite schist. Pyrrhotite, pyrite, minor chalcopyrite.
		277-297						Varying facies of light and medium gray, fine and medium grained diorite. Definite replacement of schist. Many fractures — broken core. Core loss: ½' 277-283; 1' 283-287; 1½' 287-293; 2' 293-297.
		297-308						Thoroughly granitized schist with pyrrhotite and scattered chalcopyrite.
	A6047	297-302	0.25	100	Nil	Nil	5	
	A6048	302-308	0.10	Nil	Nil	Nil	6	Broken core. Core loss: 1' 302-304; 1½' 304-308.
		308-312						Light gray, medium grained, replacement diorite. 1' core loss.
		312-315						Black, fine grained diorite with green alteration.
	A6049	315-319	0.18	Tr	Nil	Nil	4	Siliceous biotite (phlogopite) schist with minor pyrrhotite and chalcopyrite.
		319-321						Light gray, replacement diorite.
	A6050	321-324	0.20	Nil	Tr	Nil	3	Siliceous phlogopite schist with pyrrhotite and chalcopyrite.
		324-331						Fine grained, greenish-black diorite with some biotite schist remnants.
		331-343						Siliceous biotite-phlogopite schist.

ORM 83A 1M 9-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 3/4
BY TLW-DNW
DATE June - July, 1955

HOLE NO. U-25-118 MINE Holden LEVEL 2500
LOCATION 373 XCS off 2500 Haulage Drift East at 380 chute section.
BEARING N 17°W(collar) DIP -84° (collar) LENGTH 624'
LATITUDE OF COLLAR 19042 N DEPARTURE OF COLLAR 7599 E ELEVATION 2537'

TE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
	A6051	331-337	0.16	Nil	Tr	0.18	6	Pyrrhotite, pyrite, chalcopyrite,
	A6052	337-343	0.84	.120	.005	Nil	6	sphalerite. Replacement diorite
								335-333½. Lemprophyre 335-335½.
		343-345½						White, replacement diorite. Some-
								what chloritized. Sulfides in slips.
	A6069	345½-349 5	1.10	.090	.030	0.20	3½	Partially replaced (by diorite)
								biotite schist. Pyrrhotite, pyrite,
								chalcopyrite.
		349-431						Lamprophyric type dike (possibly a
								split off of 15-358 dike). Quarts
								augens up to 1/8". Frozen contact.
								Chilled border. Leached and fractured
								370-371, 385½-386½, 393-394, 398-397,
								412½-413, 420-420½, 422½-423, 425-426,
								430½-431. Core loss: 1' 366-371; ½'
								410-413; 1½' 423-431.
		431-435½						Chloritized leached zone that was
								probably gray diorite.
		435½-445						Somewhat granitized amphibole schist.
								Occasional specks of pyrrhotite. Widely
								scattered specks of chalcopyrite. Core
								loss: 2' 435½-440; ½' 442-445.
		445-464½						Coarse grained, light gray, replace-
								ment diorite. Slightly gneissic and
								chloritized here and there. Core loss:
								½' 445-449; 3' 449-457; 6' 457-464.
		464½-467						Black fine grained diorite. 1' core
								loss.
						Nil		
		467-475						Siliceous biotite-amphibole schist
	A6070	467-471	0.68	.150	.005	0.58	4	(?) (probably alteration of peridotite)
	A6071	471-475	0.56	Nil	Tr	0.33	4	pyrrhotite, chalcopyrite. Core loss:
								1½' 467-470; ½' 470-473; 1' 473-475.
		475-518½						Altered peridotite. Contains pyrrho-
	A6072	475-480	0.25	Nil	Nil	0.28	5	tite and chalcopyrite. Light gray,
	A6073	480-487	0.57	Nil	Tr	0.25	7	medium grained, slightly gneissic diorite
	A6074	487-490	0.30	Nil	Tr	0.26	3	496-499½. Numerous blocky fracture zones
	A6075	490-496 4	0.25	Nil	.005	0.18	6	—considerable slickensides in peridotite
	A6076	499½-503	0.10	Nil	Nil	0.07	3½	Core loss: 1½' 480-487; 1' 499-503.
	A6077	503-506	0.15	Nil	Nil	0.07	3	
	A6078	506-510	0.20	Nil	.005	0.20	4	
	A6079	510-514½	0.37	Nil	.010	0.39	4½	
	A6080	514½-518½	0.25	Nil	.005	0.20	4	

FORM 83A 1M 5-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

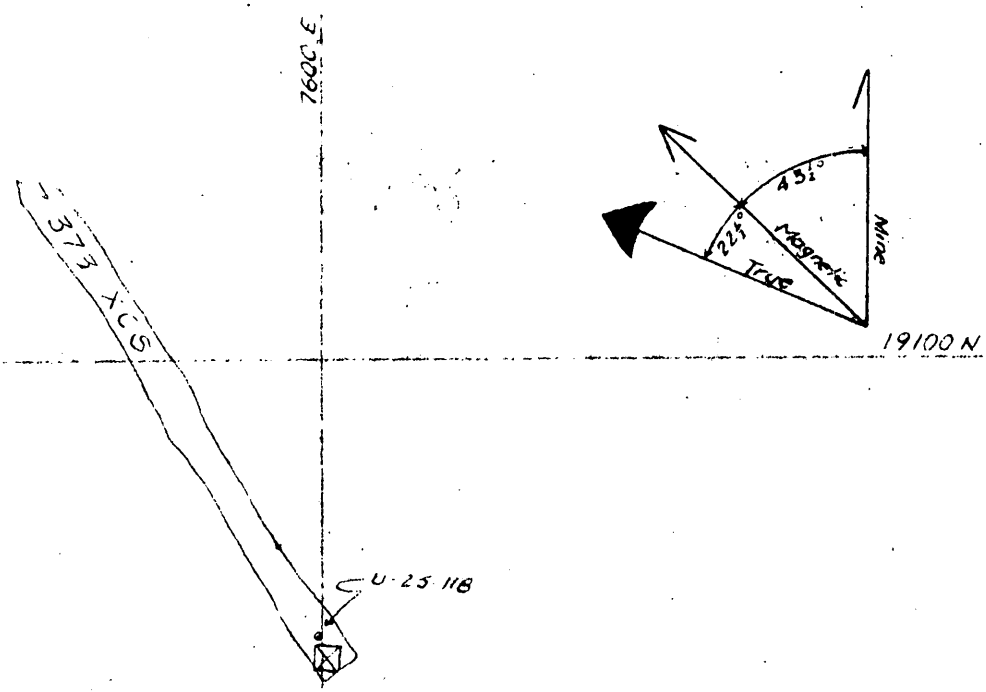
SHEET NO. 4/4
BY TLW - DWW
DATE June - July, 1955

HOLE NO. U-25-118 MINE Holden LEVEL 2500
LOCATION 373 XCS off 2500 Haulage Drift East at 380 chute section.
BEARING N 17° W (Collar) DIP -84° (Collar) LENGTH 624'
LATITUDE OF COLLAR 19042 N DEPARTURE OF COLLAR 7599 E ELEVATION 2537'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	Ni	WIDTH	GEOLOGY AND REMARKS
		518½-521½						Dark gray, medium and fine grained diorite.
	A6081	521½-522½	1.87	Nil	Nil	2.21	1	Pyrrhotite and chalcopyrite.
		522½-569						Varying phases of light to dark gray, fine to medium grained, gneissic diorite. Core loss: 1' 525-530; 1½' 530-535; 1½' 539-547; 1' 559-563; ½' 563-569.
		569-587						Silicified and somewhat altered amphibole schist. Marble 570-571, 574-576. Frequent garnetized bands. Light gray, medium grained diorite 575½-576. 1' core loss.
		587-624 End						Light gray, medium grained diorite.

LATITUDE 19042 N LONGITUDE 7599 E ELEVATION 2537' HOLE NO U25-118

FEET FROM COLLAR	MAGNETIC BEARING	TRUE BEARING	MINE BEARING	INCLINATION	REMARKS
20	N 27° E	N 49½° E	N 16½° W	-85°	Collared at -84°.
50	N 27° E	N 49½° E	N 16½° W	-78°	
100	N 31° E	N 53½° E	N 12½° W	-76°	
150	N 34½° E	N 57° E	N 09° W	-73°	
200	N 39½° E	N 62° E	N 04° W	-71°	
250	N 36½° E	N 59° E	N 07° W	-69°	
300	N 40½° E	N 65° E	N 08° W	-68°	
350	N 32½° E	N 55° E	N 11° W	-68°	
400	N 36½° E	N 59° E	N 07° W	-66°	
450	N 39° E	N 61½° E	N 04½° W	-65°	
500	N 41° E	N 63½° E	N 02½° W	-64°	
550	N 42° E	N 64½° E	N 01½° W	-65°	
600	N 38½° E	N 61° E	N 05° W	-62°	



FORM 63A 4 9-50 C.P.

RECEIVED FEB 20 1956

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

Dwell - 3142

SHEET NO. 1/2
BY DMW
DATE August-September, 1955

HOLE NO. U - 25 - 121 MINE Holden LEVEL 2500
LOCATION 321 XCS off 2500 Haulage Drift East at 320 chute section.
BEARING North DIP -70° LENGTH 294'
LATITUDE OF COLLAR 19,085 DEPARTURE OF COLLAR 6399 ELEVATION 2532'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		0 - 30						Bluish gray, medium grained amphibole schist. Gray, medium grained diorite 24-29.
		30 - 40						Bluish gray to gray, fine grained diorite.
		40 - 60						Medium grained, amphibole-biotite schist.
		60 - 74						Bluish gray, medium grained diorite with traces of finely divided sulfides.
	A6109	74 - 80	Nil	Nil	Nil	Nil	6	Light gray, medium grained, altered amphibole schist with finely divided sulfides.
		80 - 84						Bluish gray, medium grained diorite.
		84 - 96½						Light gray, medium to coarse grained, slightly gneissic diorite.
		96½ - 112						Dark gray, medium grained diorite.
		112 - 133						Silicified amphibole-biotite schist
	A6110	112 - 123	Nil	Nil	Tr	Nil	11	with disseminated pyrite.
		133 - 166						Gray to bluish gray, medium grained diorite.
	A6111	166 - 170	0.52	.080	.015	Nil	4	Altered silicified biotite-amphibole schist with pyrrhotite, pyrite and chalcopyrite.
		170 - 181						Bluish gray to gray, medium grained diorite.
	A6112	181 - 182½	0.62	.025	.005	Nil	1½	Silicified biotite-amphibole schist with pyrrhotite, pyrite and chalcopyrite.
		182½ - 187½						Dark gray, medium grained, slightly gneissic diorite.
		187½ - 224						Silicified amphibole-biotite schist
	A6113	187½ - 191	0.80	.040	.015	Nil	3½	with pyrite, pyrrhotite and chalcopy-
	A6114	191 - 193	0.56	.090	.020	Nil	2	rite.
	A6115	193 - 199	1.18	.190	.100	0.04	6	
	A6116	199 - 205	1.87	.255	.145	0.02	6	
	A6117	205 - 211	2.74	.175	.250	0.08	6	
	A6118	211 - 218½	0.60	.180	.040	Nil	7½	
	A6119	218½ - 224	1.06	.225	.085	0.50	5½	
		224 - 231						Light gray, medium grained diorite
	A6120	228 - 229	0.56	.050	.010	0.60	1	with very short relicts of mineralized schist.
		231 - 247						Silicified biotite-amphibole schist with pyrite, pyrrhotite, chalcopyrite, sphalerite.

FORM 8-A (M 1-59 C.P.)

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2/2
BY
DATE

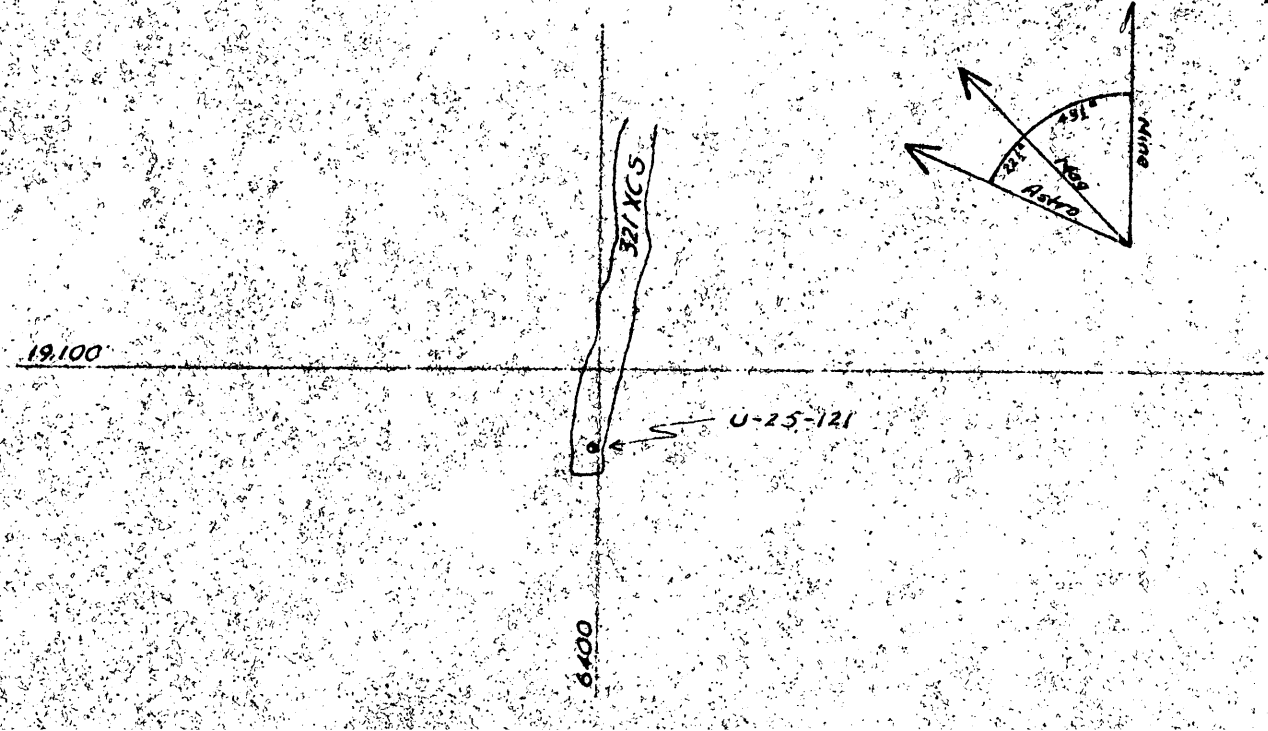
HOLE NO. U - 25 - 121 MINE Holden LEVEL 2500
LOCATION 321 XCS off 2500 Haulage Drift East at 320 chute section.
BEARING North DIP -70° LENGTH 284'
LATITUDE OF COLLAR 19,083 DEPARTURE OF COLLAR 6399 ELEVATION 2532'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
	A6121	231 - 235	1.12	.250	.040	0.56	4	
	A6122	235 - 241	0.68	.250	.010	1.00	6	
	A6123	241 - 247	0.87	.485	.055	0.70	6	
		247 - 255						Light gray, medium grained diorite.
		255 - 264						Silicified amphibole-biotite schist
	A6124	255 - 260	0.72	.210	.030	0.65	5	pyrrhotite, pyrite, chalcopyrite and
	A6125	260 - 264	0.81	.340	.070	0.50	4	sphalerite.
		264 - 267½						Medium gray, medium grained diorite.
	A6126	267½ - 274	0.54	.220	.025	1.10	6½	Gray, silicified, amphibole-biotite schist with pyrrhotite, pyrite, chalcopyrite and sphalerite.
		274 - 281½						Greenish gray, slightly gneissic diorite with occasional scattered sulfides.
		281½ - 284						Gray amphibole schist with occasional biotite concentrations.
		End						

DIAMOND DRILL HOLE SURVEY

LATITUDE [illegible] LONGITUDE [illegible] ELEVATION [illegible] HOLE NO U - 25 -121

FEET FROM COLLAR	MAGNETIC BEARING	TRUE BEARING	MINE BEARING	INCLINATION	REMARKS
20	N 40° E	N 62½° E	N 3° W	-69°	Inclination at collar, -71°.
50	N 45½° E	N 66° E	N	-66°	
100	N 55½° E	N 76° E	N 10° E	-63°	
150	N 49½° E	N 71° E	N 6° E	-60°	
200	N 53½° E	N 74° E	N 8° E	-54°	
250	N 56½° E	N 76° E	N 10° E	-52°	



FORM 83A 1M 54 C.P

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HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1/3
BY DMW
DATE Sept. - Oct., 1955

HOLE NO. U - 25 - 122 MINE Holden LEVEL 2500
LOCATION 321 XCS off 2500 Haulage Drift East at 320 chute section.
BEARING South DIP -87° LENGTH 551'
LATITUDE OF COLLAR 19,032 DEPARTURE OF COLLAR 6399 ELEVATION 2532'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		0 - 4½						Bluish gray, medium to fine grained biotite diorite.
		4½ - 30						Bluish gray amphibole-biotite schist. 3' core loss.
		30 - 37						Greenish gray, medium grained diorite.
		37 - 74						Bluish gray, siliceous amphibole schist. Core loss: 2' 31-41.
		74 - 85						Light gray, medium grained diorite. 1' core loss.
		85 - 98						Bluish gray, medium to fine diorite.
		98 - 102						Light gray, medium grained diorite.
		102 - 115						Gray, silicified amphibole-biotite schist.
		115 - 119						Gray, medium grained diorite.
		119 - 133						Gray, siliceous amphibole schist with scattered minute grains of pyrite.
		133 - 149½						Bluish gray, medium to fine grained diorite. Core loss: 1' 130-145.
		149½ - 184						Amphibole schist with variable biotite content. Scattered sulfides 176-184. Core loss: 1' 145-154; 1' 154-164; 1' 169-186.
		184 - 186						Bluish gray, medium grained diorite.
		186 - 195						Medium grained, greenish, silicified amphibole schist with marked shearing. Local concentrations of pyrite.
		195 - 196						Gray, medium grained, slightly porphyritic, replacement diorite.
	A6127	196 - 199	Nil	.120	Tr	Nil	3	Greenish, silicified amphibole schist
		199 - 203						Gray, medium grained diorite.
		203 - 216						Silicified, amphibole-biotite schist.
		216 - 252						Medium and light gray, medium and fine grained diorite. Contacts between units vague.
		252 - 260						Altered, silicified amphibole-biotite schist with considerable pyrite.
		260 - 271						Silicified amphibole-biotite schist
	A6128	262 - 268	Nil	.140	.005	Nil	5½	pyrrhotite and pyrite. 1' core loss.
		271 - 282						Greenish gray diorite (altered peridotite?). Core loss: 1' 282-292.
		282 - 320						Bluish gray, medium grained and coarse grained, replacement diorite.
		320 - 340						Light gray, medium grained diorite.

FORM A-IM-4-51 C.P.

RECEIVED
FEB 20 1956

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2/3
BY DMW
DATE Sept. - Oct., 1955

HOLE NO. U - 25 - 122 MINE Holden LEVEL 2500

LOCATION 321 XCS off 2500 Haulage Drift East at 320 chute section.

BEARING South DIP -87° LENGTH 551'

LATITUDE OF COLLAR 19,082 DEPARTURE OF COLLAR 6399 ELEVATION 2532'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		340 - 380½						Silicified amphibole schist with pyrite, pyrrhotite and chalcopyrite. 6" stringers of light gray, medium grained diorite 356-371.
	A6129	340 - 345	0.40	Nil	Tr	Nil	5	
	A6130	345 - 351	0.56	Nil	Tr	Nil	6	
	A6131	351 - 356	1.12	Nil	Tr	Nil	5	
	A6132	356 - 361	0.87	.055	.015	Nil	5	
	A6133	361 - 366	2.12	.500	.140	Nil	5	
	A6134	366 - 371	1.68	.550	.150	Nil	5	
	A6135	371 - 376	1.43	.210	.090	Nil	5	
	A6136	376 - 380½	0.62	.150	.030	Nil	4½	
		380½ - 385						Light gray, medium grained diorite.
	A6137	385 - 390	2.12	.300	.080	0.15	5	Silicified amphibole schist with pyrrhotite, pyrite, and chalcopyrite.
		390 - 392						Light gray, medium grained diorite.
	A6138	392 - 396	2.25	.390	.110	0.12	4	Silicified amphibole-biotite schist with pyrrhotite, pyrite and chalcopyrite.
		396 - 416						Dark gray, fine grained diorite with a few small light gray, medium grained zones. Pyrrhotite, pyrite and chalcopyrite in fractures at 405½ - 406.
		416 - 425						Silicified, garnetiferous amphibole schist with pyrite, pyrrhotite, chalcopyrite and sphalerite
	A6139	416 - 422½	0.64	.155	.045	0.70	6½	
	A6140	422½ - 425	0.87	.490	.130	0.40	2½	
		425 - 438						Dark gray, fine grained diorite.
		438 - 440						Gray, fine grained gneissic diorite.
		440 - 449						Coarse grained, greenish, very highly silicified diorite (replaced peridotite?).
		449 - 454						Dark gray, slightly gneissic, porphyroblastic diorite.
	A6141	454 - 455	0.63	Nil	.020	0.15	1	Greenish, coarse grained, silicified diorite with sulfide mineralization.
		455 - 459						Dark gray, slightly gneissic, porphyroblastic diorite.
		459 - 461½						Gray, medium grained diorite.
	A6142	461½ - 464	0.37	.020	.010	0.75	2½	Silicified amphibole schist with garnet streaks and sphalerite.
		464 - 475½						Light gray, medium to coarse grained diorite.
		475½ - 483½						Gray, silicified amphibole schist with pyrrhotite, pyrite, chalcopyrite, sphalerite and garnet streaks.
	A6143	475½ - 481	0.68	.300	.140	0.50	5½	
	A6144	481 - 483½	0.37	.130	.090	0.06	2½	
		483½ - 486						Light gray, medium grained diorite.

FORM 1 TM 51 C.L.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 3/3
BY
DATE Sept. - Oct., 1955

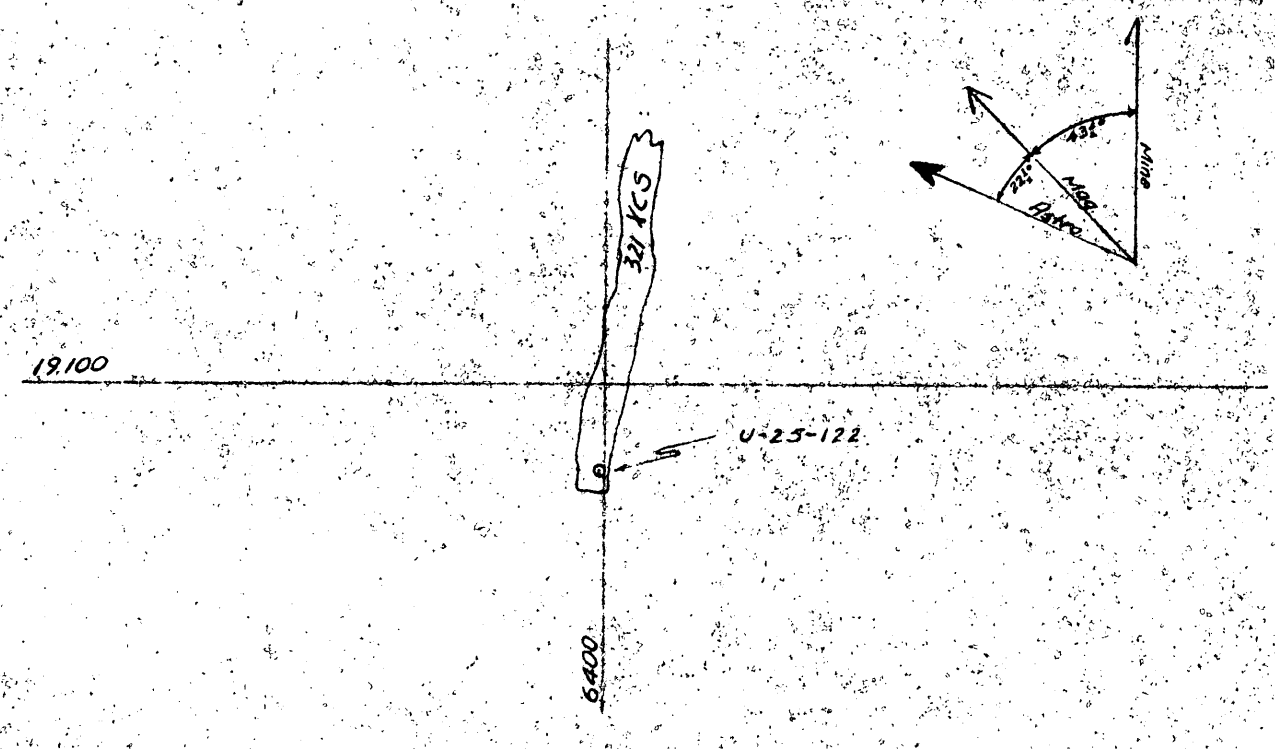
HOLE NO. U - 25 - 122 MINE Holden LEVEL 2500
LOCATION 321 XCS off 2500 Haulage Drift East at 320 chute section.
BEARING South DIP -37° LENGTH 551'
LATITUDE COORD. 10,082 DEPARTURE OF COLLAR 6399 ELEVATION 2532'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
	A6145	486 - 491	0.30	.140	.005	1.70	5	Gray, silicified amphibole schist with garnet and high biotite zones.
		491 - 493						Light gray, medium grained diorite.
		493 - 497½						Greenish amphibole schist (?).
	A6146	497½ - 499	0.30	.570	.050	2.70	1½	Gray amphibole schist pyrrhotite, pyrite, chalcopyrite and sphalerite.
		499 - 514						Light gray, medium grained diorite.
		514 - 520						Bluish gray, amphibole schist with traces of sulfides. Hydrogen sulfide gas encountered at about 520.
	A6147	514 - 518½	Nil	.055	.015	2.00	4½	
	A6148	518½ - 520	0.40	.480	.010	4.40	1½	
		520 - 527						Greenish, very slightly gneissic, fine grained, altered peridotite with faint traces of sulfides. Small masses and stringers of peridotite 525-527.
		527 - 531						Gray, medium to fine grained, slightly gneissic diorite.
		531 - 544½						Fine grained, bluish, very slightly gneissic diorite with faint flecks of kaolin-like mineral.
		544½ - 548½						Greenish-blue amphibole schist.
		548½ - 550½						Gray, medium to fine grained diorite.
		550½ - 551						Amphibole schist with faint traces of sulfide.
		End						

DIAMOND DRILL HOLE SURVEY

LATITUDE 19,092 LONGITUDE 6399 ELEVATION 2882 HOLE NO. U-25-122

FEET FROM COLLAR	MAGNETIC BEARING	TRUE BEARING	MINE BEARING	INCLINATION	REMARKS
20	S 18½° W	S 41° W	S-25° E	-88°	Inclination at collar, -87°.
50	S 71½° E	S 49° E	N 65° E	-87°	Mine bearing at collar, South.
100	N 79° E	S 78½° E	N 35½° E	-84°	
150	N 78° E	S 79½° E	N 34½° E	-85°	
200	N 77° E	S 80½° E	N 33½° E	-81°	
250	N 70° E	S 87½° E	N 26½° E	-80°	
300	N 65½° E	N 88° E	N 22° E	-79°	
350	N 69½° E	S 88° E	N 26° E	-79°	
400	N 62½° E	N 85° E	N 19° E	-77°	
450	N 66½° E	N 89° E	N 23° E	-76°	
500	N 61½° E	N 84° E	N 18° E	-75°	
550	N 60° E	N 82½° E	N 16½° E	-75°	



FORM 83-A 1M 3-47 C.P.

RECEIVED
FEB 20 1956

HOWE SOUND COMPANY
CHELAN DIVISION

IAMOND DRILLING RECORD

SHEET NO. 1/2
BY DWW
DATE November, 1955

HOLE NO. U - 25 - 123 MINE Holden LEVEL 2500
LOCATION 336 XCS off 2500 Haulage Drift East at 340 chute section.
BEARING North DIP -72° LENGTH 280'
LATITUDE OF COLLAR 19,115 DEPARTURE OF COLLAR 6800 ELEVATION 2525'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		0 - 35						Bluish gray amphibole- biotite schist. Light gray, medium grained diorite 10 - 12, 13½-15½, 17-19½, 32-35. Scattered pyrite and pyrrhotite.
		35 - 37½						Reddish brown amphibole-phlogopite schist with pyrite and pyrrhotite.
		37½ - 45						Gray, medium grained diorite complex.
		45 - 55						Reddish brown, silicified phlogopite schist with scattered stringers of pyrrhotite and pyrite. Sharp contact at 55.
		55 - 59						Silicified amphibole schist with scattered pyrite and pyrrhotite. Phlogopite bands 58-59.
		59 - 64						Light gray to gray, medium grained diorite.
		64 - 71½						Silicified amphibole-biotite schist. Core loss: ½' 59-69.
	A6149	71½ - 76½	Nil	.180	Tr	Nil	5	Amphibole-biotite schist with pyrite, some pyrrhotite and traces of chlorite.
		76½ - 89						Steel grey, altered amphibole-biotite schist with scattered sulfides. Kaolin-like streaks 76½-79. Replacement texture 85-86.
		89 - 109						Bluish gray amphibole schist with minor concentrations of biotite. Core loss: 1' 89-98; 2½' 98-108.
		109 - 121						Diorite complex. Light gray, medium grained and dark gray and bluish gray diorite. Core loss: 2½' 108-117.
		121 - 126½						Brownish gray amphibole schist with scattered pyrite and pyrrhotite. Dip of bedding: 70½° at 125'.
		126½ - 128½						Gray, medium grained diorite.
		128½ - 135						Silicified amphibole-biotite schist with pyrite and pyrrhotite.
		135 - 141						Mixture of light gray and bluish gray diorite.
		141 - 145						Silicified amphibole-biotite schist
	A6150	142½-145	0.50	.050	.010	Nil	2½	with scattered pyrite, pyrrhotite and traces of chalcopyrite.
		145 - 147						Gray, medium to fine grained diorite.
		147 - 149						Bluish gray, medium grained diorite.

FORM 83-A 1M 3-47 C.P.

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FEB 20 1956

HOWE SOUND COMPANY
CHELAN DIVISION

IAMOND DRILLING RECORD

SHEET NO. 2/2
BY DWW
DATE November, 1955

HOLE NO. U - 25 - 123 MINE Holden LEVEL 2500

LOCATION 336 XCS off 2500 Haulage Drift East at 340 chute section.

BEARING North DIP -72° LENGTH 280'

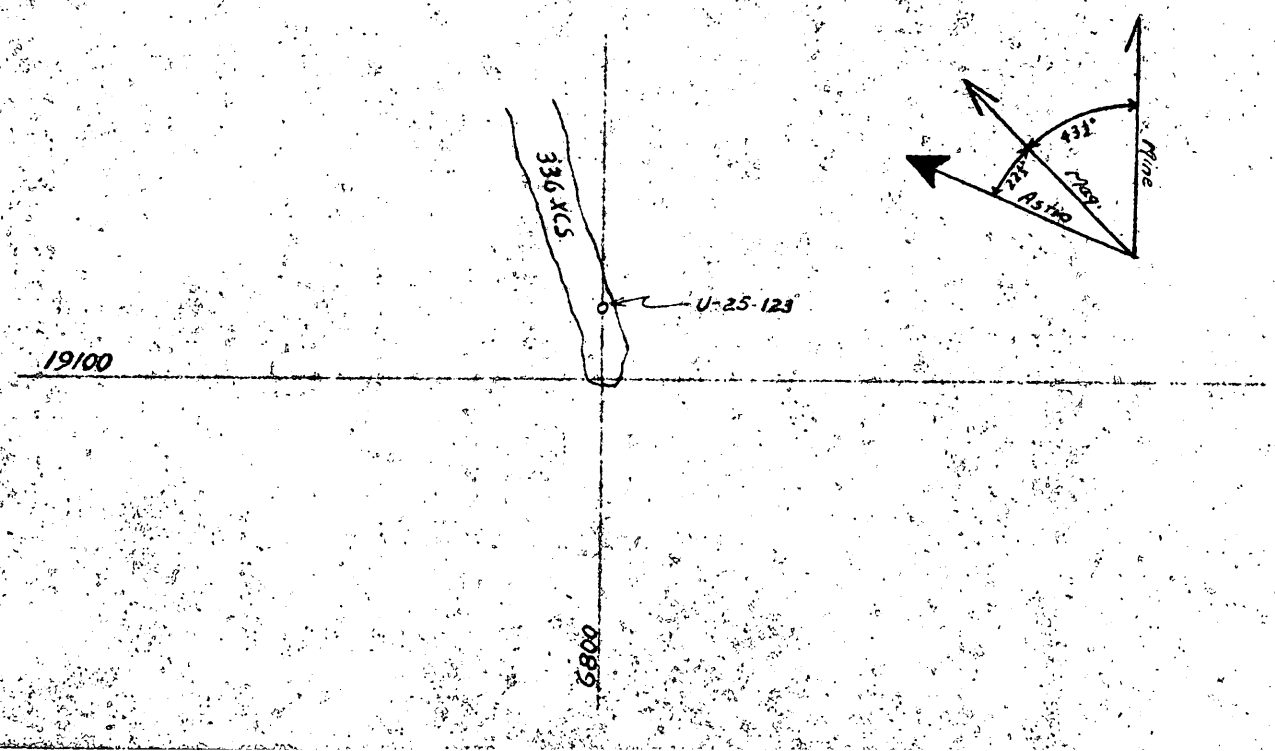
LATITUDE OF COLLAR 19,115 DEPARTURE OF COLLAR 6800 ELEVATION 2525'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		149 - 149½	Not assayed				½	Silicified amphibole-biotite schist with pyrrhotite, pyrite and chalcopyrite.
		149½ - 150½						Gray, medium grained diorite.
		150½ - 172						Silicified amphibole-biotite schist
	A6176	150½-154½	0.97	.180	.040	Nil	4	with pyrrhotite, pyrite and chalcopyrite
	A6177	154½-160½	1.50	.280	.140	Nil	6	Occasional narrow diorite replacement.
	A6178	160½-163	0.76	.255	.045	0.20	2½	Core loss: 1' 147-157; 1' 157-168.
	A6179	163-168	2.37	.560	.110	0.30	5	Dip of bedding: At 150½', 71°; at
	A6180	168-172	0.98	.365	.155	Nil	4	172, 79°.
		172 - 182						Light gray to gray, medium to fine grained diorite.
		182 - 232½						Coarse grained, greenish, quartz diorite (altered peridotite ?).
		232½ - 237						Light gray, medium grained diorite.
		237 - 265						Coarse grained, greenish, quartz diorite (altered peridotite ?).
		265 - 269						Very light gray, low mafic, medium grained, replacement diorite.
		269 - 270½						Light gray, medium grained diorite.
		270½ - 280						Greenish, medium to coarse grained,
		End						altered peridotite (quartz diorite).
								Core loss: ½' 275-280.

DIAMOND DRILL HOLE SURVEY

LATITUDE 19,115 LONGITUDE 6800 ELEVATION 2525' HOLE NO. U-25-123

FEET FROM COLLAR	MAGNETIC BEARING	TRUE BEARING	MINE BEARING	INCLINATION	REMARKS
20	N 39½° E	N 62° E	N 4° W	-67°	Inclination at collar, -72°.
50	N 39½° E	N 62° E	N 4° W	-64°	
100	N 39½° E	N 62° E	N 4° W	-61°	
150	N 44½° E	N 67° E	N 1° E	-58°	
200	N 45° E	N 67½° E	N 1½° E	-56°	
250	N 47½° E	N 70° E	N 4° E	-56°	
279	N 48½° E	N 71° E	N 5° E	-57°	



FORM 83A 1M 8-51 C.F

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HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1/4
BY DWW
DATE November, 1955

HOLE NO. U - 25 - 124 MINE Holden LEVEL 2500
LOCATION 336 XCS off 2500 Haulage Drift East at 340 chute section.
BEARING South DIP -85 LENGTH 577'
LATITUDE OF COLLAR 19,105 DEPARTURE OF COLLAR 6800 ELEVATION 2525'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		0 - 4½						Gray, medium to fine grained, very slightly gneissic diorite.
		4½ - 19						Altered amphibole-biotite schist. Gray, medium grained diorite 11-13½. Dip of bedding at 5', 67°.
		19 - 28						Light gray, medium grained diorite. Dip of bedding at 28', 65°.
		28 - 30						Very silicified amphibole schist.
		30 - 54						Dark bluish gray, medium to fine grained, slightly porphyroblastic diorite (altered peridotite??) with occasional remnants of amphibole - biotite schist and diorite gneiss.
		54 - 59						Medium grained, slightly gneissic diorite with remnants of amphibole-biotite schist.
		59 - 64						Bluish gray amphibole-biotite schist. Somewhat resembles diorite gneiss intercalated with gray, medium grained diorite 63-64.
		64 - 70						Gray to light gray, medium grained diorite with a few schist remnants.
		70 - 79						Bluish gray and brownish gray silicified amphibole-biotite schist with scattered sulfides. Core loss: 1½' 69-30. Dip at 77', 70°.
		79 - 81						Bluish gray, medium grained diorite with remnants of biotite schist, and light gray, medium grained diorite.
		81 - 91½						Silicified amphibole schist with scattered sulfides. Increasing silicification with depth. Core loss: 3½' 80-91.
		91½ - 97						Silicified amphibole-biotite schist
	A6181	91½ - 95	Nil	.050	.005	Nil	3½	pyrite and pyrrhotite. Core loss:
	A6182	95 - 97	Nil	Nil	Nil	Nil	2	1' 91-95.
		97 - 100						Light gray, medium grained diorite with highly silicified remnant of schist 97½ - 98.
		100 - 108						Core dropped and chopped up — white return water.
		108 - 111½						Reddish brown, coarse grained amphibole-phlogopite schist. Dip of bedding at 110', 77°.

FORM 83A 1M 8-50 C F

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2/4
BY DWW
DATE November, 1955

HOLE NO. U - 25 - 124 MINE Holden LEVEL 2500
LOCATION 336 XCS off 2500 Haulage Drift East at 340 chute section.
BEARING South DIP -85° LENGTH 577'
LATITUDE OF COLLAR 19,105 DEPARTURE OF COLLAR 6800 ELEVATION 2525'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		111½ - 113½						Bluish gray, fine grained diorite.
		113½ - 116						Greenish gray, coarse grained amphibole-biotite schist with pyrite and pyrrhotite stringer at 114.
		116 - 121						Diorite complex.
		121 - 142						Coarse grained, brownish gray amphibole-biotite schist. Core loss: 1' 130-138; 1½' 138-143. Dip at 125', 58°.
		142 - 151						Gray, medium to fine grained diorite.
		151 - 163						Brown, coarse grained biotite schist partially replaced by light gray, medium grained diorite. Dip of bedding at 151', 85°.
		163 - 165						Brownish, coarse grained, amphibole-biotite schist.
		165 - 189						Diorite complex of bluish gray and light gray diorite. A few schist remnants.
		189 - 195						Light gray, silicified amphibole-biotite schist with disseminated pyrite. Core loss: 1' 180-195.
		195 - 203						Gray to light gray, medium grained diorite.
		203 - 208½						Medium grained, greenish quartz diorite (altered peridotite?)
		208½ - 215						Gray, medium grained diorite.
		215 - 220						Reddish brown, coarse grained amphibole-phlogopite schist with streaks of pyrite.
		220 - 226						Greenish gray, medium to fine grained diorite.
		226 - 227½						Reddish brown, coarse grained amphibole-phlogopite schist. Disseminated pyrite and pyrrhotite. Dip of bedding at 227', 82°.
		227½ - 231½						Gray, medium grained amphibole-schist with disseminated pyrite and pyrrhotite.
		231½ - 240						Gray, medium grained, slightly gneissic diorite.
		240 - 250½						Light brown amphibole-biotite schist. Partially replaced to gray diorite.

FORM 93A 1M 8-55 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 3/4
BY DWW
DATE November, 1955

HOLE NO. U - 25 - 124 MINE Holden LEVEL 2500
LOCATION 336 XCS off 2500 Haulage Drift East at 340 chute section.
BEARING South DIP -85° LENGTH 577'
LATITUDE OF COLLAR 19,105 DEPARTURE OF COLLAR 6800 ELEVATION 2525'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		250½ - 261						Complex of various gray diorites.
	A6183	261 - 267	Nil	Nil	Tr	Nil	6	Gray amphibole schist with pyrite and pyrrhotite.
		267 - 270						Light gray, medium grained diorite.
		270 - 272						Biotite schist with finely disseminated sulfides, partially replaced to medium grained diorite.
		272 - 275						Greenish, fine grained, very slightly gneissic diorite.
		275 - 282						Brownish, medium and coarse grained, porphyroblastic amphibole-biotite schist with scattered pyrite and pyrrhotite and with strong crenulation of the schistosity. Dip of bedding at 275', 60°.
		282 - 289½						Greenish, medium and coarse grained, slightly gneissic diorite.
		289½ - 291½						Light gray, medium grained diorite.
	A6184	291½ - 295	0.50	.045	.005	Nil	3½	Altered amphibole schist with pyrite, pyrrhotite and chalcopyrite.
		295 - 297½						Gray, medium to fine grained diorite.
	A6185	297½ - 299	0.68	.070	.010	Nil	1½	Amphibole-biotite schist with pyrite, pyrrhotite and chalcopyrite.
		299 - 302½						Gray, medium to coarse grained diorite with scattered sulfides at contact with schist.
	A6186	302½ - 305½	0.62	.085	.015	Nil	3	Partially altered amphibole-biotite schist with disseminated pyrite, pyrrhotite and chalcopyrite.
		305½ - 395						Fine to coarse grained quartz diorite (replaced peridotite ?). Occasional narrow gray diorite zone. Core loss: 1' 340-349; 2' 349-356.
		395 - 417						Gray, medium to fine grained diorite. Core loss: 1' 396-407.
		417 - 428						Bluish-gray, medium to fine grained diorite (altered peridotite ??).
		428 - 444½						Greenish, medium grained, quartz diorite (replaced peridotite ?).
		444½ - 463						Light gray, medium grained diorite. Core loss: 2½' 437-450; 1½' 450-467.

FORM 83A 1M 6-50 C.P.

RECEIVED
FEB 20 1956

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 4/4
BY DWW
DATE November-December, 1955

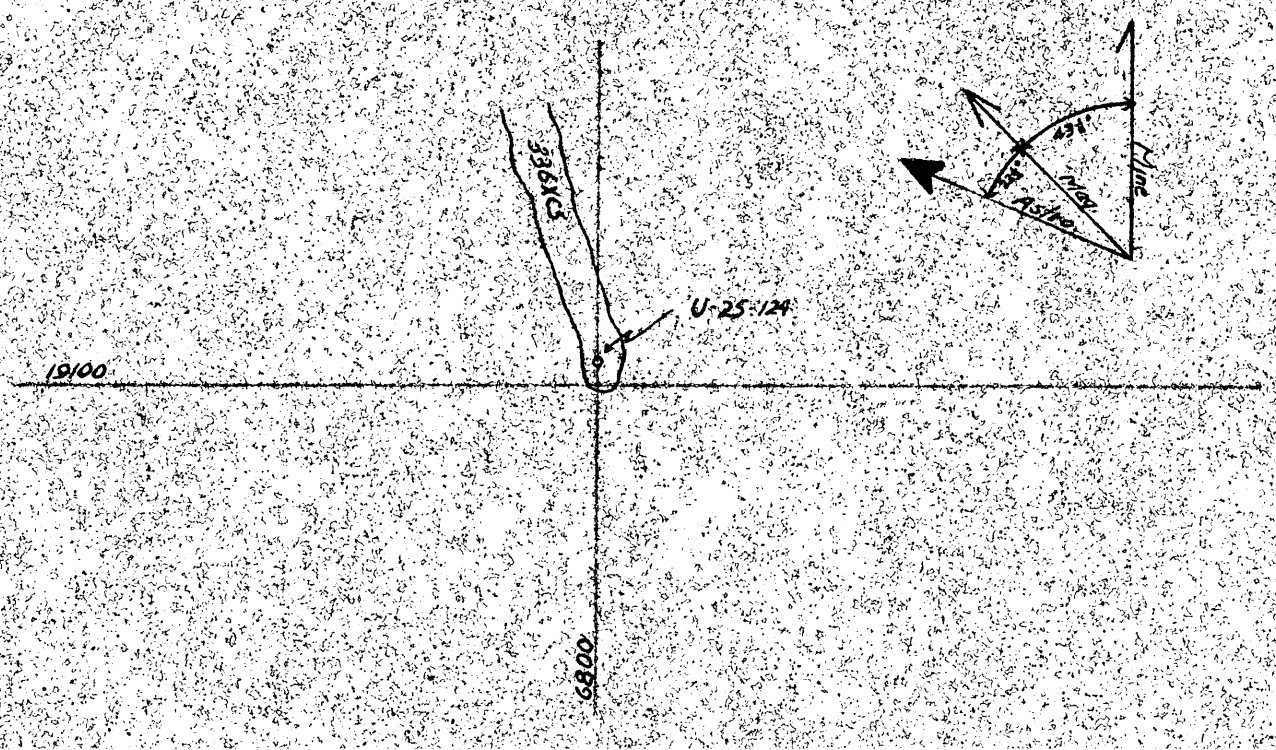
HOLE NO. U - 25 - 124 MINE Holden LEVEL 2500
LOCATION 336 XCS off 2500 Haulage Drift East at 340 Chute section.
BEARING South DIP -85° LENGTH 577'
LATITUDE OF COLLAR 19,105 DEPARTURE OF COLLAR 6800 ELEVATION 2525'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		463 - 508						Siliceous amphibole schist with
	A6187	463 - 464½	0.58	.055	.005	0.02	1½	pyrite, pyrrhotite, chalcopyrite and
	A6188	465½ - 472	0.87	.275	.0350	.15	6½	sphalerite. Light gray, medium grained
	A6189	473 - 478	1.37	.300	.0300	.10	5	diorite dikes 464½-465½, 472-473,
	A6190	478 - 482	1.62	.360	.0600	.30	4	482½-486, 499-504.
	A6191	482 - 482½	1.50	.370	.0800	.20	½	
	A6192	486 - 491	1.31	.180	.0500	.15	5	
	A6193	491 - 496	1.50	.525	.0350	.25	5	
	A6194	496 - 499	1.40	.400	.0700	.80	3	
	A6195	504 - 508	1.37	.370	.0200	.60	4	
		508 - 516						Dark to light gray, medium to fine grained diorite.
		516 - 533						Greenish, medium grained quartz diorite (replaced peridotite ?). Core loss: 1' 512-524.
		533 - 566						Bluish gray, fine to medium grained diorite. Occasional fracture smeared with sulfides. 3" gray diorite dikes here and there.
		566 - 570½						Light gray, medium grained diorite.
		570½ - 574						Gray, medium to fine grained biotite diorite.
		574 - 577						Greenish, medium to fine grained quartz diorite (replaced peridotite ?).
		End						

DIAMOND DRILL HOLE SURVEY

LATITUDE [illegible] LONGITUDE [illegible] ELEVATION 2325' HOLE NO. U-25-124

FEET FROM COLLAR	MAGNETIC BEARING	TRUE BEARING	MINE BEARING	INCLINATION	REMARKS
50	S 24½° W	S 4[illegible]° W	S 3[illegible]° E	-[illegible]°	Inclination at collar, -[illegible]°
[illegible]	S [illegible]° W	S [illegible]° W	S [illegible]° E	-[illegible]°	
100	S [illegible]° W	S [illegible]° E	S [illegible]° W	-[illegible]°	
150	S 30½° E	S [illegible]° E	S [illegible]° E	-[illegible]°	
[illegible]	S [illegible]° E	S [illegible]° E	S [illegible]° E	-[illegible]°	
250	S [illegible]° E	S 7[illegible]° E	S [illegible]° E	-[illegible]°	
300	S 52° E	S 75½° E	S 7[illegible]° E	-[illegible]°	
350	S [illegible]° E	S 75° E	S [illegible]° E	-7[illegible]°	
400	S [illegible]° E	S 77½° E	S 21½° E	-7[illegible]°	
450	S 57½° E	S 80° E	S 16° E	-7[illegible]°	
500	S 55° E	S [illegible]° E	S 14½° E	-7[illegible]°	
550	S 52° E	S 7[illegible]° E	S [illegible]° E	-7[illegible]°	



DIAMOND DRILL HOLES.

1500 LEVEL.

FORM 83A TM 8-50 C.P. Veid by MBM 10-30-505

W

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

RECEIVED NOV 21 1955

SHEET NO. 1/1
BY TLW
DATE July, 1955

HOLE NO. U-15-220 MINE Holden LEVEL 1500
LOCATION Drift East off No. 5 Transfer at 582½ chute section.
BEARING South DIP Horizontal LENGTH 101'
LATITUDE OF COLLAR 19880 N DEPARTURE OF COLLAR 11655 E ELEVATION 5557'

Griswold
Belly

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		0 - 85						Thoroughly replaced (granitized) biotite schist or, more likely, replaced and altered peridotite. Many zones of white replacement diorite with lineation suggestive of sedimentary halo. Numerous 6" - 2' zones of black, fine grained diorite. Scattered disseminated pyrite. Lamprophyre 59-60, 76-77, 81-82. 2' core loss scattered through 85'.
		85 - 89						Dioritized (replaced) peridotite.
		89 - 92						Lamprophyre.
		92 - 101						Granitized (quartz soaked) peridotite. Fractured longitudinally with core 95-100.
		End						

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1/3
BY TLM-DWW
DATE July-August, 1955

HOLE NO. U-15-221 MINE Holden LEVEL 1500
LOCATION Drift East off No. 3 Transfer at 600 Chute section.
BEARING North DIP Horizontal LENGTH 668'
LATITUDE OF COLLAR 19,914N DEPARTURE OF COLLAR 12,009 E ELEVATION 3,558'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		0-39					39	Predominately granitized (replaced) peridotote, which grades to a dark grey medium grained diorite starting at about 25. Longitudinal fractures with milky quarts filling 26-27, and 32-36. Core loss: 1½' 29½-31; 1' 31-36.
		39-146½					107½	Light grey medium grained somewhat gneissic diorite, with bands of altered fine grained peridotote 52½-55, 63-68, 119-125. Chloritized fradtures between 48-52½ and 119-125. Core loss: 2' 56-63.
		146½-365					218½	Altered medium grained peridotote, with bands of light grey medium grained diorite, which is slightly gneissic beyond 189: 183-194, 198-203½, 231-240½, 250½-253, 298-304, 306½-313, 330½-333. Frequent greenish leached zones: 152-183. Strong fracturing 207½-213, 227-228, 268-270. Less severe fractures: 241-243, 259-260, 274-276, 280-281, 282-285, 285-288, 292-299, 359. Strong slickensides 240-250. Core loss 1' 208-213, 4' 290-299.
		365-393					28	Diorite complex, apparently derived from altered medium grained peridototes. Grey medium grained diorite 377-380. Widely scattered sulfides 383-390.
		393-448						Greenish-grey medium grained
	A6082	433½-434½	0.05	—	Nil	Nil	1	altered peridotite, with scattered
	A6083	434½-435½	0.05	—	Nil	Nil	1	bands of light grey diorite up to 1' in width. Scattered weak sulfides through much of the section. Broken core: 400-402, 440, 443-444, 445-448. Core Loss: 1' 440-442.
		448-469					21	Light grey medium grained diorite. Greenish grey medium and fine grained altered peridotote 459-467. Broken core: 458-459, 467-469. Core loss: 1' 448-459.

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2/3
BY TLL-DWW
DATE July-August, 1955

HOLE NO. U-15-221 MINE Holden LEVEL 1500
LOCATION Drift East off No. 3 Transfer at 600 chute section.
BEARING North DIP Horizontal LENGTH 658'
LATITUDE OF COLLAR 19,914 N DEPARTURE OF COLLAR 12,009 E ELEVATION 3,558'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		469-487					18	Light grey medium grained diorite. Broken core: 465-479, 466½-467. Core loss: 2½' 469-479.
		487-497½						Greenish-grey silicified amphibole
	A6084	487-494	Nil	Nil	Tr	ZnNil	7	schist with scattered sulfides. Light
	A6085	495½-497½	Nil	Nil	Tr	NiNil		grey medium grained diorite 494-495½. Greenish grey medium grained granitized peridotite with scattered sulfides 495½-497½.
		497½-501½						Greenish grey and grey silicified
	A6086	499-500	Nil	Nil	Nil	NiNil	1	amphibole-biotite schist, with weak pyrite. Light grey medium grained diorite 497½-499, 500-501.
		501½-521½						Greenish grey slightly gneissic
	A6087	501½-507	Nil	Nil	Nil	NiNil	5½	medium grained altered peridotite
	A 6088	507-511	Nil	Nil	Nil	NiNil	4	with weak pyrite. Broken core 501½-
	A6089	511-516	Nil	Nil	Tr	NiNil	5	503. Core loss: 1' 501½-503.
	A6090	516-521½	Nil	Nil	Nil	NiNil	5½	
		521½-529						Altered amphibole-biotite
	A6091	522½-524	Nil	Nil	Nil	ZnNil	1½	schistwith pyrite. Light grey
	A6092	526½-529	Nil	Nil	Nil	ZnNil	2½	medium grained diorite 521½-522½, 524-526½.
		529-558				Zn		Bluish grey silicified amphibole
	A6093	529-534	Nil	Nil	Nil	Nil	5	schist with pyrite. Strong silicification 541-545. Core blocky 547½-548½.
	A6094	534-539	Nil	Nil	Tr	Nil	5	
	A6095	539-544	Nil	Nil	Nil	Nil	5	
	A6096	544-549	Nil	Nil	Nil	Nil	5	
	A6097	549-554	Nil	Nil	Nil	Nil	5	
	A6098	554-558	Nil	Nil	Nil	Nil	4	
		558-593						H[illegible]ly silicified light grey to
	A6099	559½-564½	Nil	Nil	Tr	Nil	6	brownish grey amphibole schist
	A6100	568-573	Nil	Nil	Tr	Nil	5	with abundant pyrite. Dark grey
	A6101	573-578	Nil	Nil	Tr	Nil	5	medium to fine grained diorite 558-559.
	A6102	578-588	Nil	Nil	Tr	Nil	10	Light grey medium grained biotized
	A6103	588-593	Nil	Nil	Tr	Nil	5	diorite 565-568. Broken core 578-588. Core loss: 4' 578-588.
		593-614						Light and dark grey silicified
	A 6104	593-598	Nil	Nil	Tr	Nil	5	amphibole schists with disseminated
	A6105	598-601	Nil	Nil	Nil	Nil	3	pyrite. Highly silicified strongly
	A6106	601-605	Nil	Nil	Nil	Nil	4	sheared light grey low mafic zone
	A6107	605-610	Nil	Nil	Nil	Nil	5	593-599. Darker grey biotized
	A6108	610-614	Nil	Nil	Nil	Nil	4	schist 599-601, 605-614. Blocky core: 598-596½, 599-600, 613-615.

FORM 83A IM 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

RECEIVED
NOV 21 1955

DIAMOND DRILLING RECORD

SHEET NO. 3/3
BY TLH-DWW
DATE July-August, 1955

HOLE NO. U-15-221 MINE Holden LEVEL 1500
LOCATION Drift East off No. 3 Transfer at 600 chute Section.
BEARING North DIP Horizontal LENGTH 658'
LATITUDE OF COLLAR 19,914 E DEPARTURE OF COLLAR 12,009 E ELEVATION 3,558'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		614-621					7	Grey medium grained slightly gneissic diorite.
		621-640					19	Silicified amphibole schist with scattered pyrite. Broken core: 626½-636, 637½-638½, 639-640. Gouge at 628½. Core Loss: 2½' 630-635, ½' 635-638.
		640-653					13	Diorite complex. Light grey medium grained diorite 640-642, 645-646, 652-653. Dark grey fine grained diorite 642-645, 650½-652. Altered amphibole schist with scattered pyrite 646-650½. Garnet and cholorite at 652. Broken core: 642-644, 645-645½, 646-647, 649-650. Gouge at 650. High water pressure at 648.
		653-658					5	Bluish grey amphibole schist with faint traces of pyrite, particularly in fractures. Broken core 654 and 655. Flat fault with gouge at 658. High water pressure at 658. Hole lost at 658.
		End.						

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1
BY J.L.A.
DATE July, 1954

HOLE NO. U-15-208 MINE Holden LEVEL 1500
LOCATION 1500 Drift East at 430 Chute Section
BEARING N DIP Horizontal LENGTH
LATITUDE OF COLLAR DEPARTURE OF COLLAR ELEVATION

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
7-29		0-1½	-	-	-	-	1½	Replacement Granite
		1½-2½	-	-	-	-	1	Fine Grained Calcarious streak
		2½-29	-	-	-	-	26½	Medium to Fine grained black diorite with sedimentary or shistose halos which are most prominent from 2'-15' ½' Replacement granite 14½-15.
7-31		29-35	-	-	-	-	6	Replacement granite: with occasional small diorite dikes Probable flat fault zone composed of Quartz with brecciation and alteration. Grades into amphibole schist at 39'.
		40-49	-	-	-	-	9	Medium grained grey quartz Diorite exhibiting slight shistosity.
		49-55	-	-	-	-	6	Medium to fine grained silicious amphibole schist.
		55-61½	-	-	-	-	6½	Medium grained replacement granite with chlorite. 3½' core lost.
		61½-84	-	-	-	-	22½	Medium to fine grained amphibole biotite schist with slight pyrite mineralization. Almost amphibolite (possibly of dioritic origin) in places and almost biotite schist in others. Evidence of brecciation and subsequent in filling or replacement, by chlorite. Quartz at 65½' to 66½'.
		84-96	-	-	-	-	12	Highly silicious medium to fine grained amphibole schist with some brecciation and leaching. Garnet and epidote at 95'. 6' core lost.
8-2		96-104	-	-	-	-	8	Fine grained amphibole schist with garnet and epidote to 97½'.
		104-121	-	-	-	-	17	Medium to fine grained silicious biotite amphibole schist.
		121-146	-	-	-	-	25	Medium to fine grained black diorite with occasional small zones of granitization.

U-15-208

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY

CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2

BY J. T. [illegible]

DATE August, 1954

HOLE NO. U-15-208 MINE Holden LEVEL 1500

LOCATION 1500 Drift East at 480 Chute Section

BEARING N DIP Horizontal LENGTH

LATITUDE OF COLLAR DEPARTURE OF COLLAR ELEVATION

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
8-2		146-157	-	-	-	-	11	Medium grained greenish black diorite which has the appearance of and may be altered peridotite.
		157-160	-	-	-	-	3	Same as ab ve.
		160-163	-	-	-	-	3	Replacement granite
		163-167	-	-	-	-	4	Fine grained chlorite alteration probably derived from diorite. 2" vert.
		167-171½	-	-	-	-	4½	Replacement granite with chlorite fracture healing.
		171½-188½	-	-	-	-	17	Fine grained amphibole schist with garnet and epidote zones, some pyrrhotite present.
		188½-191½	-	-	-	-	3	Medium to fine grained silicious biotite schist.
		191½-198½	-	-	-	-	7	Medium to fine grained amphibole schist with pyrrhotite.
		198½-208	-	-	-	-	9½	Medium grained quartz diorite with 4" lamprophyre at 202'.
		208-211	-	-	-	-	3	Fine grained amphibole schist with garnet and epidote.
		211-213	-	-	-	-	2	Fine grained biotite schist with pyrite.
		213-214	-	-	-	-	1	Amphibole schist with pyrite.
8-3		214-231½	-	-	-	-	17½	Silicious fine grained pyritic amphibole schist with varying small amounts of biotite. Some pyrrhotite present.
		231½-235½	-	-	-	-	4	Medium to fine grained silicious biotite schist with pyrite, pyrrhotite, and some amphibole.
		235½-244	-	-	-	-	8½	Medium to fine grained silicious amphibole biotite schist with pyrite.
8-4		244-260	-	-	-	-	16	Medium to fine grained siliceous biotite schist with pyrite, pyrrhotite, and zones containing varying small amounts of amphibole. Granite at 247-247½, 256½-257, and 258-258½.

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 3
BY J.L.L.
DATE August, 1954

HOLE NO. U-15-208 MINE Holden LEVEL 1500
LOCATION 1500 Drift East at 480 Chute Section
BEARING N DIP Horizontal LENGTH
LATITUDE OF COLLAR DEPARTURE OF COLLAR ELEVATION

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
8-4		260-263	-	-	-	-	3	Black to grey medium to fine grained diorite with sedimentary halos.
		263-268½	-	-	-	-	5½	Medium to fine grained siliceous biotite amphibole schist with pyrite and pyrrhotite.
		268½-274	-	-	-	-	5½	Medium to fine grained siliceous biotite schist with pyrite and pyrrhotite.
8-5		274-283½	-	-	-	-	9½	Same as above.
		283½-286	-	-	-	-	2½	Black medium grained diorite.
		286-295	-	-	-	-	9	Medium to fine grained amphibole biotite schist with scattered pyrite.
		295-303	-	-	-	-	8	Dark grey medium grained diorite.
		303-310½	-	-	-	-	7½	Medium to fine grained siliceous biotite schist with scattered pyrite. Amphibole present 309½-310½.
		310½-319	-	-	-	-	8½	Black to grey diorite with sedimentary halos present in the darker portions. 313'-316½' has been precciated and recemented with chlorite. Pyrite is present in chlorite.
							END	

U-15-208

FORM 37 1M 1-5'-C.P.

PAGE NO. 1

ASSAY RECORD

MINE Holden LEVEL 1500

WORKING U-15-208

OFF 1500 Cr E. at 480 Chute Sec.

Horizontal

1954 MONTH	DAY	SAMPLE NUMBER	DISTANCE		ELEVATION	ASSAY VALUE % COPPER	OZ. SILVER	OZ. GOLD	% ZINC	WIDTH	FROM	REMARKS
July	29		0	30		–	–	–	–	30		
	31		30	96		–	–	–	–	66		
August	2		96	214		–	–	–	–	118		
	3		214	244		–	–	–	–	30		
	4		244	274		–	–	–	–	30		
	5		274	319		–	–	–	–	45		
								END				

FORM 83A-1M 8-50 G.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1
BY J.I.
DATE August, 1954

HOLE NO. U-15-209 MINE Holden LEVEL 1500
LOCATION 1500 Drift East at 480 Chute Section
BEARING S DIP Horizontal LENGTH
LATITUDE OF COLLAR DEPARTURE OF COLLAR ELEVATION

DATE	SAMPLE NO.	FOOTAGE	Ni.	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
8-9		0-34		-	-	-	-	34	Course to fine grained granitized amphibole biotite schist with finer grained gradational zones having the appearance of diorite but with schistose structure and no clear contacts. Occasional short zones of quartz, garnet, and chlorite present. Pyrite and pyrrhotite present in slight amounts. Replacement granite at 10'-11½' and 12½'-13½'.
		34-39½		-	-	-	-	5½	Slightly pyritic fine grained peridotite with cryptocrystalline border facies.
		39½-53½		-	-	-	-	14	Medium to fine grained granitized biotite schist whichin places has the appearance of medium grained diorite. Granitized peridotite at 42½'-43½'. Some pyrite and pyrrhotite present.
	A5787	53½-57½	Nil	Nil				4	Medium grained granitized biotite schist with slight amounts of chalcopyrite, pyrite, and pyrrhotite.
		57½-61		-	-	-	-	3½	Medium grained grey diorite.
8-10		61-63½		-	-	-	-	2½	Fine to medium grained grey diorite.
		63½-70		-	-	-	-	6½	Course grained granitized peridotite.
		70-89		-	-	-	-	19	Medium grained granitized biotite schist with replacement granite at 86-87½ and 88½-89.
8-11		89-94½		-	-	-	-	5½	Medium grained granitized biotite schist.
		94½-101½		-	-	-	-	7	Grey medium to course grained diorite.
		101½-104		-	-	-	-	2½	Medium to fine grained granitized biotite schist.
		104-107		-	-	-	-	3	Medium grained granitized peridotite.
		107-113		-	-	-	-	6	Course to fine grained grey diorite. Finer grained material has halos of schistosity.
		113-116		-	-	-	-	3	Medium grained granitized peridotite.
		116-118½		-	-	-	-	2½	Medium grained grey diorite.
		118½-132		-	-	-	-	13½	Medium to fine grained granitized peridotite.
		132-147		-	-	-	-	15	Grey medium to fine grained diorite.

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY

CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2

BY J. I. [illegible]

DATE August, 1954

HOLE NO. U-15-309 MINE Holden LEVEL 1500

LOCATION 1500 Drift East at 480 Chute Section

BEARING S DIP Horizontal LENGTH

LATITUDE OF COLLAR DEPARTURE OF COLLAR ELEVATION

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		Ni.						
8-12		147-154	-	-	-	-	7	Grey course grained diorite with fine grained peridotite 150½'-153½'.
		154-177	-	-	-	-	23	Dark grey fine grained diorite with shistose halos and short zones of light grey course grained diorite. Very slightly pyritic and pyrrhotitic. 8' core lost.
8-13		177-180	-	-	-	-	3	Grey medium grained diorite.
		180-191	-	-	-	-	11	Slightly pyritic dark grey fine grained diorite with shistose halos. Chlorite at 187'.
		191-194	-	-	-	-	3	Slightly pyritic granitized biotite schist.
		194-199	-	-	-	-		Dark Grey fine grained diorite diorite with shistose halos.
	A5786	199-203 Nil	Nil	-	Nil	-	4	Medium grained granitized biotite schist lightly pyritic and pyrrhotitic.
		203-204	-	-	-	-	1	Black fine grained diorite.
8-16		204-211	-	-	-	-	7	Grey fine grained diorite with lineation. Grey coarse grained diorite 206-207½'
		211-223	-	-	-	-	12	Medium grained granitized amphibole schist with small amount of biotite.
		223-227	-	-	-	-	4	Grey coarse grained diorite with lineation.
		227-230½	-	-	-	-	3½	Black medium grained diorite.
		230½-244½	-	-	-	-	14	Grey coarse grained granitized quartz biotite peridotite with faint lineation.
		244½-247	-	-	-	-	2½	Grey medium to fine grained diorite with pronounced lineation.
		247-262	-	-	-	-	15	Grey coarse grained granitized quartz biotite peridotite with faint lineation.
8-17-54		262-264½	-	-	-	-	2½	Mixture of black fine grained diorite and granitized peridotite.
		264½-269	-	-	-	-	4½	Coarse grained granitized quartz biotite peridotite.
		269-277	-	-	-	-	8	Black to grey medium grained diorite.
		277-282	-	-	-	-	5	Mixture of black fine grained diorite and granitized peridotite.

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 7

BY [illegible]

DATE August, 1954

HOLE NO. U-15-209 MINE Holden LEVEL 1500

LOCATION 1500 Drift East at 450 Chute Section

BEARING S DIP Horizontal LENGTH

LATITUDE OF COLLAR DEPARTURE OF COLLAR ELEVATION

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE				WIDTH	GEOLOGY AND REMARKS
			CU.	AG.	AU.	ZN.		
		202-203	-	-	-	-	21	Coarse grained granitized quartz biotite peridotite.
								END

FORM 37 (M 1-54)-C.P.

PAGE NO. 1

ASSAY RECORD

MINE Holden LEVEL 1500

WORKING U-15-209

Horizontal

OFF Drift West at 180 Chute Sec.

1954 MONTH	DAY	SAMPLE NUMBER	DISTANCE		% ~~DESCRIPTION~~ Ni.	ASSAY VALUE % COPPER	OZ. SILVER	OZ. GOLD	% ZINC	WIDTH	FROM	REMARKS
August	9		0	53½		-	-	-	-	53½		
		A5787	53½	57½	Nil	Nil	-	-	-	4		
			57½	61		-	-	-	-	3½		
	10		61	89		-	-	-	-	28		
	11		89	147		-	-	-	-	58		
	12		147	177		-	-	-	-	30		
	13		177	199		-	-	-	-	22		
		A5788	199	203	Nil	Nil	-	Nil	-	4		
			203	204		-	-	-	-	1		
	16		204	262		-	-	-	-	58		
	17		262	303		-	-	-	-	41		
								END				

HOWE SOUND COMPANY

CHELAN DIVISION
HOLDEN, WASH.

RECEIVED
BUREAU OF MINES
JAN 20 1955
SPOKANE, WASH

Defense Minerals Exploration
RECEIVED
FEB 28 1955

January 19, 1955

United States Department of the Interior
Defense Minerals Exploration Administration
1201 North Division Street
Spokane 2, Washington

Gentlemen:

Re: Docket No. DMEA 3142 (Copper)
Howe Sound Company
Holden Mine
Chelan County, Washington
Contract No. Idm-E644

(2 copies of each)

Enclosed are the diamond drill logs for five holes of the Buckskin Mountain exploration program which were completed during the month of December, 1954. These holes are numbered U-15-210, U-15-211, U-15-212, U-15-213, and U-15-214.

Yours very truly,

J. S. Roper
Manager

JSR:mb
Enc.

M. 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1/2
BY J.L.A.
DATE November, 1954

HOLE NO. U-15-210 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 520 chute section
BEARING N 22° E DIP Horizontal LENGTH
LATITUDE OF COLLAR 20010 N DEPARTURE OF COLLAR 10405 E ELEVATION 3550

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	Ni %	WIDTH	GEOLOGY AND REMARKS
		0 - 62						Peridotite largely altered to biotite
	A5834	42½ - 48	Nil	Nil	Nil	0.25	5½	with many 1'-4' late diorite dikes.
	A5835	60 - 62	Nil	Nil	Nil	0.02	2	Lamprophyre 1'-2'.
		62 - 69						Medium to fine grained black diorite with faint lineation. Grades into biotite amphibole schist at 66'. Scattered pyrite.
		69 - 81						Gray medium grained diorite. Leaching at 76' and 77½'.
		81 - 91½						Amphibole schist with scattered pyrite.
		91½-115						Medium grained gray diorite. Leaching at 107'-108'.
		115- 125						Amphibole schist with occasional garnet.
		125 - 128						Gray medium grained diorite. Alteration 125-125½'. One foot core lost.
		128 - 150						Fine grained diorite with lineation. Occasional garnet and epidote streak.
		150 - 152½						Gray medium grained diorite.
		152½- 222						Amphibole biotite schist with scattered pyrite. Occasional zone of diorite replacement. Lamprophyre 170½'-175½'. Fractured and leached at 153', 194-199'. Dip of sediments vertical, strike is east-west. 4½' core lost.
		222 - 252½						Fine grained dark gray diorite with sedimentary halos. Fractured and leached 250'-251½'.
		252½- 280						Amphibole biotite schist with scattered pyrite.
		280 - 299						Lamprophyre. Fractured and leached 285-286', 291½'.
		299 - 319						Varying phases of light to dark gray, fine to medium grained diorite.
		319 - 327½						Siliceous amphibole biotite schist with pyrite.
		327½- 331½						Lamprophyre.
		331½- 355						Siliceous amphibole biotite schist with pyrite.
		355 - 365						Medium grained light gray diorite.
		365 - 377½						Siliceous amphibole biotite schist with pyrite.

2 FORM A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2/2
BY J.L.A.
DATE November, 1954

HOLE NO. U-15-210 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 520 chute section.
BEARING N 22° E DIP Horizontal LENGTH
LATITUDE OF COLLAR 20010 N DEPARTURE OF COLLAR 10403 E ELEVATION 3550

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	NI ~~ZN~~	WIDTH	GEOLOGY AND REMARKS
		377½ - 387½						Black, fine to medium grained diorite.
		387½ - 390						Lamprophyre.
		390 - 399½						Dark gray fine grained diorite.
		399½ - 402½						Slightly pyritic siliceous amphibole schist.
		402½ - 406						Gray, fine to medium grained diorite.
		406 - 409½						Lamprophyre.
		409½ - 415						Gray, fine to medium grained diorite.
		415 - 417½						Slight pyritic siliceous amphibole schist.
		417½ - 437						Lamprophyre.
		437 - 440						Siliceous biotite schist.
		440 - 453½						Medium grained, gray gneissic diorite.
		453½ - 464½						Lamprophyre.
		464½ - 477						Fine grained amphibole schist.
		End						Strike east-west, dip 55° S.

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1/1
BY J.L.A.
DATE December, 1954

HOLE NO. U-15-211 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 520 chute section.
BEARING S 12½° E DIP Horizontal LENGTH 189'
LATITUDE OF COLLAR 19966 N DEPARTURE OF COLLAR 10400 E ELEVATION 3550

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	Ni	WIDTH	GEOLOGY AND REMARKS
		0 - 1						Lamprophyre.
		1 - 23						Medium grained dark to light gray diorite with sedimentary halos 14-19'.
		23 - 57½						Siliceous amphibole-biotite schist with scattered pyrrhotite 23-29'. Black medium grained diorite 30-33'.
		57½ - 73						Siliceous amphibole schist with garnet and small amounts of pyrite and pyrrhotite.
		73 - 98						Medium grained gray diorite.
		98 - 109						Siliceous biotite-amphibole schist with minor garnet 98-103'. Granite 104-105'.
		109 - 112						Replacement diorite. 1½' core lost.
		112 - 133						Amphibole biotite schist. Diorite 117-119'.
		133 - 157						Siliceous amphibole schist. Dip approximately 70°.
		157 - 164						Medium grained, gray, gneissic diorite. Lamprophyre 157½-158½. 1' core lost.
		164 - 170						Siliceous biotite gneiss.
		170 - 174						Amphibole schist with minor pyrite and pyrrhotite.
		174 - 189						Alternating phases of gray gneissic diorite and black medium to fine grained diorite.
		End						

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1/1
BY J.L.A.
DATE December, 1954

HOLE NO. U-15-212 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 525 chute section.
BEARING S 23° E DIP Horizontal LENGTH 77'
LATITUDE OF COLLAR 19994 N DEPARTURE OF COLLAR 10504 E ELEVATION 3549

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	%	WIDTH	GEOLOGY AND REMARKS
		0 - 1½						Gray gneissic diorite.
		1½ - 5½						Biotite after peridotite.
		5½ - 51½						Light to dark gray, medium to fine grained, gneissic diorite. 2' core lost.
		51½ - 56						Biotite schist (after peridotite ?) with scattered pyrrhotite. Gray medium grained diorite 45-47'.
		56 - 62						Mixture of gray and black diorite.
		62 - 65½						Siliceous biotite schist.
		65½ - 70						Medium grained gray diorite.
		70 - 75						Granitized sediments having character of diorite in places and schist in others.
		75 - 77						Lamprophyre. Altered at 75'.
		End						

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1/1
BY J.L.A.
DATE December, 1954

HOLE NO. U-15-213 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 500 chute section.
BEARING North DIP Horizontal LENGTH 299'
LATITUDE OF COLLAR 20010 N DEPARTURE OF COLLAR 10004 E ELEVATION 3549

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	Ni	WIDTH	GEOLOGY AND REMARKS
		0 - 9						Medium grained dark gray diorite with faint lineation. 2' core lost.
		9 - 15						Siliceous amphibole schist with scattered pyrite. Limey streak 12½-13½'.
		15 - 22½						Medium to coarse grained greenish gray diorite.
		22½ - 75½						Varying phases of gray gneissic diorite.
		75½ - 76½						Lamprophyre.
		76½ - 95						Amphibole schist. Diorite 77½-80'.
		95 - 113						Dark gray, medium to fine grained, gneissic diorite.
		113 - 122						Amphibole schist.
		122 - 125						Gray medium grained diorite.
		125 - 158½						Siliceous amphibole schist with minor pyrite. Dip 65°.
		158½ - 143½						Siliceous biotite schist with scattered pyrite. Dip 83°.
		143½ - 148						Coarse grained, light gray replacement diorite.
		148 - 209						Siliceous biotite schist with minor pyrite. Dip 60°.
		209 - 220½						Granitized biotite schist.
		220½ - 237½						Biotite-amphibole schist with pyrite.
		237½ - 243½						Gray medium grained diorite.
		243½ - 252						Amphibole schist.
		252 - 270½						Gray medium grained diorite.
		270½ - 296½						Lightly siliceous, slightly pyritic amphibole biotite schist.
		296½ - 299						Dark green fine grained diorite, with halos of sedimentation.
		End						

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1/1
BY J.L.A.
DATE December, 1954

HOLE NO. U-15-214 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 500 chute section.
BEARING South DIP Horizontal LENGTH 302'
LATITUDE OF COLLAR 19985 N DEPARTURE OF COLLAR 10002 E ELEVATION 3549

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	Ni	WIDTH	GEOLOGY AND REMARKS
		0 - 11						Granitized peridotite. Altered and leached at 2½'.
		11 - 19						Granitized amphibole-biotite schist (?).
		19 - 29						Medium grained gray diorite. Altered and leached 24½-26'.
		29 - 44½						Predominantly siliceous amphibole-biotite schist but having many short segments of gray coarse grained diorite.
		44½ - 51						Gray coarse grained diorite.
		51 - 59						Amphibole-biotite schist. Coarse grained gray diorite 57-58½'.
		59 - 63½						Gray coarse grained diorite.
		63½ - 77						Fine grained silicification with occasional small amounts of biotite.
		77 - 90						Short segments of gray medium grained diorite, amphibole schist, biotite schist, and amphibole-biotite schist.
		90 - 98½						Siliceous biotite schist. Medium grained gray diorite 90-92'.
		98½ - 114						Granitized peridotite.
		114 - 135						Granitized peridotite with pyrite, pyrrhotite and very minor chalcopyrite.
	A5836	121½ - 125½	Nil	Nil	Nil	0.02	4	
	A5837	125½ - 130½	Nil	Nil	Nil	0.15	5	
		135 - 144						Siliceous biotite-amphibole schist.
		144 - 147½						Granitized peridotite.
		147½ - 150½						Peridotite.
		150½ - 175						Siliceous biotite-amphibole schist. Black fine grained diorite 153½-154½'.
		175 - 175						Medium grained granite gneiss.
		175 - 211						Amphibole-biotite schist with trace amounts of chalcopyrite 198-205'. Gray medium grained diorite 176-180'.
		211 - 214						Granite gneiss.
		214 - 225½						Granitized peridotite.
		225½ - 235						Gray, medium grained, gneissic diorite. 1' core lost.
		235 - 254						Granitized peridotite.
		254 - 259						Light gray medium grained mixed with black fine grained diorite.
		259 - 302						Quartz-biotite gneiss with black fine grained diorite 272-274' and 279-284'.
		End						

FORM 13A 1M 8-50 C.P.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 22 1955

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1/2
BY J.L.A.
DATE March, 1955

HOLE NO. U-15-215 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 540 chute section.
BEARING N 7° E DIP Horizontal LENGTH 607'
LATITUDE OF COLLAR 19912 N DEPARTURE OF COLLAR 10804 E ELEVATION 3551

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		0 - 7½						Lamprophyre
		7½ - 9						Replacement diorite
		9 - 20½						Siliceous biotite-amphibole schist with minor pyrite.
		20½ - 27½						Medium to fine grained dark gray diorite. 2' core lost.
		27½ - 41						Siliceous biotite-amphibole schist with pyrite.
		41 - 45						Medium grained light gray diorite.
		45 - 55						Siliceous biotite schist with pyrite.
		55-80						Fine to coarse grained dark gray diorite. Peridotite 65 - 66.
		80 - 121						Siliceous biotite schist with pyrite.
		121 - 128½						Complex of biotite schist, gray diorite and black fine grained diorite.
		128½ - 143						Medium to fine grained black diorite with very minor pyrite. Slightly schistose occasionally.
		143 - 172½						Peridotite.
		172½ - 175						Medium grained gray diorite.
		175 - 190						Coarse grained, light gray, granitic appearing rock which may be a siliceous replacement of peridotite.
		190 - 208						Biotite-amphibole schist. 3' core lost.
		208 - 253						Medium to fine grained dark gray diorite. Core very broken to 223. 11' core lost.
		253 - 259						Slightly altered peridotite.
		259 - 262						Lamprophyre.
		262 - 264						Altered peridotite.
		264 - 268						Medium grained gray diorite.
		268 - 273						Lamprophyre.
		273 - 294						Complex of medium to fine grained, gray to black diorite.
		294 - 330						Siliceous biotite-amphibole schist with pyrite. 1' core lost.
		330 - 335						Medium grained, light to dark gray diorite.
		335 - 340						Siliceous amphibole schist. Core very broken with 3' lost.
		340 - 356						Fine grained, dark gray to black, lineated diorite.

FORM 33A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2/2
BY J.L.A.
DATE March, 1955

HOLE NO. U-15-215 MINE Holden LEVEL

LOCATION 1500 Drift East off No. 3 Transfer at 540 chute section.

BEARING N 7° E DIP Horizontal LENGTH 607'

LATITUDE OF COLLAR 19912 N DEPARTURE OF COLLAR 10804 E ELEVATION 3551

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		356 - 376						Biotite-amphibole schist with pyrite.
		376 - 382						Medium grained gray diorite.
		382 - 398						Siliceous amphibole schist with pyrite.
		398 - 402						Replacement diorite.
		402 - 413						Lamprophyre. 1' core lost.
		413 - 440½						Biotite-amphibole schist with pyrite.
		440½ - 458						Medium to fine grained, dark gray diorite.
		458-467						Biotite-amphibole schist with pyrite. 1' core lost.
	A5879	467 - 469	Nil	Nil	Tr	Nil	2	Siliceous biotite schist with pyrite and very minor chalcopyrite.
		469 - 481						Medium to fine grained, light to dark gray diorite.
		481 - 488						Siliceous biotite-amphibole schist with pyrite and pyrrhotite.
		488 - 497						Biotite schist with pyrite, pyrrhotite and chalcopyrite (?).
	A5880	488 - 493	Nil	Nil	Nil	Nil	5	
	A5881	493 - 497	Nil	Nil	Nil	Nil	4	
		497 - 520						Complex of medium to fine grained, gray to black diorite.
		520 - 525						Siliceous biotite schist with pyrite. Epidote at 522½.
		525 - 560						Lamprophyre. 2' core lost.
		560 - 570						Medium grained, light to dark gray diorite.
		570 - 583						Fine grained black diorite with faint lineation.
		583 - 607						Amphibole schist with garnet and Epidote at 586. Gray diorite 596½ - 599.
		End						

ORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1/1
BY TLW
DATE April, 1955

HOLE NO. U-15-216 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 540 Chute section.
BEARING South DIP Horizontal LENGTH 104'
LATITUDE OF COLLAR 19887 N DEPARTURE OF COLLAR 10801 E ELEVATION 3551

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		0 - 1½						Somewhat lineated, medium grained, dark gray diorite.
		1½ - 11						Granitized amphibole-biotite schist. Obscure contacts. 1' core loss.
		11 - 22						Strongly lineatedd medium grained, dark gray diorite. Core loss: 2' 10-15; 1' 15-21.
		22 - 26½						Coarse grained, porphyritic quartz diorite. Replacement contacts. Has tiny cream colored alteration specks of kaolin (?).
		26½ - 33½						Medium grained, very dark gray to black peridotite (?). Has some alteration specks described above. Somewhat quartz soaked with grain growth where quartz content high.
		33½ - 36½						Dark gray, fine grained diorite.
		36½ - 38						Granitized amphibole schist.
		38 - 42½						Lamprophyre with grayish alteration specks of kaolin (?).
		42½ - 51						Gneissic, medium to coarse grained, medium gray diorite.
		51 - 55						Quartz soaked peridotite with biotite and chlorite alteration. Some kaolin spots.
		55 - 58						Somewhat granitized amphibole schist. Chlorite alteration 57-58.
		58 - 60						Dark gray, fine grained diorite.
		60 - 62						Coarse grained, gneissic, medium to dark gray quartz diorite.
		62 - 65						Highly altered peridotite (to biotite and chlorite). Some granitic phases.
		65 - 67						Coarse grained, porphyritic, replacement quartz diorite.
		67 - 68						Augeniferous biotite schist. Has the tiny cream colored kaolin spots.
		68 - 79						Probably originally a biotite schist. Now a fault zone nearly parallel to hole.
		79 - 84						Granitized amphibole biotite schist.
		84 - 104						Dark gray, medium to fine grained diorite. Replacement contact with above.
		End						

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FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1/3
BY JLA TLW
DATE April - May, 1955

HOLE NO. U-15-217 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 560 chute section.
BEARING North DIP Horizontal LENGTH 612
LATITUDE OF COLLAR 19911 N DEPARTURE OF COLLAR 11204 E ELEVATION 3554

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	Ni	WIDTH	GEOLOGY AND REMARKS
		0 - 3						Lineated, light gray diorite.
		3 - 20½						Amphibole schist. Light gray diorite 12-15.
		20½ - 25						Dark gray, lineated diorite with quartz augens.
		25 - 37						Coarse grained, augeniferous, quartz diorite. Biotite schist 32-34½
		37 - 39½						Medium grained, gray diorite.
		39½ - 52⅔						Same as 25-37.
		52⅔ - 55⅔						Fine grained, black, lineated diorite.
		55⅔ - 58						Peridotite.
		58 - 62						Black, fine grained lineated diorite.
		62 - 64⅓						Mixture of diorite and peridotite.
		64⅓ - 69						Peridotite. 3' core lost.
		69 - 75						Mixture of quartz diorite, biotite and amphibole schists.
		75 - 80						Peridotite.
		80 - 81½						Amphibole schist.
		81½ - 94						Mixture of black, fine grained and gray medium grained diorite. 2' core lost
		94 - 97						Amphibole-biotite schist with minor pyrite.
		97 - 102						Same as 81½-94
		102 - 111						Augeniferous amphibole-biotite schist
	A5910	102-106	Nil	Nil	Tr	0.07	4	with pyrite and chalcopyrite.
	A5911	106-111	0.05	Nil	Nil	0.21	5	
		111 - 113						Augeniferous amphibole biotite schist.
		113 - 119						Siliceous biotite bearing rock that is
	A5912	113-116	Nil	Nil	Nil	0.10	3	probably altered peridotite. Pyrite,
	A5913	116-110	0.15	.125	Nil	0.15	3	pyrrhotite and chalcopyrite present.
		119 - 123						Garnet, epidote and quartz.
		123 - 130						Altered peridotite with pyrite,
	A5914	123-127	0.25	.140	.005	0.43	4	pyrrhotite and chalcopyrite.
	A5915	127-130	Nil	.040	Tr	0.35	3	
		130 - 134½						Black, fine grained diorite with halos of sedimentation.
		134½ - 143						Altered peridotite with pyrite,
	A5916	134½-139	0.05	Nil	Nil	0.24	4½	pyrrhotite and chalcopyrite.
	A5917	139-143	Nil	Nil	Tr	0.23	4	
		143 - 149						Slightly altered peridotite.
		149 - 163½						Medium to fine grained, dark gray diorite with faint lineation. 7' core lost.

FORM 83A FM 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2/3
BY JLA TLN
DATE April - May, 1955

HOLE NO. U-15-217 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 560 chute section.
BEARING North DIP Horizontal LENGTH 612
LATITUDE OF COLLAR 19911 N DEPARTURE OF COLLAR 11204 E ELEVATION 3554

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		163½ - 173½						Slightly altered peridotite.
		173½ - 179						Black fine grained diorite.
		179 - 184½						Slightly altered peridotite.
		184½ - 248						Medium to fine grained gray diorite.
								Altered peridotite 238½-240. 8' core lost.
		248 - 267						Dark gray, medium grained, lineated
	A5918	251-252	Nil	Nil	Tr	0.12	Ni	diorite. Altered peridotite with
								pyrrhotite 251-252
		267 - 284						Quartz soaked and somewhat chloritized
								peridotite. Tiny cream colored kaolin(?)
								specks throughout section (see hole
								U-15-216.)
		284 - 304						Dark to medium gray, medium grained,
	A5919	302½-303	0.65	Tr	Tr	0.04	½	somewhat gneissic diorite. Replacement
								contacts. Siliceous biotite schist in-
								clusion with pyrite and chalcopyrite
								302½-303.
		304 - 307						Dark gray, medium-fine grained diorite.
		307 - 309						Light gray, medium grained, gneissic
								replacement diorite.
	A5920	309 - 316½	0.50	.010	Tr	Nil	7½	Highly granitized (replaced) biotite
								schist sprinkled with pyrite and traces
								of chalcopyrite.
		316½ - 327						Medium-fine grained, dark gray diorite
								with occasional light gray, medium
								grained zone.
		327 - 371½						Siliceous (granitized) biotite schist
	A5921	327 -330	Nil	.050	Nil	Nil	3	with pyrite, pyrrhotite and chalcopyrite,
	A5922	333½-337	0.02	.090	Tr	Nil	3½	Greenish black, fine grained, somewhat
	A5923	337 -342½	0.06	Nil	Nil	Nil	5½	chloritized diorite 330-333½. Coarse
	A5924	347½-353	0.01	.030	Nil	Nil	5½	grained, porphyritic, gneissic biotite
	A5925	353 -360	0.01	.050	Nil	Nil	7	quartz diorite that is a definite replace-
	A5926	368½-371½	Nil	.140	Tr	0.03	3	ment of schist 342½-347½, 360-358½.
		371½ - 426						Coarse grained, porphyritic, gneissic
								quartz diorite that is a replacement of
								the above schist.
		426 - 434						Siliceous amphibole-biotite schist
	A5927	426 -428	0.02	.015	.040	Nil	2	with pyrite.
	A5928	428 -434	Nil	Tr	Nil	Nil	6	
		434 - 442						Dark gray, fine grained diorite.
		442 - 455½						Siliceous biotite schist with pyrite
	A5929	442 -447	Nil	Tr	Nil	Nil	5	
	A5930	447 -452	Nil	Nil	Nil	Nil	5	
	A5931	452 -455½	Nil	Nil	Nil	Nil	3½	

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 3/3
BY JLA TLW
DATE April - May, 1955

HOLE NO. U-15-217 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 560 chute section.
BEARING North DIP Horizontal LENGTH 612
LATITUDE OF COLLAR 19911 N DEPARTURE OF COLLAR 11204 E ELEVATION 3554

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		455½ - 463						Black, fine grained augeniferous diorite
		463 - 475½						Siliceous biotite-amphibole schist
	A5932	463-468	Nil	Nil	Nil	Nil	5	with pyrite.
	A5933	468-475½	Nil	.020	Tr	Nil	7½	
		475½ - 478½						Dark gray, medium grained diorite.
		478½ - 487						Siliceous biotite-amphibole schist
	A5934	478½-483	Nil	Nil	Nil	Nil	4½	with pyrite.
	A5935	483 -487	Nil	Nil	Nil	Nil	4	
		487 - 541½						Gneissic, coarse to medium grained
	A5936	491 -496½	Nil	Nil	Nil	Nil	5½	diorite. Biotite-amphibole schist with
	A5937	502 -506½	Nil	Nil	Nil	Nil	4½	pyrite 491-496½, 502-505½.
		541½ - 544						Black, fine grained diorite.
		544 - 554						Siliceous biotite-amphibole schist
	A5938	544 - 549	Nil	.190	Nil	Nil	5	with pyrite.
	A5939	549 - 554	Nil	.055	.055	Nil		
		554 - 557						Black, fine grained, augeniferous
								diorite.
		557 - 610						Siliceous biotite schist with pyrite.
	A5940	557-564	Nil	Nil	Nil	Nil	7	Replacement diorite 570-576½, 586-590,
	A5941	564-570	Nil	.100	Nil	Nil	6	593-599, 601-602. Lineated, black, fine
	A5942	576½-581	Nil	Nil	Nil	Nil	4½	grained diorite with quartz augens
	A5943	581-586	Nil	Nil	Nil	Nil	5	599-601. Scattered pyrrhotite. Traces of
	A5944	590-593	Nil	Nil	Nil	Nil	3	chalcopyrite. The pyrite tarnishes
	A5945	602-606	Nil	Nil	Nil	Nil	4	very rapidly. Entire section is broken
	A5946	606-610	Nil	Nil	Nil	Nil	4	by chloritized fractures at about 30°
								to hole. Lineation of metasediments
					appears to dip			63° to the south indicating a
								structural change or a crooked hole.
		610 - 612						Highly leached fault zone with vugs
								containing small quartz crystals. Last
		End						three inches are gouge. Fault appears
								to be about 15° from direction of hole.
								Driller reports rods jumped ahead a foot.
								Rods stuck. Hole lost.

RECEIVED
JUN 24 1955

FORM 83A 1M 8-50 C.P.

HOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1/1
BY TLW
DATE May-June - 1955

HOLE NO. U-15-218 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 560 chute section.
BEARING South DIP Horizontal LENGTH 128'
LATITUDE OF COLLAR 19883 N DEPARTURE OF COLLAR 11200 E ELEVATION 5554'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		0 - 8½						Granitized (quartz soaked) peridotite. Occasional pyrite on slip planes.
		8½ - 13						Granitized amphibole schist.
		13 - 20						Medium gray, medium grained replacement diorite.
		20 - 66						Amphibole schist with some biotite facies. Gray replacement diorite 22½-23, 30-31, 33½-36, 60-62. Fault zone 62-66 with quartz filled fractures and low temperature alteration. Fracture at 10-20° with hole. Bedding dips 87° at 56'.
		66 - 75½						Predominantly medium gray, medium grained diorite with some schist inclusions. Continuation of above fault zone 66-69 with chlorite alteration.
		75½ - 79						Granitized amphibole schist.
		79 - 104						Siliceous biotite schist with scattered pyrrhotite. A few specks of chalcopyrite at 97. Entire section is granitized to varying degrees.
		104 - 128						Predominantly dark gray, medium-fine grained, replacement diorite. A few schist inclusions. Coarse grained, medium gray, replacement diorite 121-124½. Altered to chlorite green by 30° cross fractures 106-121.
		End						

FORM 83A 1M 8-5 C.P.

LOWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 1/3
BY TLW
DATE June-July - 1955

HOLE NO. U-15-219 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 582½ chute section.
BEARING N 12° E DIP Horizontal LENGTH 640'
LATITUDE OF COLLAR 19913 N DEPARTURE OF COLLAR 11655 E ELEVATION 3557'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	Ni	WIDTH	GEOLOGY AND REMARKS
	A5954	0 - 3	Nil	Nil	Nil	0.01	3	Granitized biotite schist - appears to be alteration of peridotite. Pyrrhotite blebs with occasional chalcopyrite speck.
		3 - 20						Lamprophyre. Peridotite with pyrrhotite blebs 7½-8, 8½-10, 17-18. Many serpentinized slips in peridotite. Broken core. Core loss: 1½' 3-8; 1' 8-11; 1' 11-20.
	A5955	7½ - 10	Nil	Nil	Nil	0.02	2½	
	A5956	17 - 18	Nil	Nil	Nil	Nil	1	
		20 - 38						Altered peridotite (?) with widely scattered specks of pyrrhotite and chalcopyrite.
		38 -172						Diorite. Varying degrees of grain size from coarse to medium. Gray color varies from light to dark. Black, fine grained diorite 163-164, 170-171. Lamprophyre 124½-131. Fractured and chloritized 58½-70½, 87½-88, 95-96, 108-108, 132-133, 148-150, 164-172. Core loss: 2½' 58½-64; 1½' 64-67; ½' 74-75; 1' 150-162; 1' 162-17[illegible]
		172 -256						Highly altered peri[illegible]ite. Many serpentinized slips t[illegible]out. Lamprophyre 173½-175; 181½-[illegible]83½-184; 185-192; 193-194; 198-[illegible] Diorite replacements 197-198; 22[illegible]226½-227½; 229-231; 243½-244½; 248-[illegible] Core loss: 1½' 172-182; ½' 182-184; [illegible]4-187; 2' 208-216; ½' 245-246; 1' 252-254.
		256 -264						Dark gray, medium-fine grained diorite.
		264 -275						Light gray, coarse grained, gneissic replacement diorite.
		275 -310						Dark gray, medium fine grained diorite. Core loss: 2' 295-310.
		310 -319				Zn		Granitized and chloritized amphibole schist (altered peridotite ?). Scattered pyrite and chalcopyrite. 1' core loss.
	A5970	310 -314	0.10	.190	.090	Nil	4	
	A5971	314 -319	Nil	.130	.020	Nil	5	
		319 -321						Light gray, coarse grained, gneissic replacement diorite.
		321 -350½						Siliceous biotite schist, heavily sprinkled with pyrite. Chloritized zone 331-334. Light gray, coarse grained gneissic, replacement diorite 325-326½, 334-339. Quartz at 342 has a light violet
	A5972	321 -325	Nil	1.230	Tr	Nil	4	
	A5973	326½ -334	Nil	Tr	.020	Nil	7½	
	A5974	339-345	Nil	Nil	Nil	Nil	6	
	A5975	345 -350½	Nil	Nil	Nil	Nil	5½	

RM 83A 1M 8-50 C.P.

OWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 2/3
BY TLW
DATE June-July - 1955

OLE NO. U-15-219 MINE Holden LEVEL 1500
OCATION 1500 Drift East off No. 3 Transfer at 582½ chute section.
EARING N 12° E DIP Horizontal LENGTH 640'
ATITUDE OF COLLAR 19913 N DEPARTURE OF COLLAR 11655 E ELEVATION 3557'

TE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
		[illegible]						color. Bedding dips 60° at 348.
		350½ - 360						Black, fine grained diorite with quartz segregations.
		360 - 362						Light gray, coarse grained, replacement diorite.
		362 - 363						Same as 350½-360.
		363 - 396						Siliceous biotite schist heavily
	A6001	363-368	Nil	Tr	Tr	Nil	5	sprinkled with pyrite.
	A6002	368-373	Nil	Nil	Nil	Nil	5	
	A6003	373-378	Nil	Nil	Nil	Nil	5	
	A6004	378-383	Nil	.015	.005	Nil	5	
	A6005	383-390	Nil	.025	.005	Nil	7	
	A6012	390-396	Nil	Nil	Nil	Nil	6	
		396 - 402						Altered peridotite ?? Assimilated biotite schist ??. Occasional pyrite bleb.
		402 - 407						Biotite schist nearly assimilated in black, fine grained diorite.
		407 - 412						Light gray, medium grained, gneissic diorite. Replacement of schist.
		412 - 433						Siliceous biotite schist, somewhat
	A6013	412-418	Nil	Tr	Nil	Nil	6	granitized. Pyrrhotite, pyrite, widely
	A6014	418-423	Nil	Nil	Nil	Nil	5	scattered specks of chalcopyrite. Quartz
	A6015	423-428	Nil	.230	Nil	Nil	5	filled fault at 421.
	A6016	428-433	Nil	Tr	Nil	Nil	5	
	A6017	433-433	Nil	Nil	Nil	Nil	5	
		438 - 442½						Border phase of schist and section following.
		442½ - 460						Coarse grained, medium gray, porphyritic diorite.
		460 - 475						Very dark gray, medium-fine grained
	A6018	469½-472½	Nil	Nil	Nil	Nil	3	diorite, Gneissic 468½-469½. Light gray, coarse grained, gneissic, replacement diorite 466½-468½. Biotite schist with pyrite and scattered chalcopyrite 469½-472½.
		475 - 532						Siliceous biotite schist with minor
	A6019	475-480	Nil	Nil	Nil	Nil	5	amphibole content. Pyrite and scattered
	A6020	480-485	Nil	Nil	Nil	Nil	5	chalcopyrite. Quartz has definite
	A6021	485-490	Nil	Nil	Nil	Nil	5	violet color 493-499. Occasional narrow
	A6022	490-495	Nil	Nil	Nil	Nil	5	diorite replacement. Core loss: 4½'
	A6023	495-500	Nil	Nil	Nil	Nil	5	521-532 (core dropped in hole and drilled
	A6024	500-504	Nil	Nil	Nil	Nil	4	over).

FORM 20A 1M 8-50 C.B.

...OWE SOUND COMPANY
CHELAN DIVISION

DIAMOND DRILLING RECORD

SHEET NO. 3/3
BY TLW
DATE June-July - 1955

HOLE NO. U-15-219 MINE Holden LEVEL 1500
LOCATION 1500 Drift East off No. 3 Transfer at 582½ chute section.
BEARING N 12° E DIP Horizontal LENGTH 640'
LATITUDE OF COLLAR 19913 N DEPARTURE OF COLLAR 11655 E ELEVATION 3557'

DATE	SAMPLE NO.	FOOTAGE	ASSAY VALUE CU.	AG.	AU.	ZN.	WIDTH	GEOLOGY AND REMARKS
	A6031	504-509	0.03	Nil	Nil	Nil	5	
	A6032	509-514	0.02	Nil	Nil	Nil	5	
	A6033	514-519	0.02	Nil	Nil	Nil	5	
	A6034	519-525	0.02	Nil	Nil	Nil	6	
	A6035	525-532	Nil	Nil	Nil	Nil	7	
		532 - 580						Dark gray, medium grained, gneissic, replacement diorite changing into coarse grained, porphyritic diorite at 538. Replacement contacts. Core loss: 3' 542-554.
		580 - 598						Amphibole biotite schist with considerable diorite replacements.
		598 - 602½						Light gray, medium grained, somewhat gneissic, replacement diorite.
		602½ - 610½						Amphibole biotite schist. A few specks of pyrite and chalcopyrite at 608.
		610½ - 614						Medium gray, medium-fine grained diorite.
		614 - 624						No core. Driller reports pressure necessary to advance rods and water ran milky white but barrel empty at end of run. Core not dropped in hole. Bits looked good (not as if they had run over dropped core).
		624 - 640						Somewhat granitized amphibole schist. Gray, replacement diorite 636-637. ¼" bleb of pyrite and chalcopyrite at 640. No sign of leaching from a fault. Core loss: 1½' 624-628; 1' 628-630.
		End						

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

1201 N. Division St.
Spokane 2, Washington
January 19, 1956

RECEIVED
FEB 13 1956

MEMORANDUM

To: DMEA Field Team, Region I, Northwest District

From: E. G. Erickson, Mining Engineer, Bureau of Mines

Subject: Interim report, Docket No. DMEA-3142 (copper), Howe Sound Company, Holden Mine, Chelan County, Washington, Contract No. Idm-E644

The project was inspected January 11 and 12, accompanied by Mr. T. Wilson and Mr. R. A. Paasch, company geologists. Mr. Wilson is transferring to the company's exploration office in Salt Lake City, Utah, shortly and Mr. Paasch will be the mine geologist.

1500 Level. The east drift had been advanced 65.5 feet beyond survey station No. 1352 for a total advance of 3564 feet on the 1500 level. The last 48 feet was timbered, and ground conditions indicated timbering would have to be continued for the present. No significant ore mineralization had been disclosed to date.

2500 Level. The crosscutting, transfer stations, and diamond drill stations have been completed and only the diamond drilling remains to be completed. The Operator reported a total advance of 550 feet in 294 crosscut, making a total advance of 1365 feet for crosscutting on the 2500 level. The inspection engineer found a 3-ft. error in the measurement of 294 XCS, making a corrected total of 553 feet for 294 XCS and total crosscutting on the 2500 level is 1368 feet, the amount allowed by the contract.

Diamond drilling. - The diamond drilling phase of the contract has not been progressing favorably. The Operator has been unable to employ competent drillers. The Operator has asked for bids from several drill contractors and may contract the drilling. The Operator stated that the prices submitted to date indicate the drilling will cost more than the unit price allowed by the contract. The Operator is anxious to complete the contract before July 1, 1956 and will contract the drilling if it is not too far out of line with the unit price allowed by the contract.

The Operator has purchased the diamond drill allowed by the contract and is using it at the present time. He will not charge it to the contract if the drilling is contracted as he will stipulate that the

3142

ACTION ON [illegible]
[illegible]

Date 2-13

Referred to:

1. ~~[illegible]~~
2. ~~Mr. [illegible]~~
3. ~~Mr. Chambers~~
4. ~~Docket Control Mails and Files~~
5. ~~[illegible]~~ Division
6. Docket Control Mails and Files

Note comments in report regarding:

1. Wants to transfer unused "equipment" funds
2. to more "drifting"
3.
4.

and take appropriate action.

- - - - - -

Action taken by Division: If the operator finally decides not to buy the drill we could take care of him

W.R.S.

ROBERT E. ADAMS
Initials

drill contractor purchase the machine. If the company continues to do the drilling they will include the cost of the drill in their invoice at a later date. The Operator stated he would like to use the unexpended amount of the "equipment - to be purchased" item for drifting on the 1500 level if they do not purchase the drill under the contract.

All drill cores are skeletonized and no less than 1" per foot of sampled section is saved. The core is stored at the property.

Following is a tabulation of the work items authorized, number of units, and units completed:

Item	Authorized	Completed	
Item I, Stages I and II			
Drifting and crosscutting	4100 feet	3564 feet	
Drill stations	10	9	
Core drilling	7416 "	5353 "	1/
Item II, Stages I and II			
Crosscutting	1368 feet	1368 feet	
Transfer stations	3	3	
Drill stations	6	6	
Core drilling	7000 "	3117 "	1/

1/ As of Jan. 1, 1956.

A record snowfall has been experienced this year. At the time of my visit 400 inches of accumulated snowfall had been recorded. The snow pack at the mine was 8 - 10 feet deep.

E. G. Erickson

E. G. Erickson

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

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

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED FEB 20 1956

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of December, 1955 Docket No. DMEA 3142 Contract No. Idm-E644
Operator's Name Howe Sound Company - Chelan Division Minerals Copper
Address Holden, Washington
Contract Amount, $ 309,990.00 Government Participation: 50% Amount, $ 154,995.00

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:				2/27/56	O.K.P.R.	
Drilling - Core	2,059.75	22,012.00	24,071.75	2059.75	22012.00	24071.75
Bulldozing						
Crosscutting						
Drifting						
Dia. Drill & Transfer Sta.	490.00	8,830.00	9,320.00	490.00	8830.00	9320.00
(2) Labor and Supervision:						
Labor	5,369.83	90,419.51	95,789.34	5369.83	90419.51	95789.34
Supervision	555.21	6,380.39	6,935.60	555.21	6380.39	6935.60
Technical Services	104.88	3,404.17	3,509.05	104.88	3404.17	3509.05
(3) Operating Mat'ls. and Supplies:						
Timber	789.06	7,878.05	8,667.11	789.06	7878.05	8667.11
Explosives	988.65	19,305.60	20,294.25	988.65	19305.60	20294.25
Pipe	780.79	5,492.94	6,273.73	780.79	5492.94	6273.73
Track	282.25	4,287.77	4,570.02	282.25	4287.77	4570.02
Drill Steel & Bits	489.25	10,885.38	11,374.63	489.25	10885.38	11374.63
Electric Cable Inst'n	-	358.64	358.64		358.64	358.64
Vent Pipe Inst'n	11.10	319.54	330.64	11.10	319.54	330.64
(4) Operating Equipment:						
Rental						
Purchase	62.42	30,844.67	30,907.09	62.42	30844.67	30907.09
Depreciation	144.00	3,522.00	3,666.00	144.00	3522.00	3666.00
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment	255.64	8,708.43	8,964.07	255.64	8708.43	8964.07
Sampling and Analysis		130.32	130.32		130.32	130.32
Payroll Taxes	154.76	3,454.74	3,609.50	154.76	3454.74	3609.50
Ind. ~~Bonding~~ Insurance & Med. Aid	213.80	4,114.82	4,328.62	213.80	4114.82	4328.62
Tramming	328.32	8,040.11	8,368.43	328.32	8040.11	8368.43
Compressed Air	539.00	12,402.15	12,941.15	539.00	12402.15	12941.15
(8) Contingencies (specify):						
Retroactive Pay	-	1,100.55	1,100.55		1100.55	1100.55
Miners Lamps	25.90	526.82	552.72	25.90	526.82	552.72
Handling Supplies	94.08	2,210.39	2,304.47	94.08	2210.39	2304.47
Hoisting (2500 Level)	-	1,397.84	1,397.84		1397.84	1397.84
TOTALS	13,738.69	256,026.83	269,765.52	13738.69	256026.83	269765.52

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

Date 1-19-56 *Payee Howe Sound Company - Chelan Division

Per [signature] Title [signature]

*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:

$ 6869 35

Signature [signature]
(Authorized Certifying Officer)

Date 2/16/56 Vou. No. 1711
(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. 6644 in accordance with the terms of the contract.

Signature /S/ Eric G. Erickson Title Mining Engr Date 1/23/56

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature /S/ A. E. Weissenborn Title Exec Officer Date 2/15/56

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
FEB 20 1955

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of December 1955 Docket No. DMEA 3142 Contract No. Idm-E644

Operator's Name Howe Sound Company Minerals Copper

Address Holden, 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 Item 1 St. 1				135,396.66	3,100	43.68	3,100	
~~Crosscutting~~ It. 1 St. 2		11,111.22	192	25,718.36	423	60.80	1,000	
Crosscutting It.2 St.1				26,176.83	815	32.12	1,000	
Crosscutting It.2 St.2		15.30		18,174.83	550	33.05	450	
Core It.1 St. 1				13,750.00	5,000	2.75	5,000	2.75
Drilling: Core It.1 St.2	Feet	541.75	197	970.75	353	2.75	2,000	2.75
Core It.2 St.1	Feet	1,518.00	506	9,351.00	3,117	3.00	4,000	3.00
D.D. Sta. It.1 St.1				3,730.00	8	466.25	8	490.00
D.D. Sta. It.1 St.2	Each	490.00	1	490.00	1	490.00	2	490.00
Trsfr. Sta. It.2 St.1				1,000.00	2	500.00	4	500.00
Trsfr. Sta. It.2 St.2				500.00	1	500.00	2	500.00
Dia. It.2 St.1				2,400.00	4	600.00	4	600.00
Drill Sta. It.2 St.2				1,200.00	2	600.00	2	600.00
TOTAL DISTRIBUTED COSTS		13,676.27		238,858.43				TOTAL COSTS AUTHORIZED BY CONTRACT
Item 1 Stage 1		62.42		29,770.23				31,607.01
Item 2 Stage 2				1,136.81				8,219.00
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		13,758.69		269,765.52				

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 1-19-56 Operator Howe Sound Company - Chelan Division

By [signature] Title [signature]

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)

151 Eric G Erickson

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

January 12, 1956

RECEIVED

FEB 20 1956

United States Department of the Interior
Defense Minerals Exploration Administration
1201 North Division Street
Spokane 2, Washington

Gentlemen:

Re: Docket No. DMEA 3142 (Copper)
Howe Sound Company
Holden Mine
Chelan County, Washington
Contract No. Idm-E644

The following is a narrative of the work accomplished during December, 1955 for the Buckskin Mountain exploration and in the 2500 level crosscuts.

Buckskin Mountain Exploration

The 1500 drift east was advanced 192 feet in diorite and in altered peridotite.

Overbreak amounted to 4,260 cubic feet. Rock conditions gradually worsened during the last half of the month and timbering was resumed at the 12950 east coordinate where the rock changed from diorite to altered peridotite. In addition to 12 feet of timber near the face in this peridotite, 26 feet were installed through altered peridotite which occurs between the 12864 and 12890 coordinates. Faults cut this rock making the timber particularly necessary. One 6-foot set of timber was also added on to the end of the old timber at the 12744 coordinate. In between the sections of timber 243 rock bolts were used to support the ribs and back.

A diamond drill station was cut into the north rib of the drift at the 12905 coordinate.

The front trucks on the jumbo were replaced by a reconditioned set.

After 197 of diamond drilling in the north hole at the 12500 coordinate this work was halted due to a diamond driller's termination of employment.

2500 Level Crosscuts

Cutting of the two diamond drill stations in the 294 crosscut was completed, and in the east station 31 rock bolts were installed.

Diamond drilling was completed from the station at the end of the 338 crosscut with 221 feet being drilled.

Our first drilling with the new BBU-2 drill began on December 21 in the station at the end of the 357 crosscut where it drilled 285 feet.

Miscellaneous Information

In the table below are data pertaining to the projects on both the 1500 and 2500 levels.

Miscellaneous Information (Continuted)

	1500 Drift	284 Crosscut	321 Crosscut	338 Crosscut	357 Crosscut	373 Crosscut
Advance	192	-	-	-	-	-
Rounds Blasted	29	-	-	-	-	-
Total advance under DMEA	3,523	550	238	150	158	271
Average tram to haulage drift	6,232	-	-	-	-	-
Length of newly timbered section	44	-	-	-	-	-
Rock bolts used	243	-	-	-	-	-
Total rock bolts used under DMEA	1,715	32	38	7	-	-
EX Core Drilling	197	-	-	221	285	-
Total EX Core Drilling	5,353	-	835	857	285	1,140

Maps are appended to this report.

Yours very truly,

J. S. Roper
Manager

JSR:ms

1/17/56

Payment is being held up on these MF-104s until word is received from Washington re a requested amendment.

Payment being withheld on Oct. & Nov. ~~Rep~~ vouchers

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

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED FEB 20 1956

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of November, 1955 Docket No. DMEA 3142 Contract No. Idm-E644
Operator's Name Howe Sound Company - Chelan Division Minerals Copper
Address Holden, Washington
Contract Amount, $309,990.00 Government Participation: 50 % Amount, $ 154,995.00

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:				2/27/56		
Drilling - core	2,843.00	19,169.00	22,012.00	2843.00	19169.00	22012.00
Bulldozing						
Crosscutting						
Drifting						
Dia. Drill & Transfer Sta.	1,200.00	7,630.00	8,830.00	1200.00	7630.00	8830.00
(2) Labor and Supervision:						
Labor	6,705.77	83,713.74	90,419.51	6705.77	83713.74	90419.51
Supervision	770.69	5,609.70	6,380.39	770.69	5609.70	6380.39
Technical Services	176.75	3,227.42	3,404.17	176.75	3227.42	3404.17
(3) Operating Mat'ls. and Supplies:						
Timber	886.22	6,991.83	7,878.05	886.22	6991.83	7878.05
Explosives	1,109.75	18,195.85	19,305.60	1109.75	18195.85	19305.60
Pipe	314.00	5,178.94	5,492.94	314.00	5178.94	5492.94
Track	326.91	3,960.86	4,287.77	326.91	3960.86	4287.77
Drill Steel & Bits	944.74	9,940.64	10,885.38	944.74	9940.64	10885.38
Electric Cable Inst'n.	-	358.64	358.64		358.64	358.64
Vent. Pipe Inst'n.	24.24	295.30	319.54	24.24	295.30	319.54
(4) Operating Equipment:						
Rental						
Purchase	584.97	30,259.70	30,844.67	584.97	30259.70	30844.67
Depreciation	222.00	3,300.00	3,522.00	222.00	3300.00	3522.00
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment	1,080.78	7,627.65	8,708.43	1080.78	7627.65	8708.43
Sampling and Analysis	-	130.32	130.32		130.32	130.32
Payroll Taxes	145.98	3,308.76	3,454.74	145.98	3308.76	3454.74
Ind. ~~[illegible]~~ Insurance & Med. Aid.	318.41	3,796.41	4,114.82	318.41	3796.41	4114.82
Tramming	506.11	7,534.00	8,040.11	506.11	7534.00	8040.11
Compressed Air	1,152.39	11,249.76	12,402.15	1152.39	11249.76	12402.15
(8) Contingencies (specify):						
Retroactive Pay	-	1,100.55	1,100.55		1100.55	1100.55
Miners Lamps	40.70	486.12	526.82	40.70	486.12	526.82
Handling Supplies	145.04	2,065.35	2,210.39	145.04	2065.35	2210.39
Hoisting (2500 Level)	111.62	1,286.22	1,397.84	111.62	1286.22	1397.84
TOTALS	19,610.07	236,416.76	256,026.83	19610.07	236416.76	256026.83

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

Date 1-3-56 *Payee Howe Sound Company - Chelan Div.

Per [signature] Title [signature]

*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)

MF104a narrative + maps sent to Washington 1-17-56

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

$ 9805.04

Signature [signature]
(Authorized Certifying Officer)

Date 2/16/56 Vou. No. 1711
(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 644 in accordance with the terms of the contract.

Signature (S) Eric G. Erickson Title Mining Engr. Date 1/9/56

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature (S) A. E. Weissenborn Title Exec. Officer Date 2/15/56

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

OPERATOR'S UNIT COST AND PROGRESS REPORT

JAN 23 1956

Month of November 1955 Docket No. DMEA 3142 Contract No. Idm-E644
Operator's Name Howe Sound Company Minerals Copper
Address Holden, 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 Item 1 St. 1	Feet			135,396.66	3,100	43.68	3,100	
~~Crosscutting~~ It 1 St. 2	Feet	11,038.19	187	14,607.14	231	63.23	1,000	
Crosscutting It2 St.1	Feet			26,176.83	815	32.12	1,000	
Crosscutting It2 St.2	Feet	3,943.91	109	18,159.53	550	33.02	450	
Core It.1 St. 1	Feet	506.00	184	13,750.00	5,000	2.75	5,000	2.75
Drilling: Core It.1 St. 2	Feet	429.00	156	429.00	156	2.75	2,000	2.75
Core It.2 St.1	Feet	1,908.00	636	7,833.00	2,611	3.00	4,000	3.00
D.D. Stations It.1 St.1	Each			3,730.00	8	466.25	8	490.00
Transfer Stas.								
Item 2 St.1	Each			1,000.00	2	500.00	4	500.00
Item 2 St. 2	Each			500.00	1	500.00	2	500.00
Diamond Drill It2 St.1	Each			2,400.00	4	600.00	4	600.00
Drill Stations It2 St2	Each	1,200.00	2	1,200.00	2	600.00	2	600.00
TOTAL DISTRIBUTED COSTS		19,025.10		225,182.16				TOTAL COSTS AUTHORIZED BY CONTRACT
Item 1 Stage 1		584.97		29,707.66				
Item 2 Stage 2				1,136.81				
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		19,610.07		256,026.83				

1/30/56. WPK

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 1-23-56 Operator Howe Sound Company - Chelan Division

Per [signature] Title [signature]

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 872894

December 9, 1955

RECEIVED
JAN 23 1956

United States Department of the Interior
Defense Minerals Exploration Administration
1201 North Division Street
Spokane 2, Washington

Gentlemen:

Re: Docket No. DMEA 3142 (Copper)
Howe Sound Company
Holden Mine
Chelan County, Washington
Contract No. Kan-E644

The following is a narrative of the work accomplished during November, 1955 for the Buckskin Mountain exploration and in the 2500 level crosscuts.

Buckskin Mountain Exploration

The 1500 drift east was advanced 187 feet in altered peridotite and in diorite. Overbreak amounted to 4,265 cubic feet. Rock conditions gradually improved and the rate of advance accelerated as increasing amounts of diorite were encountered.

Timber in the drift was extended 165 feet to within 31 feet of the face. At this point rock bolts will again be used to support the ground. Retimbering amounted to 3 caps with posts, which were installed at about the 12500 east coordinate to relieve pressures on older timber.

Diamond drilling was started in the station located at the 12500 coordinate and the north hole was drilled to a depth of 340 feet.

The worm gear, axles, wheel bearings and seals were replaced on the Titan battery locomotive.

2500 Level Crosscuts

The 294 crosscut was completed by an advance of 109 feet, and cutting of each of the two diamond drill stations was about one half completed. In the back of the east "Y" 25 rock bolts were installed.

Diamond drilling from the station at the end of the 383 crosscut was 658 feet.

Miscellaneous Information

In the table below is data pertaining to the projects on both the 1500 and 2500 levels.

	1500 Drift	294 Crosscut	321 Crosscut	383 Crosscut	357 Crosscut	375 Crosscut
Advance	187	109	-	-	-	-
Rounds Blasted	32	17	-	-	-	-
Total Advance Under DMEA	3,351	550	238	150	158	271
Average Tram to Haulage Drift	6,023	340	-	-	-	-
Length of Newly Timbered Section	165	-	-	-	-	-
Rock Bolts Used	-	25	-	-	-	-
Total Rock Bolts Used Under DMEA	1,472	32	33	7	-	-
EX Core Drilling	340	-	-	658	-	-
Total EX Core Drilling Under DMEA	5,153	-	835	683	-	1,140

Maps are appended to this report.

Yours very truly,

J. S. Roper
Manager

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

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED FEB 30 1956

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of October, 1955 Docket No. DMEA 3142 Contract No. Idm-E644
Operator's Name Howe Sound Company - Chelan Division Minerals Copper
Address Holden, Washington
Contract Amount, $ 309,990.00 Government Participation: 50 % Amount, $ 154,995.00

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:				2/27/56	WPK	
Drilling - Core	1,245.00	17,924.00	19,169.00	1245.00	17924.00	19169.00
Bulldozing						
Crosscutting						
Drifting						
Dia. Drill & Transfer Sta.	1,090.00	6,540.00	7,630.00	1090.00	6540.00	7630.00
(2) Labor and Supervision:						
Labor	6,740.59	76,973.15	83,713.74	6740.59	76973.15	83713.74
Supervision	755.92	4,853.78	5,609.70	755.92	4853.78	5609.70
Technical Services	287.09	2,940.33	3,227.42	287.09	2940.33	3227.42
(3) Operating Mat'ls. and Supplies:						
Timber	853.98	6,137.85	6,991.83	853.98	6137.85	6991.83
Explosives	1,352.91	16,842.94	18,195.85	1352.91	16842.94	18195.85
Pipe	184.63	4,994.31	5,178.94	184.63	4994.31	5178.94
Track	51.76	3,909.10	3,960.86	51.76	3909.10	3960.86
Drill Steel & Bits	951.74	8,988.90	9,940.64	951.74	8988.90	9940.64
Electric Cable Inst'n.	26.00	332.64	358.64	26.00	332.64	358.64
Vent. Pipe Inst'n.	52.16	243.14	295.30	52.16	243.14	295.30
(4) Operating Equipment:						
Rental						
Purchase	314.34	29,945.36	30,259.70	314.34	29945.36	30259.70
Depreciation	240.75	3,059.25	3,300.00	240.75	3059.25	3300.00
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment	417.23	7,210.42	7,627.65	417.23	7210.42	7627.65
Sampling and Analysis	-	130.32	130.32		130.32	130.32
Payroll Taxes	217.70	3,091.06	3,308.76	217.70	3091.06	3308.76
Ind. ~~Machinery~~ Insurance & Med Aid	342.95	3,453.46	3,796.41	342.95	3453.46	3796.41
Tramming	536.94	6,997.06	7,534.00	536.94	6997.06	7534.00
Compressed Air	1,199.48	10,050.28	11,249.76	1199.48	10050.28	11249.76
(8) Contingencies (specify):						
Retroactive Pay	1,100.55	-	1,100.55	1100.55	- 0 -	1100.55
Miners Lamps	44.40	441.72	486.12	44.40	441.72	486.12
Handling Supplies3	153.86	1,911.49	2,065.35	153.86	1911.49	2065.35
Hoisting (2500 Level)	210.95	1,075.27	1,286.22	210.95	1075.27	1286.22
TOTALS	18,370.93	218,045.83	236,416.76	18370.93	218045.83	236416.76

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

Date 11-28-55 *Payee Howe Sound Company - Chelan Division

Per [signature] Title [signature]

*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:

$ 9185 46

Signature M 2P
(Authorized Certifying Officer)

Date 2/16/56 Vou. No. 1711
(See other side)

1 Cy 104a, narrative - mailed to Wash 1-17-56

(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. E644 in accordance with the terms of the contract.

Signature /S/ Eric G. Erickson Title Mining Engr Date 1/9/56

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature /S/ A. E. Weissenborn Title Exec. Officer Date 2/15/56

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

RECEIVED JAN 23 1956 Betty

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

Month of October 1955 Docket No. DMEA 3142 Contract No. Idm-E644
Operator's Name Howe Sound Company Minerals Copper
Address Holden, 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 Item 1, St. 1	Feet	4,947.85	61	135,396.66	3100	43.68	3100	
~~Crosscutting~~ " 1, St. 2	Feet	3,568.95	44	3,568.95	44	81.11	1000	
Crosscutting " 2, St. 1	Feet	1,181.28	29	26,176.83	815	32.12	1000	
Crosscutting " 2, St. 2	Feet	6,023.51	184	14,215.82	441	32.23	450	
Winzes								
Drilling: Core Item 1	Feet		-	13,244.00	4816	2.75	7000	2.75
Core Item 2	Feet	1,245.00	415	5,925.00	1975	3.00	6000	3.00
Dia. Drill Sta.								
Item 1, St. 1	Each	490.00	1	3,730.00	8	466.25	8	490.00
Transfer Sta.								
Item 2, St. 1	Each			1,000.00	2	500.00	4	500.00
It2, St.2	Each			500.00	1	500.00	2	500.00
Dia. Drill Sta. It. 2 St. 1	Each	600.00	1	2,400.00	4	600.00	4	600.00
TOTAL DISTRIBUTED COSTS		18,056.59		206,157.06				TOTAL COSTS AUTHORIZED BY CONTRACT
Item 1, Stage 1		314.34		29,122.89				31,607.01
Item 2 Stage 1		-		1,136.81				8,219.00
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		18,370.93		236,416.76				

1/30/56 WRK.

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 11-22-55 Operator Howe Sound Company - Chelan Division

Per [signature] Title [signature]

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 872894

November 11, 1955

RECEIVED
JAN 23 1956

United States Department of the Interior
Defense Minerals Exploration Administration
1201 North Division Street
Spokane 2, Washington

Gentlemen:

Re: Docket No. DMEA 3142 (Copper)
Howe Sound Company
Holden Mine
Chelan County, Washington
Contract No. Idm-E644

The following is a narrative of the work accomplished during October, 1955 for the Buckskin Mountain exploration and in the 2500 level exploration crosscuts.

Buckskin Mountain Exploration

The 1500 Drift East was advanced 105 feet most of which was altered peridotite. The lower footage was due to the necessity of placing one of the crews on Maintenance work for part of the month. Rock pressure required replacement of a considerable amount of timber, also, the lowering of the track and the placing of new timber in the older sections of the drift. The other crew advanced the heading.

Rock conditions remained poor with the overbreak amounting to 2,340 cubic feet. Eighteen sets of timber were installed to within 9 feet of the face.

A diamond drill station was cut at about the 12520 east coordinate. One set of timber and 15 rock bolts were installed in the station.

No diamond drilling was done as no runner was available.

An air cylinder was installed at the charging station to facilitate handling of the locomotive batteries.

An axle, 2 wheels, and a ring gear were replaced on the No. 9 locomotive. This trolley locomotive is used to make up the trains of cars loaded with waste at the end of the haulage drift where the waste is transferred into the 100 cubic foot cars.

2500 Level Crosscuts

The 294 crosscut was advanced 184 feet which includes 102 feet in the "Y" to the east. Three rock bolts were installed at the "Y" and 4 were used about 50 feet east of the "Y".

The 336 Crosscut was completed by an advance of 29 feet, and a diamond drill station was cut at the end of the crosscut. Seven rock bolts were installed in the last 50 feet of the Crosscut and 7 more were used in the drill station.

Diamond drilling was completed from the station at the end of the 321 Crosscut and the drill was moved to the station in the 336 crosscut.

Miscellaneous Information

	1500 Drift	294 Crosscut	321 Crosscut	336 Crosscut	357 Crosscut	373 Crosscut
Advance	105	184	-	29	-	-
Rounds Blasted	17	31	-	5	-	-
Total Advance Under DMEA	3,144	441	238	150	156	271
Average Tram to Haulage Drift	5,877	280	-	255	-	-
Length of Newly Timbered Section	94	-	-	-	-	-
Rock Bolts Used	-	7	-	7	-	-
Total Rock Bolts Used under DMEA	1,472	7	38	7	-	-
EX Core Drilling 3	-	-	415	-	-	-
Total EX Core Drilling under DMEA	4,816	-	835	-	-	1,140

Maps are appended to this report.

Yours very truly,

J. S. Roper
Manager

JSR:ms

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

Budget Bureau No. 42-R1036.5

RECEIVED
NOV 28 1955

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of September, 1955 Docket No. DMEA 3142 Contract No. Idm-E644
Operator's Name Howe Sound Company - Chelan Division Minerals Copper
Address Holden, Washington
Contract Amount, $ 309,990.00 Government Participation: 50 % Amount, $ 154,995.00

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 Core	746.00	17,178.00	17,924.00	746.00	17178.00	17924.00
Bulldozing						
Crosscutting						
Drifting						
Dia. Drill & Transfer Sta.	-	6,540.00	6,540.00		6540.00	6540.00
(2) Labor and Supervision:						
Labor	7,097.16	69,875.99	76,973.15	7097.16	69 875.99	76 973.15
Supervision	844.39	4,009.39	4,853.78	844.39	4009.39	4853.78
Technical Services	286.44	2,653.89	2,940.33	286.44	2653.89	2940.33
(3) Operating Mat'ls. and Supplies:						
Timber	982.19	5,155.66	6,137.85	982.19	5155.66	6137.85
Explosives	1,858.00	14,984.94	16,842.94	1858.00	14984.94	16842.94
Pipe	358.27	4,636.04	4,994.31	358.27	4636.04	4994.31
Track	77.17	3,831.93	3,909.10	77.17	3831.93	3909.10
Drill Steel & Bits	1,220.60	7,768.30	8,988.90	1220.60	7768.30	8988.90
Electric Cable Inst'n.	.75	331.89	332.64	.75	331.89	332.64
Vent Pipe Inst'n.	5.82	237.32	243.14	5.82	237.32	243.14
(4) Operating Equipment:						
Rental						
Purchase	21.48	29,923.88	29,945.36	21.48	29923.88	29945.36
Depreciation	303.00	2,761.50	3,064.50	303.00	2756.25	3059.25
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment	1,371.07	5,839.35	7,210.42	1371.07	5839.35	7210.42
Sampling and Analysis		130.32	130.32		130.32	130.32
Payroll Taxes	203.54	2,887.52	3,091.06	203.54	2887.52	3091.06
Ind. ~~Liability~~ Insurance & Med. Aid.	350.46	3,103.00	3,453.46	350.46	3103.00	3453.46
Tramming	690.84	6,306.22	6,997.06	690.84	6306.22	6997.06
Compressed Air	1,746.34	8,303.94	10,050.28	1746.34	8303.94	10050.28
(8) ~~Contingencies~~ (specify):						
Miners Lamps	51.80	389.92	441.72	51.80	389.92	441.72
Handling Supplies	197.96	1,713.53	1,911.49	197.96	1713.53	1911.49
Hoisting (2500 Level)	263.17	812.10	1,075.27	263.17	812.10	1075.27
TOTALS	18,676.45	199,374.63	218,051.08	18676.45	199369.38	218045.83

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

Date 10-25-55 *Payee Howe Sound Co., Chelan Division

Per [signature] Title [signature]

*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:

$ 9338 28

Signature [signature]
(Authorized Certifying Officer)

Date 11-23-55 Vou. No. 1653
(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. E644 in accordance with the terms of the contract.

Signature /S/ Eric G. Erickson Title Mining Engr. Date 11-16-55

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature /S/ Stephen W. Goldoft Title Mining Engr. Date 11-17-55

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

RECEIVED
NOV 28 1955

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of September 195 5 Docket No. DMEA 3142 Contract No. Idm-E644
Operator's Name Howe Sound Company Minerals Copper
Address Holden, 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 Item 1 St. 1	Feet	8,979.62	147	130,409.61	3,039	42.91	3,100	
Crosscutting Item 2 St.1	Feet	3,569.70	98	25,000.80	786	31.81	1,000	
Raising Item 2 St. 2	Feet	5,359.65	159	8,192.11	257	31.88	450	
Shafts								
Winzes								
Drilling: Core Item 1	Feet	11.00	4	13,244.00	4,816	2.75	5,000	2.75
Core ~~Diam~~ Item 2	Feet	735.00	245	4,680.00	1,560	3.00	4,000	3.00
Dia. ~~Auger~~ Drill St. ~~Sinking~~ Item 1 St. 1	Each			3,240.00	7	462.86	8	490.00
~~Prospecting~~ Transfer Sta ~~Test Pits~~ Item 2 St. 1	Each			1,000.00	2	500.00	4	500.00
~~Roads and Trails~~ It. 2St. 2	Each			500.00	1	500.00	2	500.00
Dia. Drill Sta. Item 2 St. 1	Each			1,800.00	3	600.00	4	600.00
TOTAL DISTRIBUTED COSTS		18,654.97		188,066.52				TOTAL COSTS AUTHORIZED BY CONTRACT
Item 1 Stage 1		21.48		28,847.75	28,808.55			31,607.01
Item 2 Stage 1				1,136.81				8,219.00
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		18,676.45		218,051.08				

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 10/25-55 Operator Howe Sound Co., Chelan Division
Per [signature] Title [signature]

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)

151 Eric G Erickson

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

Holden, Washington
October 15, 1955

RECEIVED

NOV 28 1955

United States Department of the Interior
Defense Minerals Exploration Administration
1201 North Division Street
Spokane 2, Washington

Gentlemen:

Re: Docket No. KMEA 3142 (Copper)
Howe Sound Company
Holden Mine
Chelan County, Washington
Contract No. Idm-E644

The following is a narrative of the work accomplished during September, 1955 for the Buckskin Mountain exploration and in the 2500 level exploration crosscuts.

Buckskin Mountain Exploration

The 1500 drift east was advanced 147 feet largely through altered peridotite. Only 57 feet of drift were driven in the first half of the month due to interruption of work by the Labor Day holidays andto absence of crew members immediately before and after the holidays. Ground conditions worsened again in the second half of the month and timbering with post and cap sets became necessary.

In the last 85 feet of advance numerous slick, talcy, and serpentinized seams were encountered and in places the back sluffed to as much as 12 feet above the floor. Total rock removed in excess of the 6' x 8' section was 3,885 cubic feet. Eleven 6 ft. sets of timber were installed to within 16 feet of the face. Retimbering to relieve older timber amounted to 3 caps with posts and 1 additional post. The number of rock bolts used was 101.

The messenger wire was extended eastward from the fan at the 11200 east coordinate to the drill station at the 12010 coordinate where another 15 HP fan will be installed.

One truck was repaired on the Titan locomotive and the battery for the locomotive was cycled and painted.

Diamond drilling of the north hole at the 12010 coordinate was stopped at 658 feet by the reoccurrence of high pressure water. Pressure in the hole did not drop sufficiently after several days of flowing to permit further drilling with our equipment.

2500 Level Crosscuts

The 294 crosscut was advanced 159 feet which includes 30 feet on a "Y" to the east.

The 336 crosscut was advanced 98 feet.

Diamond drilling from the station at the end of the 321 crosscut continues with the flatter of the two holes having been finished. One of our two drill runners quit early in the month and we have not been able to replace him. Consequently, no diamond drilling was done from the 357 crosscut as was planned for September.

Miscellaneous Information

In the table below are data pertaining to the projects on both the 1500 and 2500 levels.

	1500 Drift	294 Crosscut	321 Crosscut	353 Crosscut	357 Crosscut	373 Crosscut
Advance	147	159	-	98	-	-
Rounds Blasted	24	27	-	18	-	-
Total Advance under DMEA	3,039	257	238	121	156	271
Average Tram to Haulage Drift	5,750	180	-	185	-	-
Length of Newly Timbered Section	67	-	-	-	-	-
Rock Bolts Used	101	-	-	-	-	-
Total Rock Bolts used under DMEA	1,472	-	38	-	-	-
EK Core Drilling	4	-	245	-	-	-
Total EK Core Drilling under DMEA	4,816	-	420	-	-	1,140

Maps are appended to this report.

Yours very truly,

J. S. Roper
Manager

JSR:ms

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

1201 N. Division St.
Spokane 2, Washington
November 8, 1955

RECEIVED
NOV 17 1955

MEMORANDUM

To: DMEA Field Team, Region I, Northwest District

From: E. G. Erickson, Mining Engineer, Bureau of Mines

Subject: Interim report, Docket No. DMEA-3142 (copper), Howe Sound Company, Holden Mine, Chelan County, Washington, Contract No. Idm-E644

On November 3 and 4 I discussed the contract with Mr. J. S. Roper, manager, with respect to his letter to the Field Team of October 22. Also at the conference were Mr. Philips, superintendent, Mr. Scott, accountant, Mr. Newman, chief engineer, and Mr. Wilson, company geologist. It was suggested that it should be ascertained how much contract work could reasonably be expected to be completed with the total funds allowed under the contract before requesting additional funds.

Mr. Roper's letter of November 4 was prepared as a result of this conference and gives a breakdown of DMEA work completed and the cost as of September 30, 1955, together with the estimated amount of work that can be completed with the funds remaining in the contract. This estimate shows that all but about 300 feet of the originally estimated amount of drifting in the Buckskin area, Item I, can be completed, and allows for an estimated 7416 feet of core drilling whereas the contract footage is 7000 feet. It is estimated that the 2500 level exploration can be completed with a total of 1368 feet of crosscutting and 7000 feet of core drilling. The original estimate was 1450 feet of crosscutting and 6000 feet of core drilling.

It is recommended that the residual funds in the contract be made available for the estimated number of units of work set forth in Mr. Roper's November 4 letter, rather than allow additional funds as requested by the Operator in his October 22 letter.

Following is a tabulation showing a summary of the work items in both stages of Items I and II, the number of units completed as of September 30, 1955, an estimate of the number of units that will be completed by reallocation of monies, and the number of items originally set forth in the contract:

Item I, Stages I and II

Work items	Units comp. 9/30/55	Estimated units will be completed	Units in orig. contract
Drifting & crosscutting	3039 feet	3800 feet	4100 feet
Drill stations	7	10	10
Core drilling	4816 "	7416 "	7000 "

Item II, Stages I and II

Crosscutting	1043 feet	1368 feet 1/	1450 feet
Transfer stations	3	3 1/	6
Drill stations	3	6	6
Core drilling	1560 "	7000 "	6000 "

1/ Changes in planned locations of crosscuts cut out three transfer stations and it was found that approximately 1368 feet of crosscutting is sufficient to reach the desired drilling locations.

The estimated units of core drilling as originally set forth will be exceeded but not the agreed unit cost. An amendment is required to allow the additional drilling, the use of unexpended funds in different categories, and to extend the contract period 7 months beyond the two years as requested by the Operator. The amendment to the contract will have to remove the limitation on diamond drilling expressed in Exhibit "A" under Description of the Work for Items I and II and Stages I and II. Indications are that more drilling is necessary than originally planned for both items because it has become necessary to drill longer holes to explore the formation. It is not intended that the maximum allowables for depreciation of equipment or for supervision shall be removed. The only equipment that will be purchased after September 30, 1955 is the diamond drill machine which is on order, and $2,000 towards its purchase will be allowed as a cost to the contract.

Equipment, although not ?

1500 Level

The project work was inspected November 4, accompanied by Mr. Wilson, geologist. The 1500 east drift had been advanced 57 feet beyond survey station No. 1346. The drift advance during September and October has been poor, and the cost has been high. The main factor affecting the cost is ground conditions. It has been necessary to timber close to the face. Some sets have had to be retimbered because they were shot out with blast and some timbered sections had to be retimbered because of broken set members; also, some sections that had been rock bolted had to be timbered. Extra timbering crew has been employed, which has increased the labor costs.

Probably could allow this under an [illegible]

Although the accumulated unit cost for 3039 feet of drifting is $42.91/ft., the Operator has used $65.00/ft. (see attached breakdown furnished by Operator) as an estimated cost for the remaining 761 feet of drifting in view of the current high costs. The average cost for the 3800 feet of drifting on the 1500 level is estimated will be $47.33/ft. The present high labor and timber cost should not continue because apparently most of the necessary retimbering has been done. It is possible the actual cost of the drifting will be less than the estimated $65/ft., which would allow completion of more drifting.

The supervision, which has amounted to about $2/ft. as of September 30, 1955, has increased because of the decreased rate of advance, and when the 2500 level crosscutting is finished and only the 1500 level is operating, the supervision cost will increase to about $5.36/ft. if the present rate of advance is not increased. The maximum allowable for supervision is $3/ft. as an average for the crosscutting and drifting under the contract.

2500 Level

The 294 XCS had been advanced to the "Y", and crosscuts had been driven easterly and westerly. The easterly crosscut had been advanced 137 feet beyond survey station No. 1338 located at the "Y" and the crosscut westerly had been advanced 148 feet beyond S.S. No. 1338. Survey station No. 1338 is located 178.5 feet ahead of the 0.0 measure point, making a total of 463.5 feet of crosscutting in 294 XCS and easterly and westerly branches from the "Y".

The 336 XCS had been completed at 141 feet beyond survey station No. 1332 for a total of 149.7 feet under the contract. The diamond drill station had been excavated and the drill set up. Drilling was not in progress on either the 1500 or 2500 levels because the Operator is short of drillers at the present time.

Although the accumulated cost for 1043 feet of crosscutting on the 2500 level was about $31.83/ft., the Operator has used $35/ft. in his estimate for the remaining 325 feet of crosscutting because of an increase in wages and retroactive pay. It is estimated that the average cost of crosscutting 1368 feet on the 2500 level will be $32.58/ft.

The total of 5168 feet of drifting and crosscutting on both levels is estimated will cost an average of $43.42/ft.

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

E. G. Erickson

November 4, 1955

Estimated Cost per Foot for Item I Stage 2
(1500 Drift East)

Labor and Supervision		
Labor		$ 33.64
Supervision & Technical Services		5.36
Supplies		
Timber	$ 6.75	
Explosives	3.52 ?	
Pipe	2.44	
Track	1.02	
Drill Steel & Bits	2.36 ?	
Electric Cable Installation	-	
Ventilation Pipe Installation	.04	
		$ 16.13
Depreciation		.75
Miscellaneous		
Repairs to Equipment	$ 2.12 ?	
Sampling and Analysis	-	
Payroll Taxes	.74	
Ind. Insurance and Medical Aid	1.50	
Tramming	1.71	
Compressed Air	2.38 ?	
		$ 8.45
Contingencies		
Miners Lamps	$ .18	
Handling Supplies	.49	
		.67
		$ 65.00 per foot

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D.C.~~

1201 N. Division St.
Spokane 2, Washington
September 28, 1955

RECEIVED
OCT 24 1955

MEMORANDUM

To: DMEA Field Team, Region I, Northwest District

From: E. G. Erickson, Mining Engineer, Bureau of Mines

Subject: Interim report, Docket No. DMEA-3142 (copper), Holden Mine, Howe Sound Company, Chelan County, Washington, Contract No. Idm-E644

The exploration project site was inspected September 15, 1955, accompanied by Mr. T. E. Wilson, geologist. The contract details were discussed with Mr. J. S. Roper, manager, and Mr. Scott, accountant.

1500 level

The Buckskin drift east had been advanced 101 feet beyond survey station No. 1333 for a total advance of 2,950 feet under Stage I, Item I. A total of 226 feet of drift had been timbered between survey station No. 1320 and the face. Ground conditions near the face indicated rock-bolt pin sets would be required.

A total of 4,812 feet of core drilling had been completed under Stage I, Item I, as of the 1st of September 1955. There was no drilling in progress at the time of the inspection. The driller had been injured about the 1st of the month and the Operator has not been able to replace him.

Badly fractured ground conditions that caused high unit costs during July improved during August and costs decreased. One drift crew quit and a new crew has been employed. The Operator has employed a full-time supervisor for the DMEA project in an effort to get the best possible efficiency.

No significant mineralization has been disclosed to date in the Buckskin area.

2500 level

The 336 XCS has been advanced 59.2 feet under the contract. The 0.0 point or start of Government participation in the cost of 336 XCS is located 8.7 feet before survey station No. 1332. The first 129.3 feet

of 336 XCS was driven on company account. Present face is located 50.5 feet beyond survey station No. 1332. (Note: 50.5' plus 8.7' equals 59.2' - total DMEA advance.)

The 321 XCS had been completed at a total distance of 238.7 feet, and the diamond drill station excavated.

The 294 XCS transfer station had been completed and the crosscut advanced a total of 157.2 feet to date. The measure point 0.0 is located 6.0 feet ahead (toward the face) from survey station No. 1328.

No core drilling was in progress on the 2500 level. The driller had quit, and the Operator has not been able to make a replacement.

Following is a tabulation of work items authorized and number of units completed:

Work Item	Units authorized	Units completed
Item I - Stage I		
1500 drift east	3100 feet	2950 feet
Core drilling	5000 "	4812 "
Drill stations	8	7
Item I - Stage II		
Drifting and/or crosscutting	1000 feet	none
Core drilling	2000 "	"
Drill stations	2	"
Item II - Stage I		
Crosscutting	1000 feet	724 feet
Transfer stations	4	2
Drill "	4	3
Core drilling	4000 "	none
Item II - Stage II		
Crosscutting	450 feet	157.2 feet
Transfer stations	2	1
Drill "	2	none
Core drilling	2000 "	none

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

Eric G. Erickson

E. G. Erickson

RECEIVED
OCT 10 1955

XXXXXXXXXXXXXXXXXX
1201 N. Division Street
Spokane 2, Washington
October 5, 1955

~~Gruwell~~
~~Kloshchuck~~
Betty

Howe Sound Company
Chelan Division
730 Fifth Avenue
New York 19, N. Y.

Re: Contract Idm-E644
Monthly Operating Report
for August 1955

Gentlemen:

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

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

By Field Team, Region I

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

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

cc: DMEA (2)
USGS (2)

DMEA Field Team, Region I, NW District

October 5, 1955

DMEA Certifying Officer, Region I

RECEIVED
OCT 10 1955

Monthly operating report for August 1955, Howe Sound Company, Contract Idm-E644.

The subject operating report has been received and processed for payment. A disallowance of $5.25 has been made from the costs claimed for depreciation.

The operator has made what appears to be a mathematical error in the amount claimed for depreciation and the disallowance was made to bring the cost to $0.75 per foot of advance, in accordance with the terms of the contract.

Myrtle Purdy

cc: Operator
DMEA (2) ✓
USGS (2)

DMEA Field Team, Region I, NW District

October 5, 1955

DMEA Certifying Officer, Region I

RECEIVED
OCT 10 1955

Monthly operating report for August 1955, Howe Sound Company, Contract Idm-E644.

The subject operating report has been received and processed for payment. A disallowance of $5.25 has been made from the costs claimed for depreciation.

The operator has made what appears to be a mathematical error in the amount claimed for depreciation and the disallowance was made to bring the cost to $0.75 per foot of advance, in accordance with the terms of the contract.

Myrtle Purdy

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

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

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S MONTHLY REPORT AND VOUCHER

RECEIVED
OCT 10 1955

Month of August, 1955 Docket No. DMEA 3142 Contract No. DMEA-644
Operator's Name Howe Sound Company - Chelan Division Minerals Copper
Address Holden, Washington
Contract Amount, $ 309,990.00 Government Participation: 50 % Amount, $ 154,995.00

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:				11/1/55		
Drilling Core	1,935.00	15,243.00	17,178.00	1935.00	15243.00	17178.00
Bulldozing						
Crosscutting						
Drifting						
Dia. Drill & Transfer Sta.	1,100.00	5,440.00	6,540.00	1100.00	5440.00	6540.00
(2) Labor and Supervision:						
Labor	6,231.65	63,644.34	69,875.99	6231.65	63644.34	69875.99
Supervision	655.03	3,354.36	4,009.39	655.03	3354.36	4009.39
Technical Services	201.45	2,452.44	2,653.89	201.45	2452.44	2653.89
(3) Operating Mat'ls. and Supplies:						
Timber	663.56	4,492.10	5,155.66	663.56	4492.10	5155.66
Explosives	1,146.16	13,838.78	14,984.94	1146.16	13838.78	14984.94
Pipe	380.90	4,255.14	4,636.04	380.90	4255.14	4636.04
Track	286.58	3,545.35	3,831.93	286.58	3545.35	3831.93
Drill Steel & Bits	766.22	7,002.08	7,768.30	766.22	7002.08	7768.30
Electric Cable Inst'n.	-	331.89	331.89		331.89	331.89
Vent Pipe Inst'n.	11.64	225.68	237.32	11.64	225.68	237.32
(4) Operating Equipment:						
Rental						
Purchase		29,923.88	29,923.88		29923.88	29923.88
Depreciation	243.00	2,518.50	2,761.50	237.75	2518.50	2756.25
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment	692.27	5,147.08	5,839.35	692.27	5147.08	5839.35
Sampling and Analysis	-	130.32	130.32		130.32	130.32
Payroll Taxes	201.22	2,686.30	2,887.52	201.22	2686.30	2887.52
Ind. ~~Liability~~ Insurance & Med. Aid	313.87	2,789.13	3,103.00	313.87	2789.13	3103.00
Tramming	554.04	5,752.18	6,306.22	554.04	5752.18	6306.22
Compressed Air	1,043.94	7,260.00	8,303.94	1043.94	7260.00	8303.94
~~(8) Contingencies (specify):~~						
Miners Lamps	44.40	345.52	389.92	44.40	345.52	389.92
Handling Supplies	158.76	1,554.77	1,713.53	158.76	1554.77	1713.53
Hoisting (2500 Lev)	131.07	681.03	812.10	131.07	681.03	812.10
TOTALS	16,760.76	182,613.87	199,374.63	16755.51	182613.87	199369.38

Approved
Betty

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

Date 9-22-55 *Payee Howe Sound Company - Chelan Division

Per [signature] Title [signature]

*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:

$ 8377 76

Signature [signature]
(Authorized Certifying Officer)

Date 10-5-55 Vou. No. 1616
(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. E644 in accordance with the terms of the contract.

Signature /S/ Eric G Erickson Title Mining Engr Date 9-28-55

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature /S/ Stephen W Zoldok Title Mining Engr Date 9-29-55

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 10 1955

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of August 195 5 Docket No. DMEA 5142 Contract No. Idm-E844
Operator's Name Howe Sound Company Minerals Copper
Address Holden, 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
		9,889.25		121,424.94	2,889	42.04		
Drifting Item 1 Sta. 1	Feet	~~9,889.25~~	196	~~121,429.99~~	~~2,892~~	~~41.99~~	3,100	
Crosscutting Item 2 St. 1	Feet	1,004.05	23	21,431.10	688	31.15	1,000	
~~Raising~~ Item 2, St. 2	Feet	2,832.46	98	2,832.46	98	28.90	450	
Shafts								
Winzes								
Drilling: Core Item 1	Feet	1,056.00	584	13,233.00	4,812	2.75	5,000	2.75
Core Item 2	Feet	879.00	293	5,945.00	1,315	5.00	4,000	5.00
Dia. Drill Sta.								
Item 1, St. 1	Each			3,240.00	7	462.86	8	490.00
Transfer Sta.	Each							
Item 2 St. 1	Each			1,000.00	2	500.00	4	500.00
It. 2 St. 2	Each	500.00	1	500.00	1	500.00	2	500.00
Dia. Drill Sta. Item 2 Sta. 1	Each	600.00	1	1,800.00	3	600.00	4	600.00
				169,406.50				
TOTAL DISTRIBUTED COSTS		~~16,760.78~~		~~169,411.55~~				TOTAL COSTS AUTHORIZED BY CONTRACT
Item 1, Stage 1		16755.57		28,826.27				31,607.01
Operating Equipment Purchased Item 2 St. 1				1,136.81				8,219.00
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		~~16,760.78~~ 16755.57		~~169,874.85~~ 169,369.88				369,998.00

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 9-22-55 Operator Howe Sound Company - Chelan Division

Per [signature] Title [signature]

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/ Eric G. Erickson

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

RECEIVED
OCT 10 1955

September 9, 1955

United States Department of the Interior
Defense Minerals Exploration Administration
1201 North Division Street
Spokane 2, Washington

Gentlemen:

Re: Docket No. DMEA 3142 (Copper)
Howe Sound Company
Holden Mine
Chelan County, Washington
Contract No. Idm-E644

The following is a narrative of the work accomplished during August, 1955 for the Buckskin Mountain exploration and in the 2500 level exploration crosscuts.

Buckskin Mountain Exploration

The 1500 drift east was advanced 196 feet in altered peridotite. Rock conditions gradually improved with the advance and rate of progress accelerated. The overbreak decreased and during the last week of the month the crews were again able to muck a 6-foot round with the overbreak into 20 cars or less. This eliminated the need for a third train trip and thereby shortened the mucking time per round by about one hour. No timber was installed in the last 80 feet of drift where only rock bolts were used for ground support.

The total volume of overbreak was 5,048 cubic feet. Twenty-two rock bolts and 26 sets of timber were installed. Caps in 15 of these sets are supported by steel pins; 2 caps have pins under one end and a post under the other; and posts support both ends of the other 9 caps. In an area of heavier ground, between 12190 and 12230 coordinates, 5 caps with posts were installed to relieve older sets.

Diamond drilling of the north hole continued at the 12010 coordinate. Progress became very slow at a depth of 630 feet beyond which the rock is extensively fractured. High pressure water encountered at 648 feet entirely stopped the drilling for a 24 hour period.

2500 Level Crosscuts

Rock work and timbering was completed in the transfer station for the 294 crosscut. The crosscut was collared 8½ feet above the rail in the haulage drift, and an advance of 98 feet was made. The Eimco air locomotive was moved into the heading and put into service late in the month.

The 336 exploration crosscut was started and advanced 23 feet.

Diamond drilling from the station at the end of the 373 crosscut was finished and the drill is now operating in the station at the end of the 321 crosscut.

Miscellaneous Information

In the table below are data pertaining to the projects on both the 1500 and 2500 levels.

	1500 Drift	294 Crosscut	321 Crosscut	336 Crosscut	357 Crosscut	373 Crosscut
Advance	196'	98'	-	23'	-	-
Rounds Blasted	34	19	-	5	-	-
Total advance under DMEA	2,892'	98'	238'	23'	156'	271'
Average tram to haulage drift	5,448'	50'	-	125'	-	-
Length of Newly-timbered section	153'	-	-	-	-	-
Rock Bolts Used	22	-	-	-	-	-
Total rock bolts used under DMEA	1,371	-	38	-	-	-
EX core drilling	384'	-	175'	-	-	118'
Total EX core drilling under DMEA	4,812'	-	175'	-	-	1,140'

Maps are appended to this report.

Yours very truly,

J. S. Roper
Manager

JSR:ms

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

REC BUREAU OF MINES SEP 6 - 1955 SPOKANE, WASH.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1036.5

RECEIVED SEP 19 1955

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of July, 1955 Docket No. DMEA 3142 Contract No. Dim-E644

Operator's Name Howe Sound Company - Chelan Division Minerals Copper

Address Holden

Contract Amount, $309,990.00 Government Participation: ____% Amount, $154,995.00

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 Core	2,948.75	12,294.25	15,243.00	9/22/55		
Bulldozing						
Crosscutting						
Drifting						
Dia. Drill & Transfer Sta.	1,090.00	4,350.00	5,440.00			
(2) Labor and Supervision:						
Labor	5,078.92	58,565.42	63,644.34			
Supervision	325.14	3,029.22	3,354.36			
Technical Services	376.82	2,075.62	2,452.44			
(3) Operating Mat'ls. and Supplies:						
Timber	738.23	3,753.87	4,492.10			
Explosives	991.06	12,847.72	13,838.78			
Pipe	315.41	3,939.73	4,255.14			
Track	37.65	3,507.70	3,545.35			
Drill Steel & Bits	576.09	6,425.99	7,002.08			
Electric Cable Inst'n.	-	331.89	331.89			
Vent Pipe Inst'n.	6.72	218.96	225.68			
(4) Operating Equipment:						
Rental						
Purchase	557.88	29,366.00	29,923.88			
Depreciation	156.75	2,361.75	2,518.50			
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment	297.71	4,849.37	5,147.08			
Sampling and Analysis	-	130.32	130.32			
Payroll Taxes	159.08	2,527.22	2,686.30			
Ind. ~~xxxxxx~~ Med. Aid Insurance	257.22	2,531.91	2,789.13			
Tramming	357.39	5,394.79	5,752.18			
Compressed Air	559.56	6,700.44	7,260.00			
(8) Contingencies (specify):						
Miner's Lamps	29.60	315.92	345.52			
Handling Supplies	102.41	1,452.36	1,554.77			
Hoisting (2500 Level)	110.59	570.44	681.03			
TOTALS	15,072.98	167,540.89	182,613.87	15072.98	167540.89	182613.87

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

Date 8-31-55 *Payee Howe Sound Company - Chelan Division

Per [signature] Title [signature]

*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:

$7536.49

Signature [signature]
(Authorized Certifying Officer)

Date 9-13-55 Vou. No. 1599
(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 644 in accordance with the terms of the contract.

Signature /s/ Eric G Erickson Title Mining Eng Date 9-7-55

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature /s/ Stephen W Zoldok Title Mining Engr Date 9-12-55

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 19 1955

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of July 1955 Docket No. DMEA 3142 Contract No. Idm-E644
Operator's Name Howe Sound Company - Chelan Division Minerals Copper
Address Holden, 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 Item 1 St. 1	Feet	6,912.26	101	111,540.74	2,696	41.37	3,100	
Crosscutting Item 2 St.1	feet	3,564.09	108	20,427.05	665	30.72	1,000	
Raising								
Shafts								
Winzes								
Drilling: Core Item 1	Feet	1,091.75	397	12,177.00	4,428	2.75	5,000	2.75
Core ~~Other~~ Item 2	Feet	1,857.00	619	3,066.00	1,022	3.00	4,000	3.00
Auger								
~~Sampling~~ Dia. Drill Sta.								
~~Timbering~~ Item 1 St.1	Each	490.00	1	3,240.00	7	462.86	8	490.00
~~Test Pits~~ Transfer Sta.								
~~Roads and Trails~~ Item 2 St1	Each	-	-	1,000.00	2	500.00	4	500.00
Dia. Drill Sta. Item 2	Each	600.00	1	1,200.00	2	600.00	4	600.00
Sta. 1								
Total Distributed Costs		14,515.10		152,650.79				Total Costs Authorized by Contract
Item 1, Stage 1.		557.88		28,826.27				31,607.01
Operating Equipment Purchased Item 2 St.1		-		1,136.81				8,219.00
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
Total Costs		15,072.98		182,613.87				

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 8-31-55 Operator Howe Sound Company - Chelan Division

Per [signature] Title [signature]

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)

151 Eric G Erickson

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

August 11, 1955

RECEIVED
SEP 19 1955

United States Department of the Interior
Defense Minerals Exploration Administration
1201 North Division Street
Spokane 2, Washington

Gentlemen:

Re: Docket No. DMEA 3142 (Copper)
Howe Sound Company
Holden Mine
Chelan County, Washington
Contract No. Idm-E644

The following is a narrative of the work accomplished during July, 1955 for the Buckskin Mountain exploration and in the 2500 level exploration crosscuts.

Buckskin Mountain Exploration

The 1500 drift east was advanced a total of 101 feet in altered peridotites. The decrease in footage was caused by unusually blocky and sloughing ground, aggravated by the existence of a major fault that has greatly disturbed the surrounding county. In addition the greasy nature of small dike walls further intensifies a bad situation. Overbreak, amounting to 5,031 cubic feet, was considerably larger than that of any previous month. Seventy-three rock bolts and 17 sets of timber were installed in the drift. In the timber sets, caps were supported by posts except for 4 that are supported on the north rib with steel pins.

At the 12010 east coordinate a diamond drill station was cut into the north and south ribs of the east drift to depths of 15 and 9 feet, respectively. Eighteen rock bolts were used in or at the collar of the drill station.

Diamond drilling of the north and south holes from the station at the 11650 coordinate was finished. Drilling of the north hole from the station at the 12010 coordinate was started.

The car transfer was moved forward from the drill station at the 11650 coordinate and reinstalled in the station at the 12010 coordinate.

2500 Level Crosscuts

The 321 crosscut was completed by an advance of 108 feet and a diamond drill station was cut at the end of the crosscut. The station was made sufficiently high to allow drilling with rods in 20 foot lengths. Fifteen rock bolts were used in the crosscut.

Cutting of the diamond drill station at the end of the 357 crosscut was completed.

Diamond drilling from the station at the end of the 373 crosscut continues. The two holes from this station have been or will be extended sufficiently to explore the copper-nickel showing which lies in the footwall beyond the mine zone.

Miscellaneous Information

In the table below is data pertaining to the projects on both the 1500 and 2500 levels.

	1500 Drift	321 Crosscut	357 Crosscut	373 Crosscut
Advance	101	108	-	-
Rounds Blasted	18	21	-	-
Total Advance under DMEA	2,696	238	156	271
Average Tram to haulage drift	5,350	184	-	-
Length of newly-timbered section	125	-	-	-
Rock bolts used	73	15	-	-
Total rock bolts used under DMEA	1,349	38	-	-
EX Core drilling	397	-	-	619
Total EX Core drilling under DMEA	4,428	-	-	1022

With some 1400 feet still remaining to be driven in the 1500 level project it is apparent that the work will not be completed at the expiration of our contract. Neither is it likely that all of the proposed work on the 2500 level will be finished by the same expiration date. Consequently at some later date we will wish to request an extension of time for the completion of Stage II of both items in our contract.

Maps are appended to this report.

Yours very truly,

J. S. Roper
Manager

JSR:ms

Enc.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D.C.~~
1201 N. Division St.
Spokane 2, Washington
July 29, 1955

RECEIVED
SEP - 1 1955

MEMORANDUM

To: DMEA Field Team, Region I, Northwest District

From: E. G. Erickson, Mining Engineer, Bureau of Mines

Subject: Interim report, Docket No. DMEA 3142 (copper), Howe Sound Company, Holden Mine, Chelan County, Washington, Contract No. Idm-E644

The exploration project was inspected July 18 and 19, 1955, accompanied by Mr. T. E. Wilson, company geologist. The contract details were discussed with Mr. J. S. Roper, manager for the company.

1500 Level

The 1500 level drift east to the Buckskin area had been advanced 111 feet beyond survey station No. 1320, making a total advance of 2657.8 feet under Stage I of Item I. Diamond drill station No. 7 had been cut 91 feet back from the present face. The drift beyond the diamond drill station will have to be timbered because the ground is badly broken and cannot be supported by rock bolts. Having to drop back and timber the drift will cause a loss of advance which will raise the unit cost of drifting. The Operator is making every effort to keep the costs down and is very conservative about charging costs such as supervision and other indirect costs to the project.

The north hole at diamond drill station No. 6 had been completed (see Operator's log) and the south hole had been started.

2500 Level

The 321XCS had been advanced from 156.3 to 205.7 feet or 49.4 feet since the last inspection.

The 373 CXS and 357 XCS had no advance since the prior inspection and remain at 271 feet and 156.3 feet respectively.

The 336 XCS had been advanced 26 feet under company account. DMEA participation in 336 XCS will start when it reaches the hanging wall of the ore shoot.

All work to date on the 2500 level is covered under Item II of Stage I of the exploration project contract.

Discussion of the Contract

Item I

Holes to test the walls of the east drift on the 1500 level have been longer than anticipated, therefore, the Operator had requested approval to use drilling from stage II to complete the present pattern of drilling. Approval of this request would leave the walls of the last part of the drift unexplored. The Field Team feels this is unwise, therefore, the Operator was requested to increase the drill pattern interval so as to insure exploring the walls at the end of the drifting. Because of the long projection from surface on Buckskin mountain to the 1500 level of the mine it is believed that long range drilling beyond the present program may be necessary to explore the area to a reasonable extent.

Item II

The operator requested approval to enter stage II and lengthen the drill holes to probe the footwall nickel-copper zone.

The Field Team approved exploring the footwall zone with the incline holes from 373 and 357 x-cuts south and if the incline holes disclose presence of nickel-copper ore of consequence one of the vertical holes be lengthened to test the zone. Should the disclosure in incline holes be favorable and a vertical hole is deepened to test the zone at a greater depth it may mean that a vertical hole may have to be excluded from one of the other crosscuts. This omission would be justified as it would be considered more prudent to explore the nickel-copper zone at depth to gain additional information as less is known of this zone than of the copper zone being drilled.

The operator has stated he intends to request additional drilling if it becomes evident that more is needed to test the exploration targets.

E. G. Erickson

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

2500 Level

Drilling Results

3142

U-25-118

Cu	Ag	Au	Ni	Fe
0.68			0.58	4
0.56			0.33	4
0.25			0.28	5
0.37			0.25	7
0.30			0.26	3
0.25			0.18	6
0.10			0.07	3.5
0.15			0.07	3
0.20			0.20	4
0.37			0.39	4.5
0.25			0.20	4
		?		3
1.87			2.21	
17.335	0.31	0.264	4.67	55.5

[redacted] ? 3.5

U-25-123

Cu	Ag	Au	Zn	Pt
0.97	.180	.040	—	4
1.50	.260	.140	—	6
0.76	.255	.045	.20	2.5
2.37	.560	.110	.30	5
0.98	.365	.155	—	4
30.55	7.18	2.28	2.00	21.5
1.42	0.33	.106	0.093	

U-25-124

Cu	Ag	Au	Zn	Pt
0.58	.055	.005	0.02	1.5
	Dike			(1.0)
0.87	.275	.035	0.15	6.5
	Dike			(1.0)
1.37	.300	.030	0.10	5.0
1.62	.360	.060	0.30	4.0
1.50	.370	.080	0.20	0.5
	Dike			(3.5)
1.31	.180	.050	0.15	5.0
1.50	.525	.035	0.25	5.0
1.40	.400	.070	0.80	3.0
	Dike			(5.0)
1.37	.370	.020	0.60	4.0
44.335	11.20	1.38	9.605	45.0
0.985	0.249	0.031	0.213	

	Cu	Ag	Au	Zn	Ft
A'	1.12	—	.015		5'
	0.87	.035	.140		5
	2.12	.560	.150		5
	1.68	.550	.090		5
	1.43	.210	.030		5
	5 | 7.22	5 | 1.355	5 | .425	—	25'
	1.444	.271	.085		
U-25-122					
	2.12	.30	.080	0.15	5
	—	—	—	—	2
	—				4
	2.25	0.39	0.110	0.18	11'
	19.60	3.06	0.84	1.47	
	1.78	.28	0.76	0.13	
"E"	0.64	.155	.045	0.70	6.5
	0.87	.490	.130	0.40	2.5
	6.335	2.23	.6175	5.55	9
	0.704	.25	.0686	0.62	
	0.68	.38	.14	.50	5.5
"F"	0.37	.13	.09	.06	2.5
	4.665	2.415	.995	2.90	8.0
	0.583	.302	.124	0.36	

	Cu	Ag	Au	Zn	FT.
	1.80	0.07	0.03	0.32	3.5
	6.30	0.245	0.105	1.12	
V-25-117	1.75	0.20	0.02	0.92	5.0
	8.75	1.00	0.10	4.60	
	0.93	0.095	0.005	0.06	0.5
	0.465	0.475	0.0025	0.03	
	0.87	0.175	—	0.70	2.5
	2.175	0.4375	—	1.75	
	17.69	2.158	0.208	7.50	11.5
	1.538	0.188	0.018	0.65	

T

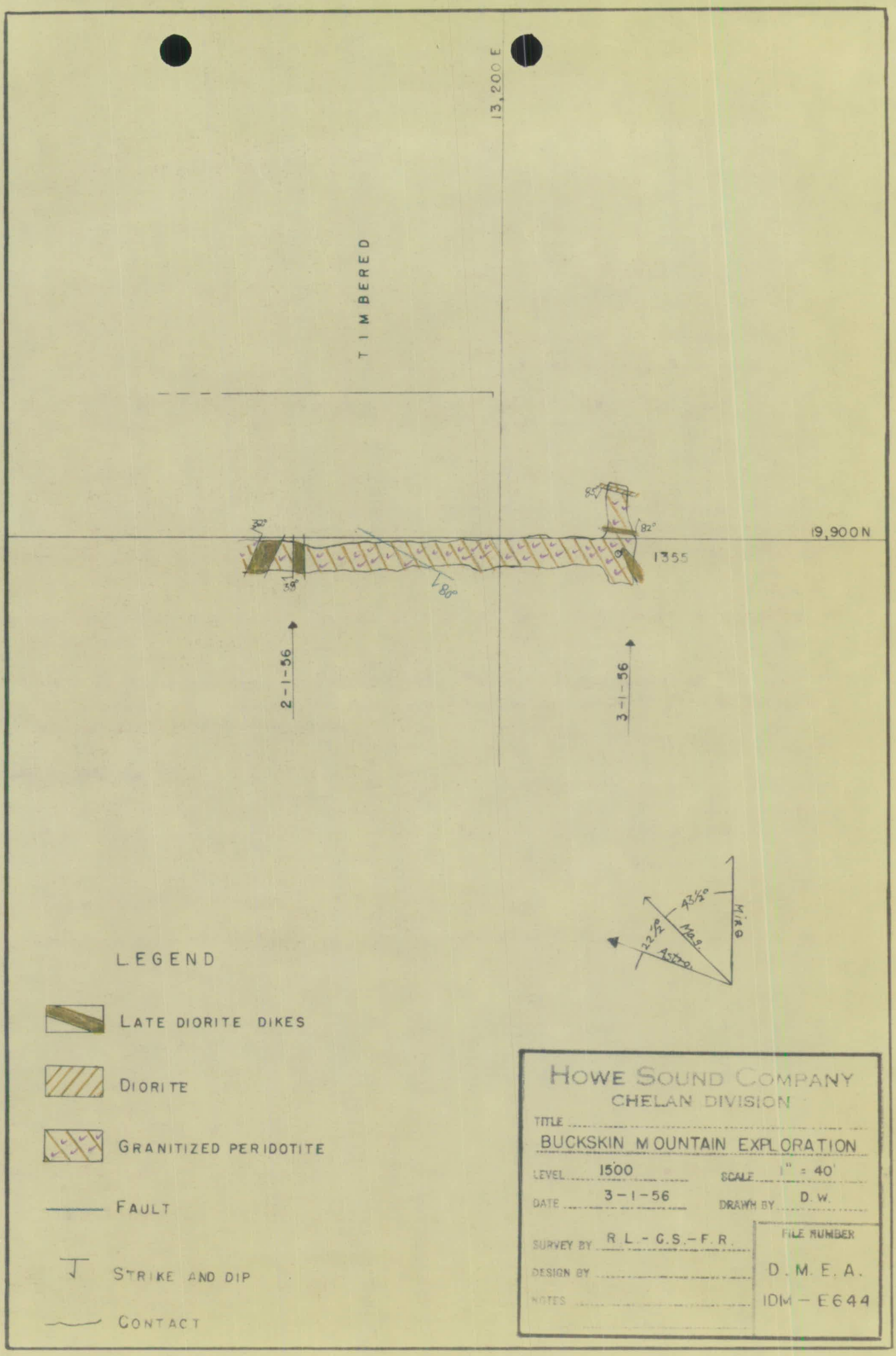
V-25-121	0.68	.250	.010	1.00	6
	4.08	1.50	.064	6.00	
	0.87	.485	.055	.70	6
	5.22	2.91	.330	4.20	
	9.30	4.41	0.39	10.20	12
	0.775	0.368	0.033	0.85	

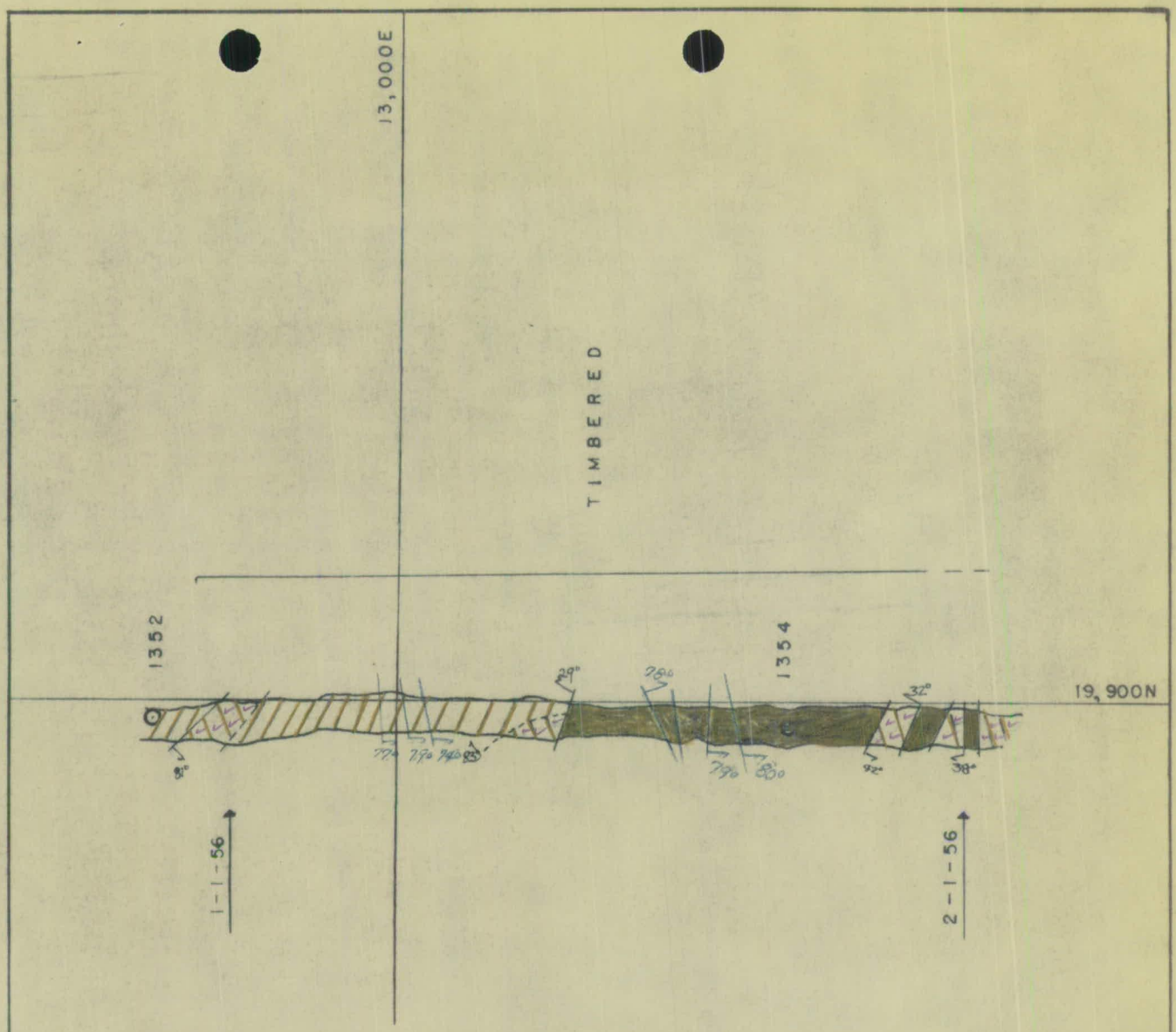
C

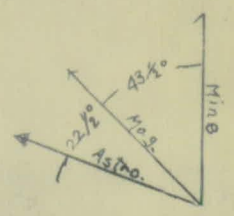
	0.72	.210	.030	0.65	5'
	3.60	1.05	.150	3.25	4'
	0.81	.349	.070	0.50	
	3.24	1.36	.280	2.00	
	0.84 (0.76)	2.41 (0.27)	0.43 (0.048)	5.25 (0.58)	9

V-25-121

Cu	Ag	Au	Zn	FT
0.80	.040	.015	—	3.5
2.80	0.14	0.053	—	
0.56	.090	.020	—	2
1.12	0.180	.040	—	
1.18	.190	.100	.04	6
7.08	1.140	.600	.24	
1.87	.255	.145	.02	6
11.22	1.530	.870	.12	
2.74	.175	.250	.08	6
16.44	1.050	1.500	.48	
0.60	.180	.040	—	7.5
4.50	1.35	0.300		
1.06	.225	.085	.50	5.5
5.83	1.238	.047	2.75	
48.99	6.628	3.392	3.59	36.5
1.342	0.182	0.093	0.098	


13,200 E
TIMBERED
19,900 N
1355
85°
82°
80°
59°
2-1-56
3-1-56
43½°
22½°
Mag.
Astro.
Mine
LEGEND
LATE DIORITE DIKES
DIORITE
GRANITIZED PERIDOTITE
FAULT
STRIKE AND DIP
CONTACT
HOWE SOUND COMPANY
CHELAN DIVISION
TITLE
BUCKSKIN MOUNTAIN EXPLORATION
LEVEL 1500
SCALE 1" = 40'
DATE 3-1-56
DRAWN BY D. W.
SURVEY BY R. L. - G. S. - F. R.
DESIGN BY
NOTES
FILE NUMBER
D. M. E. A.
IDM - E644





LEGEND

- LATE DIORITE DIKES
- DIORITE
- GRANITIZED PERIDOTITE
- FAULT
- STRIKE AND DIP
- CONTACT

HOWE SOUND COMPANY
CHELAN DIVISION

TITLE: BUCKSKIN MOUNTAIN EXPLORATION

LEVEL: 1500 SCALE: 1" = 40'

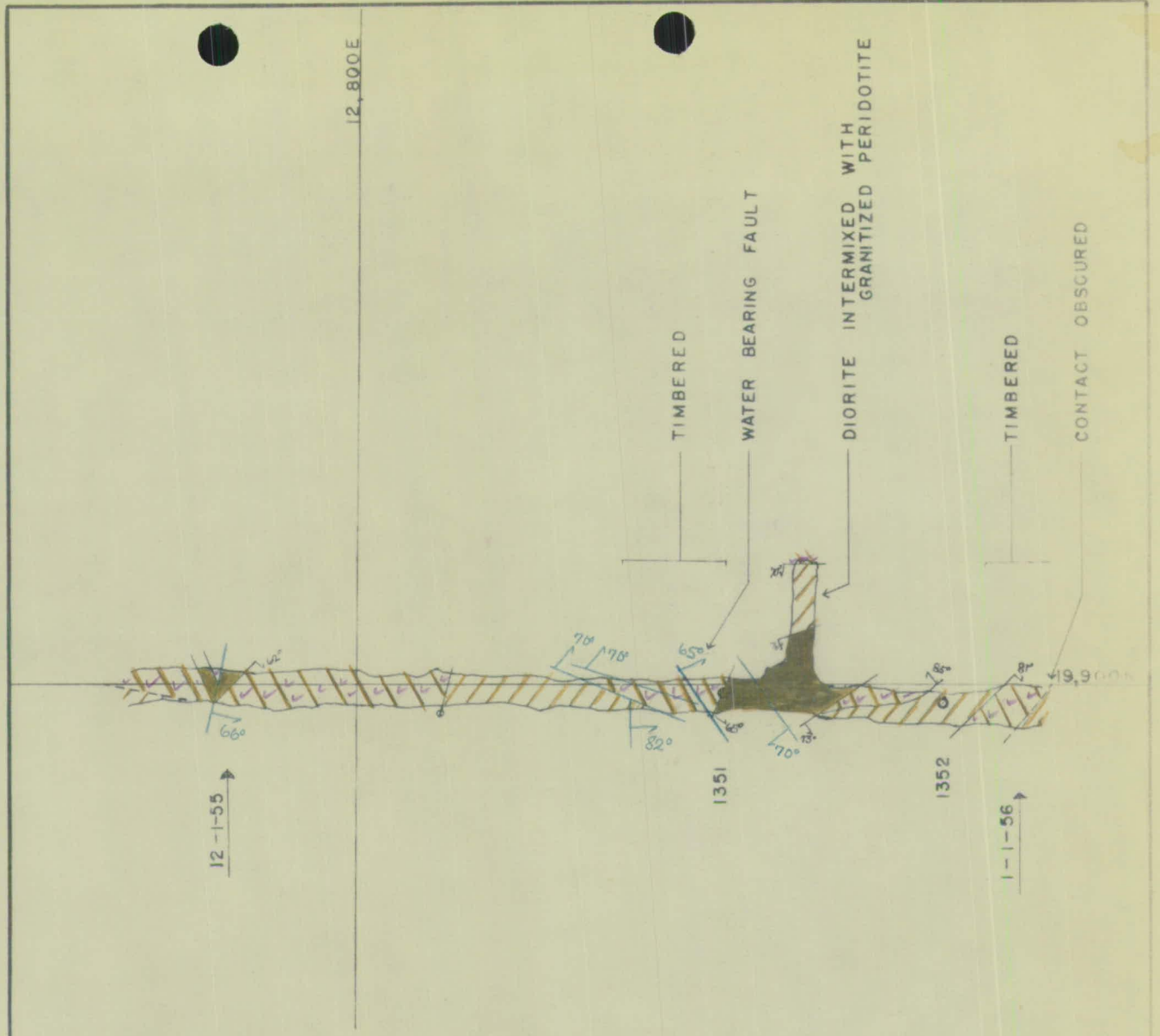
DATE: 2-1-56 DRAWN BY: D. W.

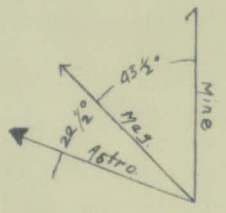
SURVEY BY: R. L. - C. S.

DESIGN BY:

NOTES:

FILE NUMBER: D.M.E.A. IDM—E644





LEGEND

- LATE DIORITE DIKES
- DIORITE
- GRANITIZED PERIDOTITE
- FAULT
- STRIKE AND DIP
- CONTACT

HOWE SOUND COMPANY
CHELAN DIVISION

TITLE: BUCKSKIN MOUNTAIN EXPLORATION

LEVEL: 1500 SCALE: 1" = 40'

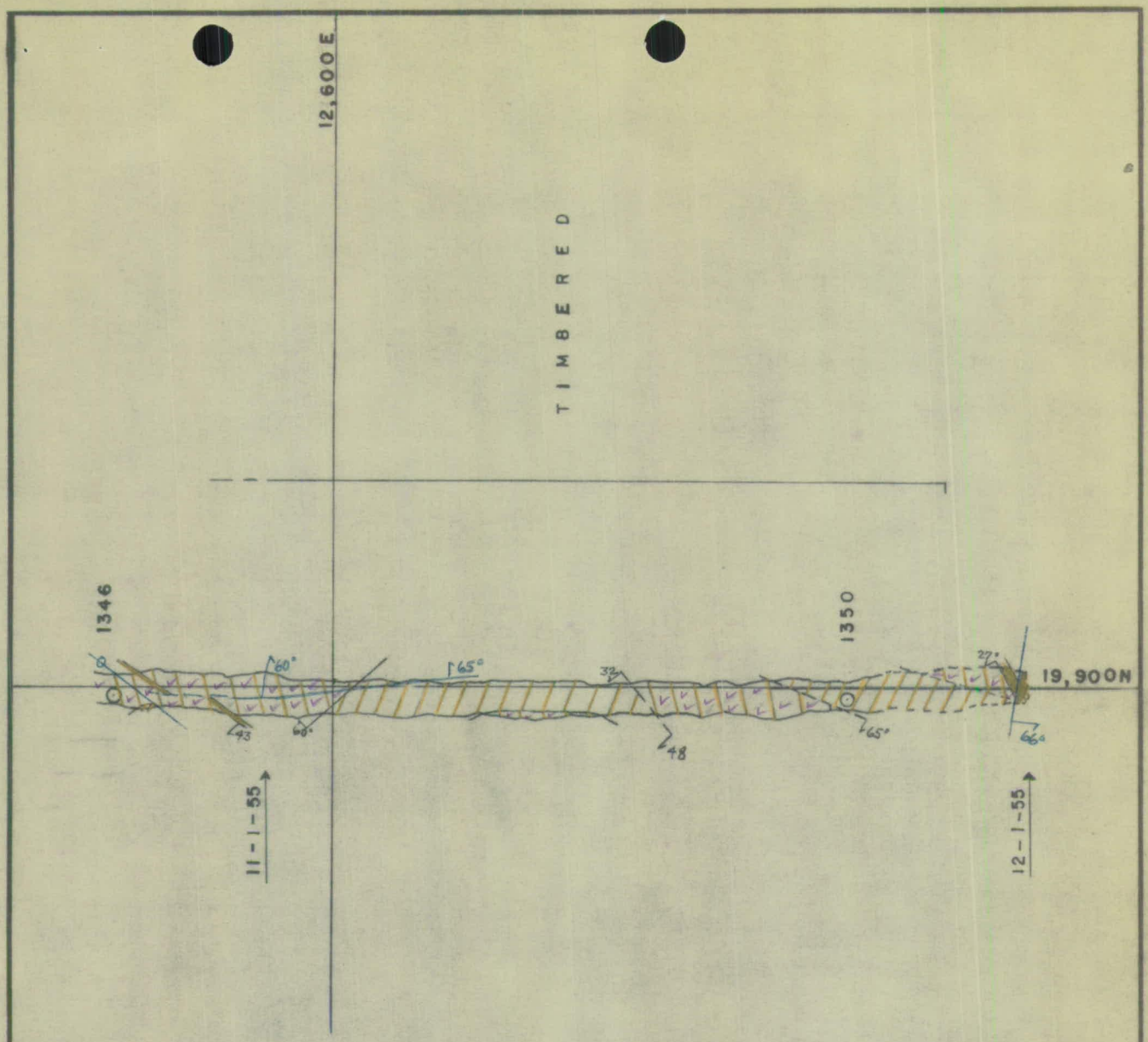
DATE: 1-1-56 DRAWN BY: D. W.

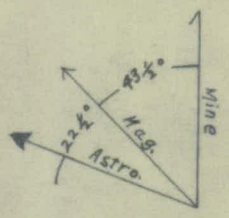
SURVEY BY: R.L. - C.S.

DESIGN BY:

NOTES:

FILE NUMBER: D. M. E. A. IDM - E644





LEGEND

- LATE DIORITE DIKES
- DIORITE
- GRANITIZED PERIDOTITE
- FAULT
- STRIKE AND DIP
- CONTACT

HOWE SOUND COMPANY
CHELAN DIVISION

TITLE: BUCKSKIN MOUNTAIN EXPLORATION

LEVEL: 1500 SCALE: 1" = 40'

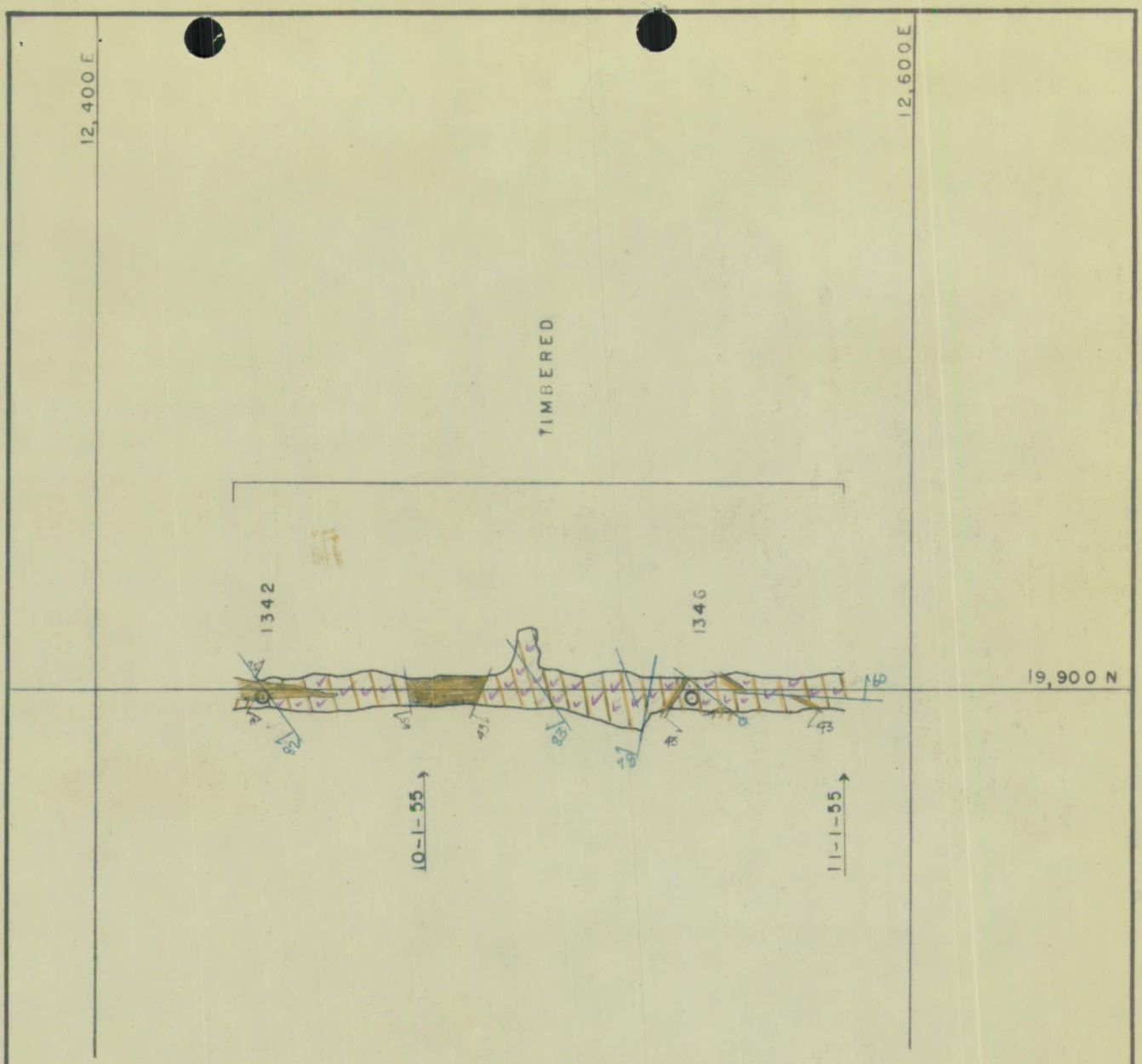
DATE: 12-1-55 DRAWN BY: D. W.

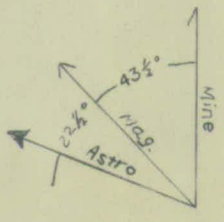
SURVEY BY: R. L. — C. S.

DESIGN BY:

NOTES:

FILE NUMBER
D. M. E. A.
IDM - E644





LEGEND

- LATE DIORITE DIKES
- DIORITE
- GRANITIZED PERIDOTITE
- FAULT
- STRIKE AND DIP
- CONTACT

HOWE SOUND COMPANY
CHELAN DIVISION

TITLE: BUCKSKIN MOUNTAIN EXPLORATION

LEVEL: 1500 SCALE: 1" = 40'

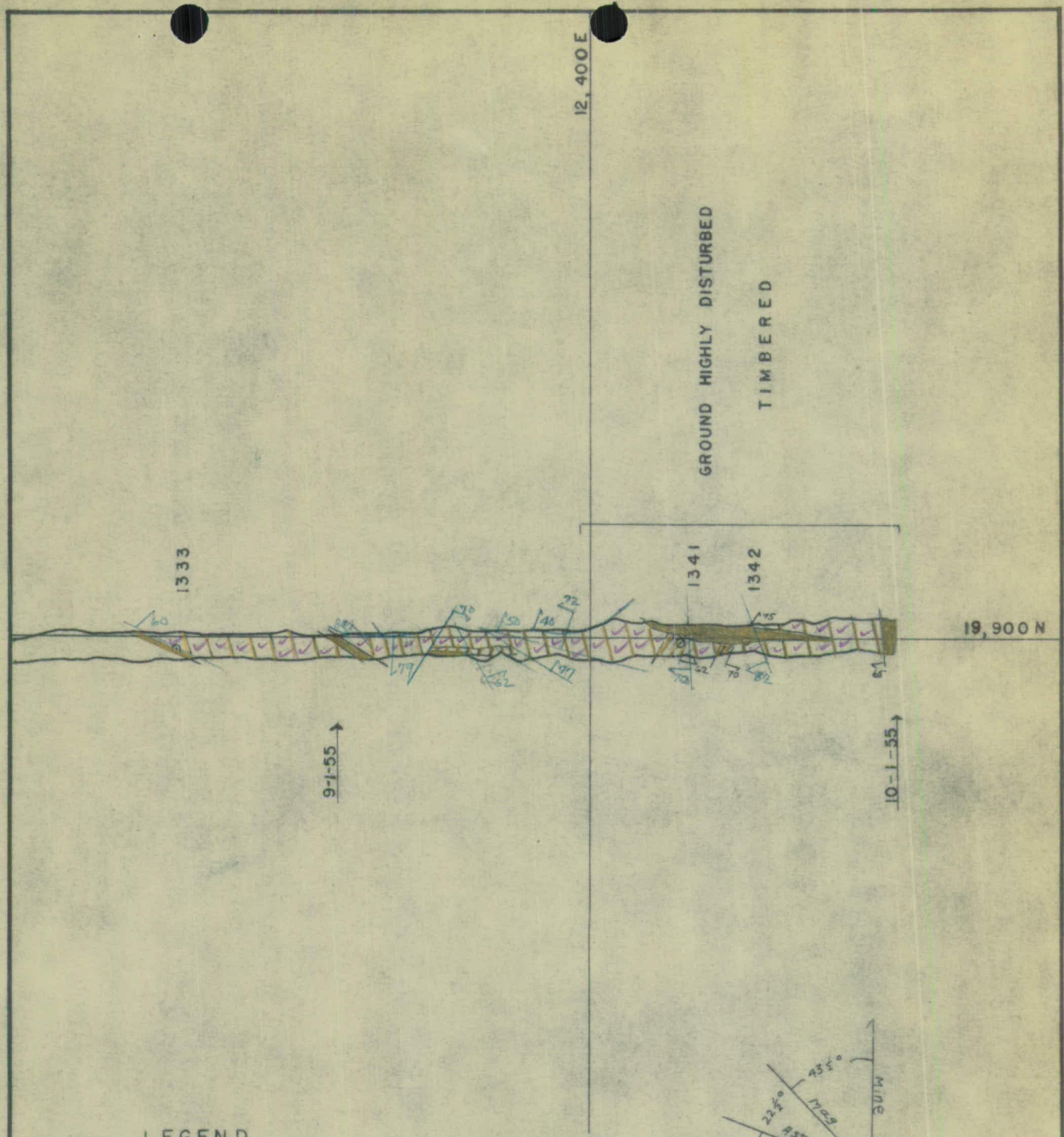
DATE: 11-1-55 DRAWN BY: D. W.

SURVEY BY: R. L. – D. W.

DESIGN BY:

NOTES:

FILE NUMBER: D. M. E. A. IDM – E644



LEGEND

- LATE DIORITE DIKES
- DIORITE
- GRANITIZED PERIDOTITE
- FAULT
- STRIKE AND DIP
- CONTACT

HOWE SOUND COMPANY
CHELAN DIVISION

TITLE: BUCKSKIN MOUNTAIN EXPLORATION

LEVEL: 1500 SCALE: 1" = 40'

DATE: 10-1-55 DRAWN BY: D.W.

SURVEY BY:

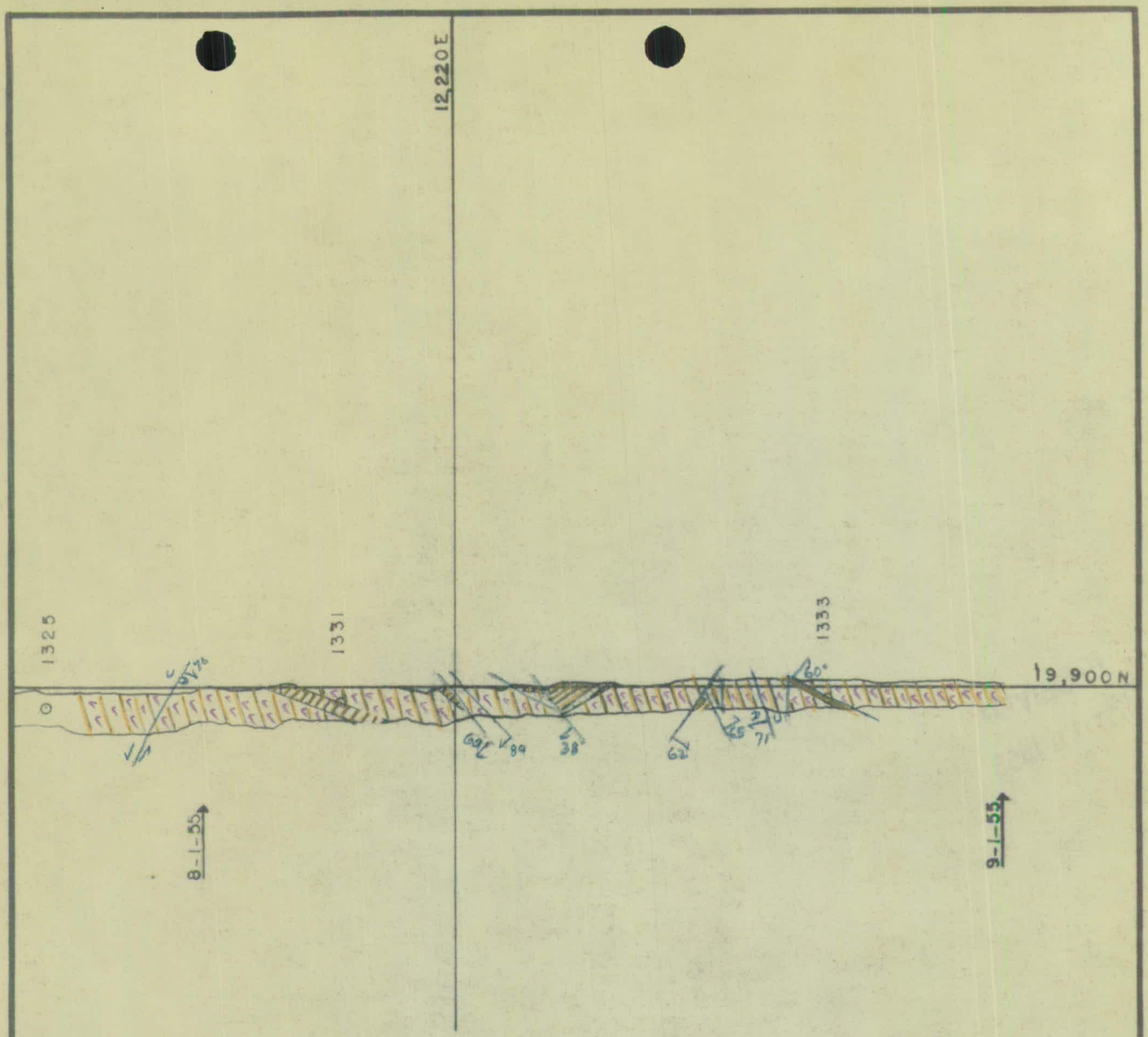
DESIGN BY:

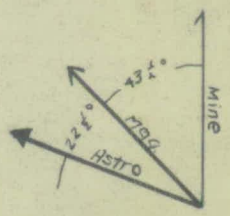
NOTES:

FILE NUMBER

D.M.E.A.

IDM-E644





LEGEND

- LATE DIORITE DIKES
- DIORITE
- GRANITIZED PERIDOTITE
- FAULT
- STRIKE AND DIP
- CONTACT

HOWE SOUND COMPANY
CHELAN DIVISION

TITLE: BUCKSKIN MOUNTAIN EXPLORATION

LEVEL: 1500 SCALE: 1" = 40'

DATE: 9-1-55 DRAWN BY: D.W.

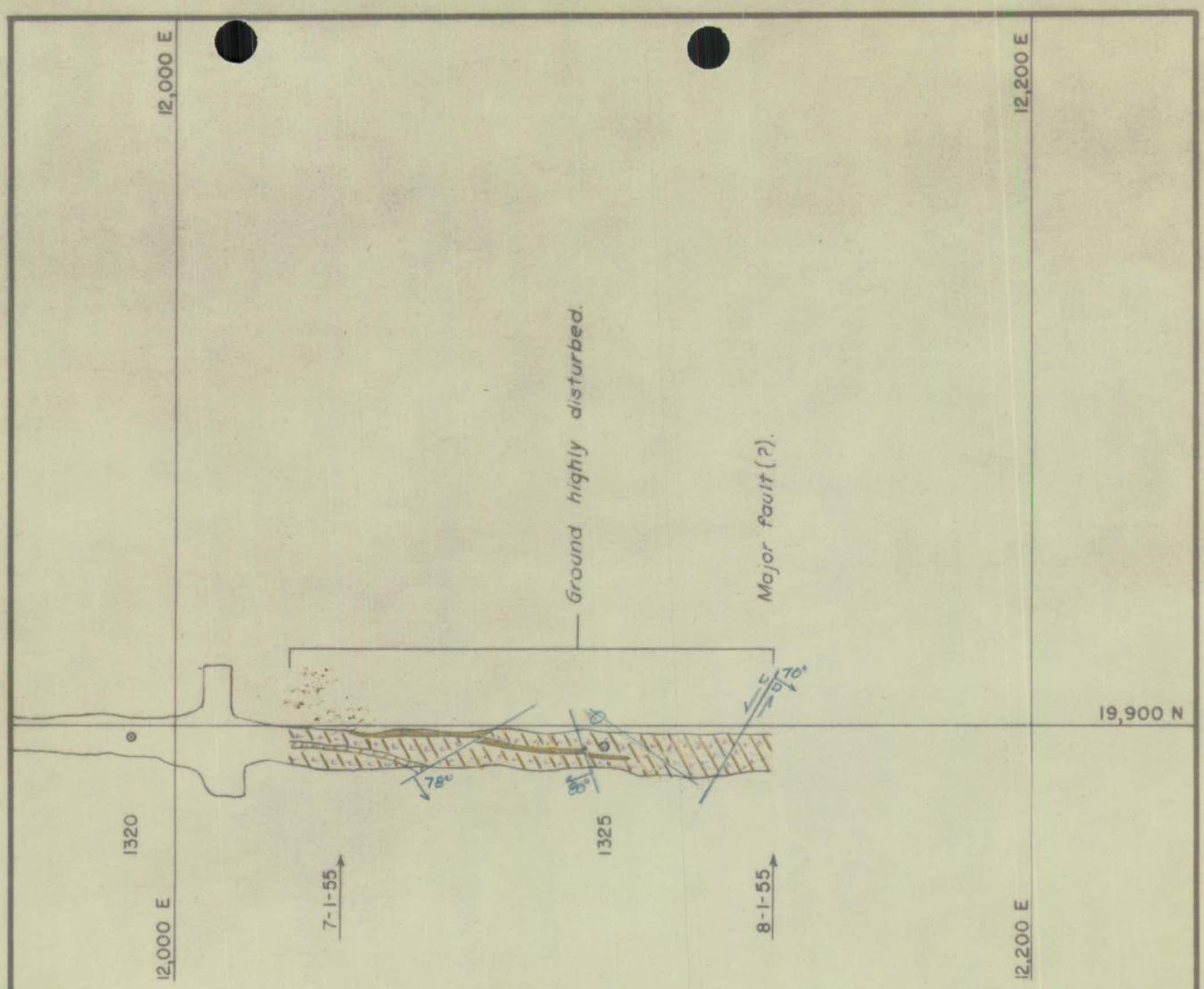
SURVEY BY:

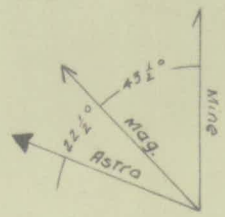
DESIGN BY:

NOTES:

FILE NUMBER
D.M.E.A.
IDM-E644

RECEIVED
OCT 1 0 1955





LEGEND

- Late diorite dikes.
- Diorite.
- Granitized peridotite.
- Fault.
- Strike and dip.
- Contact.

HOWE SOUND COMPANY
CHELAN DIVISION

TITLE: BUCKSKIN MOUNTAIN EXPLORATION

LEVEL: 1500 SCALE: 1" = 40'

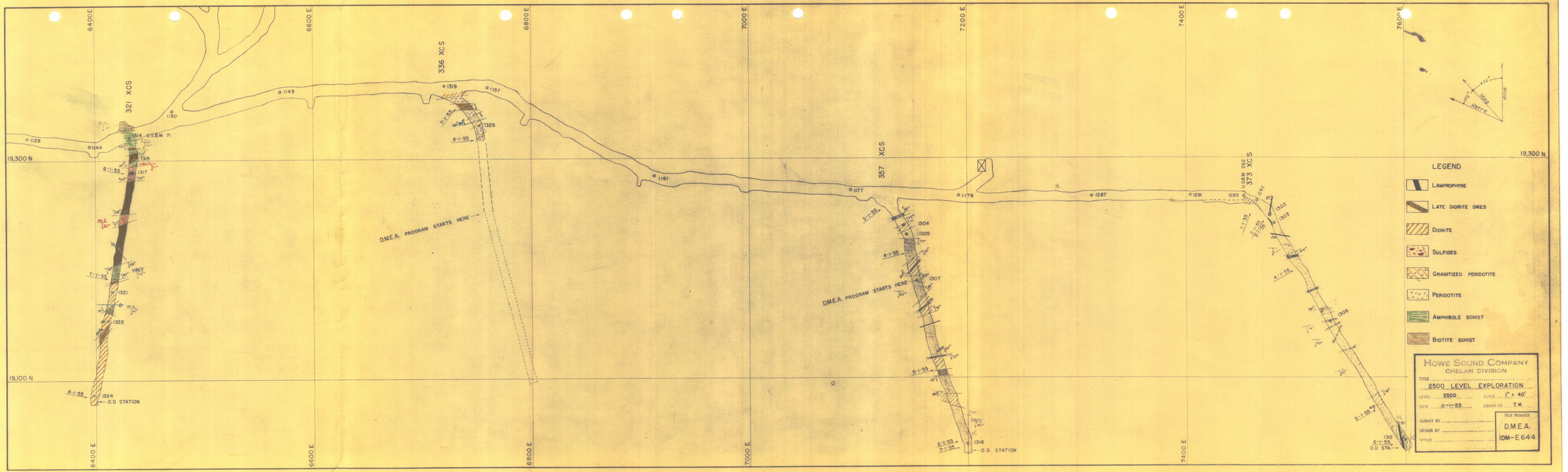
DATE: 8-1-55 DRAWN BY: T.W.

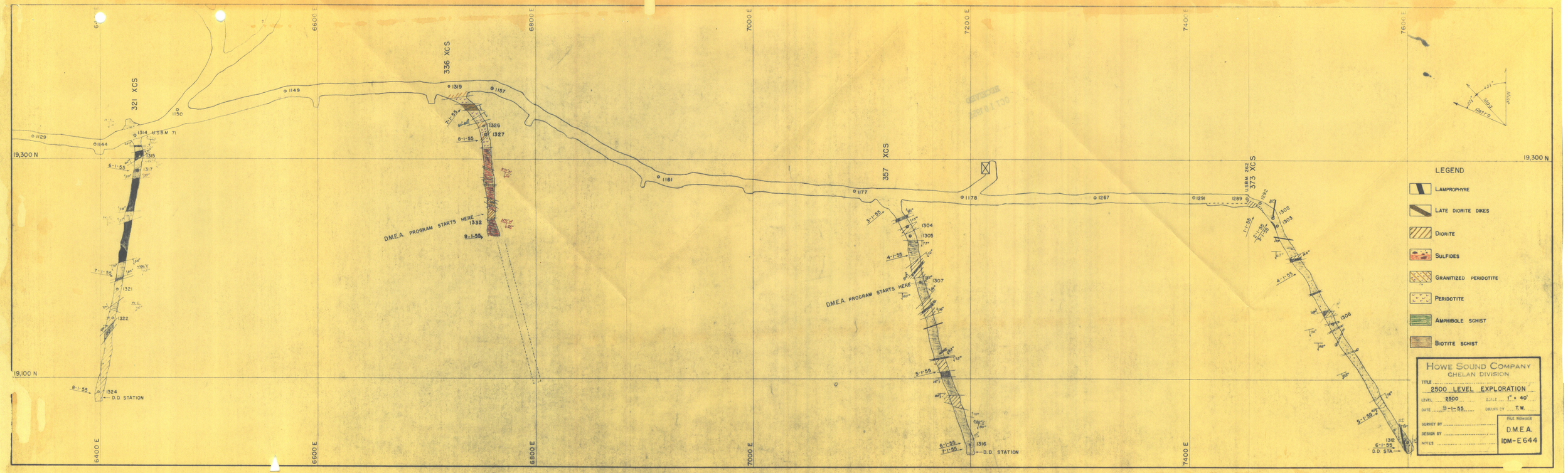
SURVEY BY: F.L.-R.L.-R.C.

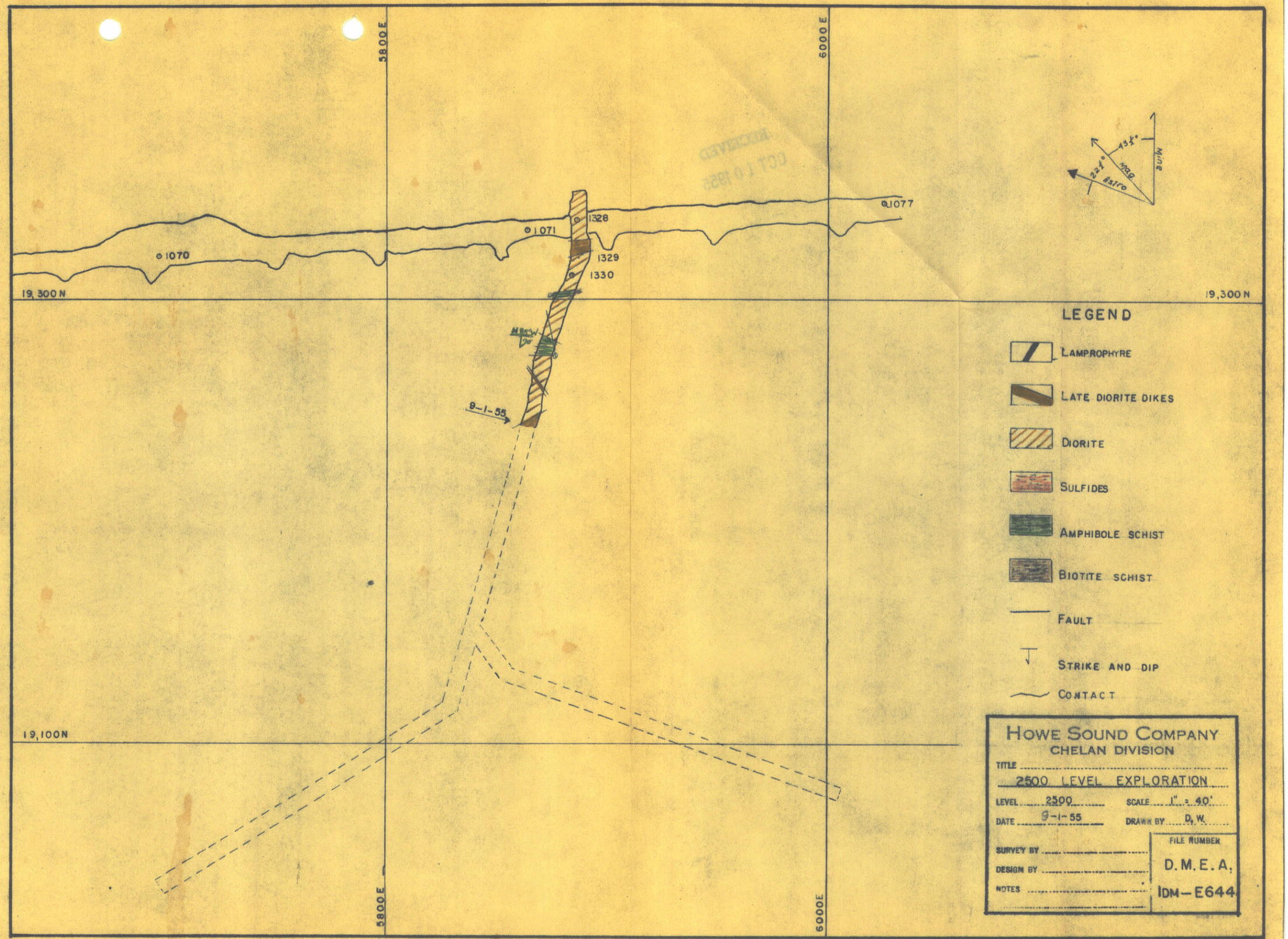
DESIGN BY:

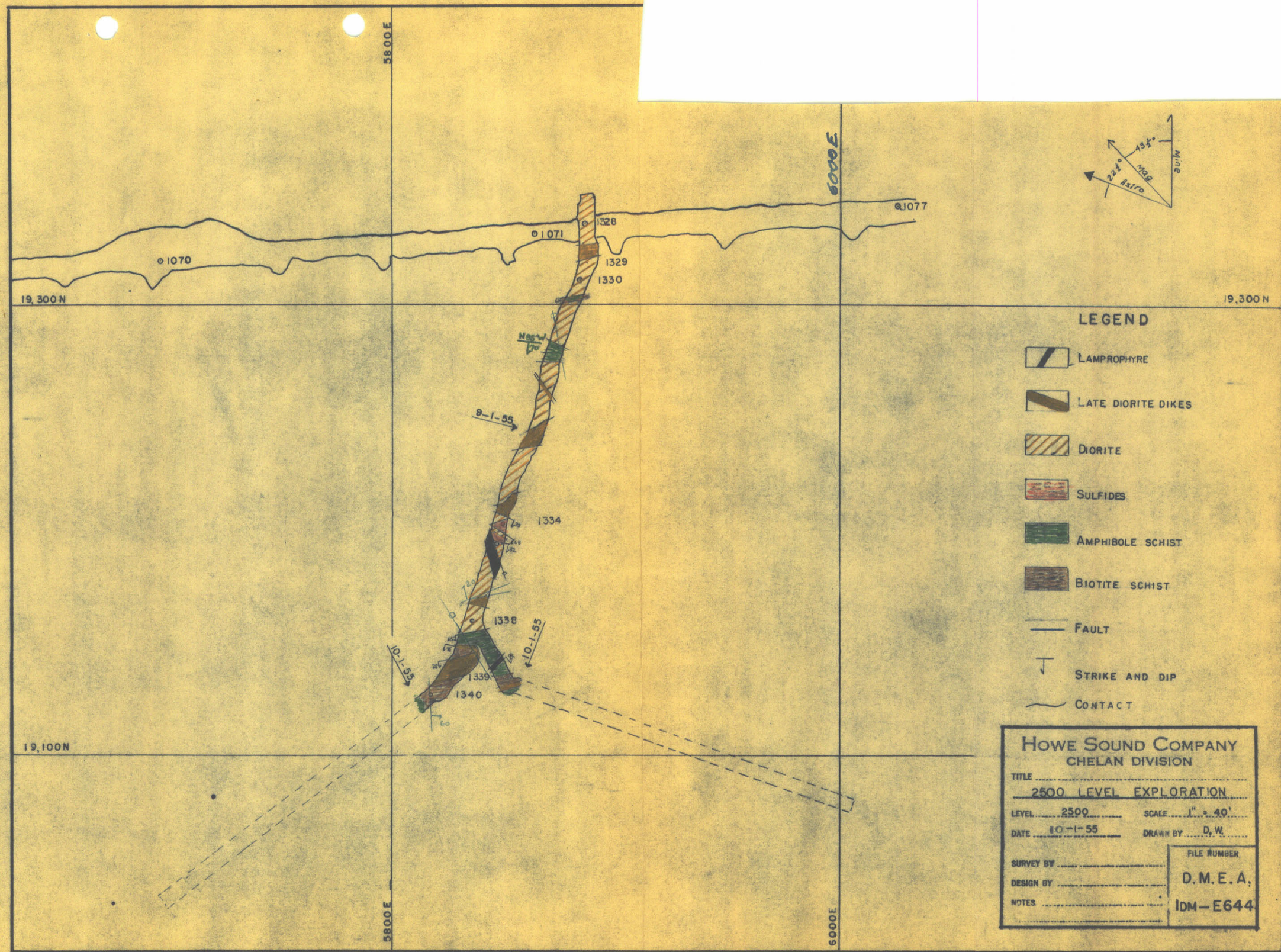
NOTES:

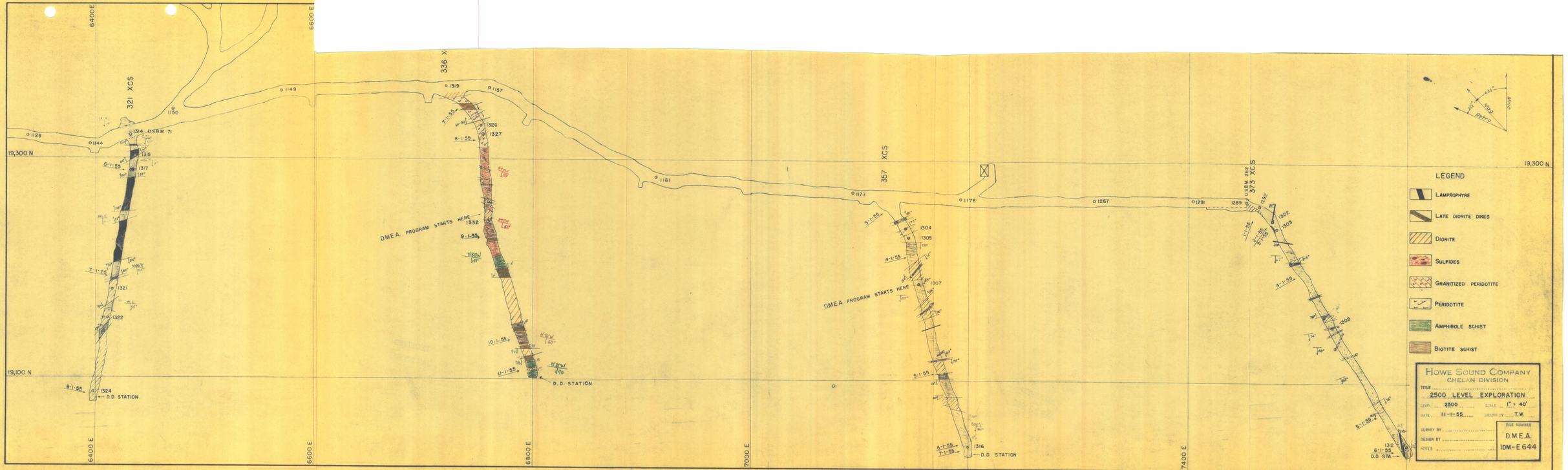
FILE NUMBER: D.M.E.A. 1DM-E644


6400 E
6600 E
6800 E
7000 E
7200 E
7400 E
7600 E
19,300 N
19,100 N
321 XCS
336 XCS
357 XCS
373 XCS
USBM 71
USBM 262
D.M.E.A. PROGRAM STARTS HERE
D.D. STATION
LEGEND
LAMPROPHYRE
LATE DIORITE DIKES
DIORITE
SULFIDES
GRANITIZED PERIDOTITE
PERIDOTITE
AMPHIBOLE SCHIST
BIOTITE SCHIST
HOWE SOUND COMPANY
CHELAN DIVISION
TITLE
2500 LEVEL EXPLORATION
LEVEL 2500
SCALE 1" = 40'
DATE 8-1-55
DRAWN BY T.W.
SURVEY BY
DESIGN BY
NOTES
FILE NUMBER
D.M.E.A.
IDM-E 644


6400 E
6600 E
6800 E
7000 E
7200 E
7400 E
7600 E
19,300 N
19,100 N
321 XCS
336 XCS
357 XCS
373 XCS
USBM 71
USBM 262
D.M.E.A. PROGRAM STARTS HERE
D.D. STATION
LEGEND
LAMPROPHYRE
LATE DIORITE DIKES
DIORITE
SULFIDES
GRANITIZED PERIDOTITE
PERIDOTITE
AMPHIBOLE SCHIST
BIOTITE SCHIST
HOWE SOUND COMPANY
CHELAN DIVISION
TITLE
2500 LEVEL EXPLORATION
LEVEL 2500
SCALE 1" = 40'
DATE 9-1-55
DRAWN BY T.W.
SURVEY BY
DESIGN BY
NOTES
FILE NUMBER
D.M.E.A.
IDM-E644


5800 E
6000 E
19,300 N
19,100 N
1070
1071
1077
1328
1329
1330
9-1-55
Mag
Astro
Mine
LEGEND
LAMPROPHYRE
LATE DIORITE DIKES
DIORITE
SULFIDES
AMPHIBOLE SCHIST
BIOTITE SCHIST
FAULT
STRIKE AND DIP
CONTACT
HOWE SOUND COMPANY
CHELAN DIVISION
TITLE
2500 LEVEL EXPLORATION
LEVEL 2500
SCALE 1" = 40'
DATE 9-1-55
DRAWN BY D. W.
SURVEY BY
DESIGN BY
NOTES
FILE NUMBER
D.M.E.A.
IDM-E644


5800E
6000E
19,300N
19,100N
1070
1071
1077
1328
1329
1330
1334
1338
1339
1340
8-1-55
10-1-55
10-1-55
Mag
Astro
Mine
LEGEND
LAMPROPHYRE
LATE DIORITE DIKES
DIORITE
SULFIDES
AMPHIBOLE SCHIST
BIOTITE SCHIST
FAULT
STRIKE AND DIP
CONTACT
HOWE SOUND COMPANY
CHELAN DIVISION
TITLE
2500 LEVEL EXPLORATION
LEVEL 2500
SCALE 1" = 40'
DATE 10-1-55
DRAWN BY D. W.
SURVEY BY
DESIGN BY
NOTES
FILE NUMBER
D.M.E.A.
IDM-E644


6400 E
6600 E
6800 E
7000 E
7400 E
19,300 N
19,100 N
321 XCS
336 X
357 XCS
375 XCS
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1144
1149
1150
1314 USBM 71
1315
1317
1321
1322
1324
D.D. STATION
1319
1157
1326
1327
1332
DMEA PROGRAM STARTS HERE
1161
1177
1178
1267
1291
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1304
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1316
1302
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1308
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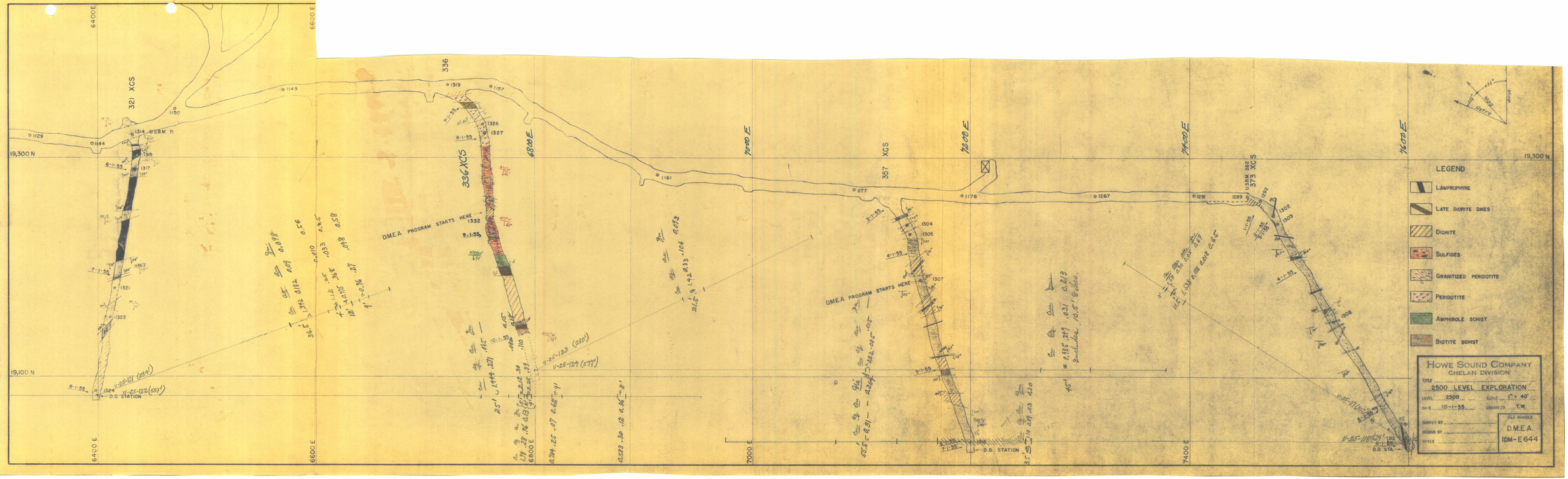
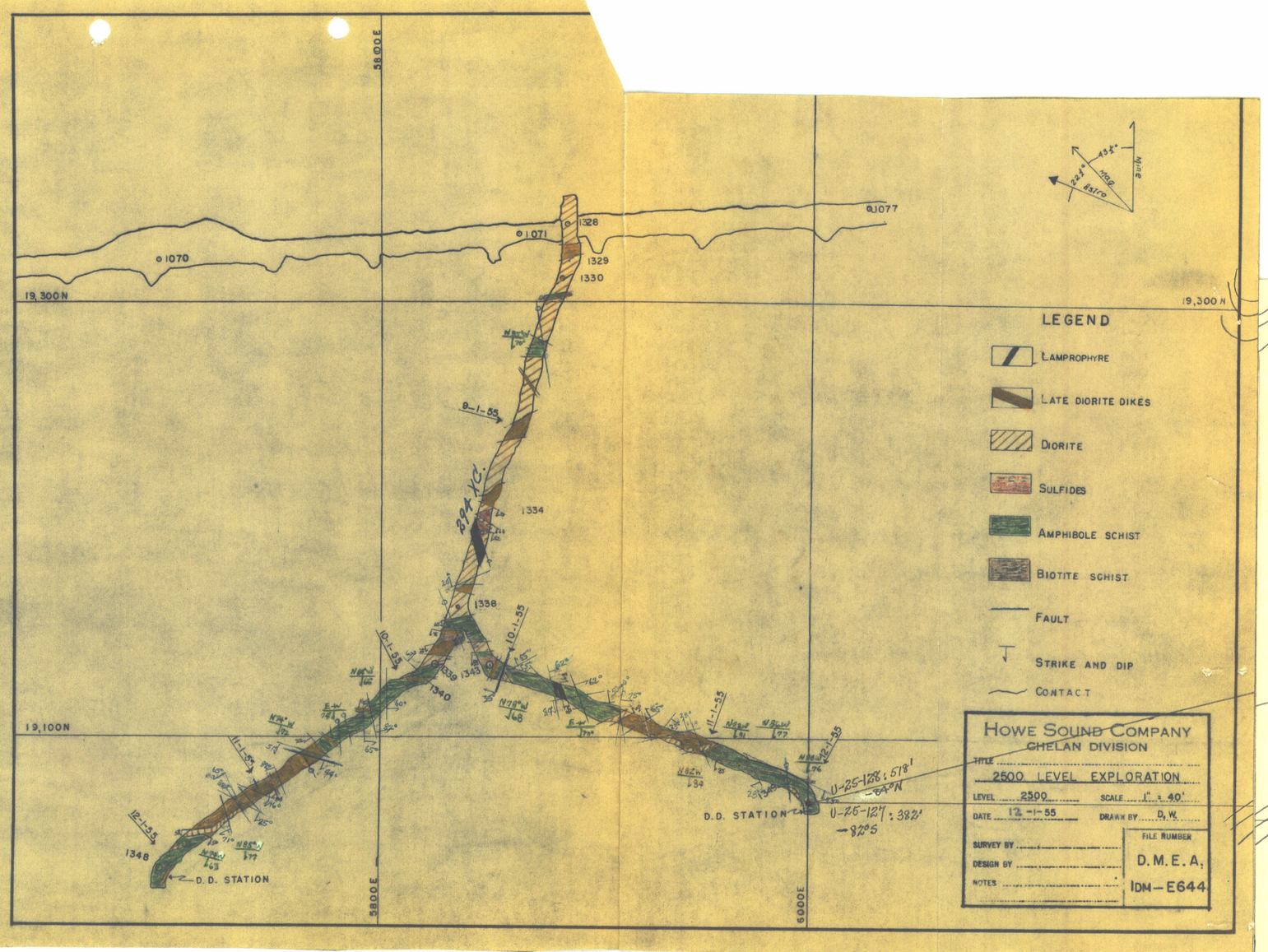
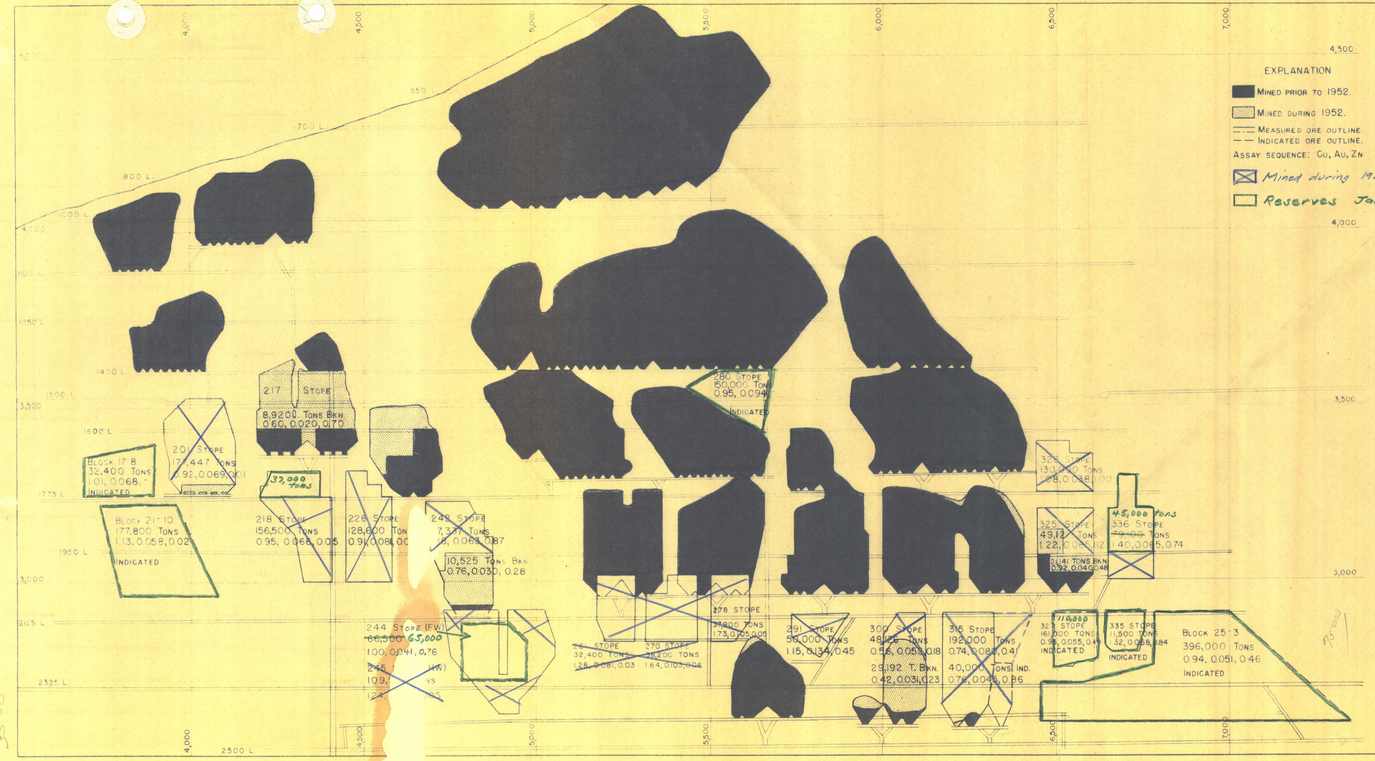
6-1-55
7-1-55
8-1-55
9-1-55
10-1-55
11-1-55
4-1-55
5-1-55
3-1-55
1-1-55
LEGEND
LAMPROPHYRE
LATE DIORITE DIKES
DIORITE
SULFIDES
GRANITIZED PERIDOTITE
PERIDOTITE
AMPHIBOLE SCHIST
BIOTITE SCHIST
HOWE SOUND COMPANY
CHELAN DIVISION
TITLE 2500 LEVEL EXPLORATION
LEVEL 2500 SCALE 1" = 40'
DATE 11-1-55 DRAWN BY T.W.
SURVEY BY
DESIGN BY
NOTES
FILE NUMBER
D.M.E.A.
IDM-E 644

5800E
6000E
19,300 N
19,100N
1070
1071
1077
1328
1329
1330
1334
1338
1340
8-1-55
10-1-55
11-1-55
N85°W
L70
N86°W
L66
N74°W
L72
E-W
74°
N78°W
L68
E-W
77°
N82W
L84
Astro
Mag
Mine
LEGEND
LAMPROPHYRE
LATE DIORITE DIKES
DIORITE
SULFIDES
AMPHIBOLE SCHIST
BIOTITE SCHIST
FAULT
STRIKE AND DIP
CONTACT
HOWE SOUND COMPANY
CHELAN DIVISION
TITLE
2500 LEVEL EXPLORATION
LEVEL 2500
SCALE 1" = 40'
DATE 11-1-55
DRAWN BY D. W.
SURVEY BY
DESIGN BY
NOTES
FILE NUMBER
D.M.E.A.
IDM-E644


6400 E
6600 E
6800 E
7000 E
7200 E
7400 E
7600 E
19,300 N
19,100 N
321 XCS
336 XCS
357 XCS
373 XCS
USBM 71
USBM 282
DMEA PROGRAM STARTS HERE
D.D. STATION
LEGEND
LAMPROPHYRE
LATE DIORITE DIKES
DIORITE
SULFIDES
GRANITIZED PERIDOTITE
PERIDOTITE
AMPHIBOLE SCHIST
BIOTITE SCHIST
HOWE SOUND COMPANY
CHELAN DIVISION
TITLE
2500 LEVEL EXPLORATION
LEVEL 2500
SCALE 1" = 40'
DATE 10-1-55
DRAWN BY T.W.
SURVEY BY
DESIGN BY
NOTES
FILE NUMBER
D.M.E.A.
IDM-E644


5800E
6000E
19,300N
19,100N
1070
1071
1077
1328
1329
1330
1334
1338
1339
1340
1348
8-1-55
10-1-55
11-1-55
12-1-55
394 XC'
D.D. STATION
U-25-128: 518'
U-25-127: 382'
N
Mag
Astro
LEGEND
LAMPROPHYRE
LATE DIORITE DIKES
DIORITE
SULFIDES
AMPHIBOLE SCHIST
BIOTITE SCHIST
FAULT
STRIKE AND DIP
CONTACT
HOWE SOUND COMPANY
CHELAN DIVISION
TITLE 2500 LEVEL EXPLORATION
LEVEL 2500
SCALE 1" = 40'
DATE 12-1-55
DRAWN BY D. W.
SURVEY BY
DESIGN BY
NOTES
FILE NUMBER
D.M.E.A.
IDM-E644



ORE RESERVES — JANUARY 1, 1956

MEASURED ORE

	Tons	% Cu	% Au	% Zn
Above 1775 level				
~~201 Stope~~	~~17,447~~	~~.92~~	~~.069~~	~~.41~~
~~226 Stope~~	~~128,000~~	~~.91~~	~~.068~~	~~.07~~
~~Total 1775 level Stopes~~	~~207,447~~	~~.93~~	~~.066~~	~~.40~~
Below 1775 level				
~~Cu Stope~~	~~148,000~~	~~.95~~	~~.065~~	~~.05~~
~~226 Stope~~	~~128,000~~	~~.91~~	~~.068~~	~~.07~~
~~242 Stope~~	~~47,000~~	~~.95~~	~~.069~~	~~.07~~
~~275 Stope~~	~~32,400~~	~~.28~~	~~.030~~	~~.03~~
336 Stope	45,000	1.40	0.065	0.74
Total 1775 level Stopes	82,000	1.26	0.065	0.43
Above 2500 level				
324 Stope	65,000			
~~246 Stope~~	~~100,000~~	~~.90~~	~~.041~~	~~.76~~
~~261 Stope~~	~~48,000~~	~~.95~~	~~.042~~	~~.32~~
~~275 Stope~~	~~32,400~~	~~.28~~	~~.030~~	~~.03~~
~~279 Stope~~	~~37,800~~	~~.05~~	~~.030~~	~~.04~~
~~291 Stope~~	~~55,000~~	~~1.15~~	~~.134~~	~~.45~~
~~300 Stope~~	~~48,125~~	~~.56~~	~~.054~~	~~.18~~
~~310 Stope~~	~~16,000~~	~~.98~~	~~.055~~	~~.49~~
~~315 Stope~~	~~192,000~~	~~.74~~	~~.068~~	~~.41~~
~~320 Stope~~	~~13,000~~	~~.8~~	~~.028~~	~~.00~~
~~324 Stope~~	~~49,112~~	~~.22~~	~~.012~~	~~.12~~
~~335 Stope~~	~~11,500~~	~~1.32~~	~~.088~~	~~1.84~~
Total 2500 level Stopes	65,000	1.00	0.041	0.76
TOTAL MEASURED ORE	147,000	1.11	0.055	0.58

INDICATED ORE

	Tons	% Cu	% Au	% Zn
Above 1775 level				
~~Block 17-8~~	~~32,400~~	~~1.01~~	~~.068~~	~~.00~~
~~201 Stope~~	~~17,447~~	~~2.92~~	~~.069~~	~~.41~~
~~Total 1775 level~~	~~49,847~~	~~1.94~~	~~.069~~	~~.21~~
Below 1775 level				
~~Block 21-10~~	~~177,800~~	~~1.13~~	~~.058~~	~~.02~~
~~280 Stope~~	~~50,000~~	~~.95~~	~~.094~~	~~.00~~
~~Total 1775 level~~	~~227,800~~	~~1.09~~	~~.065~~	~~.02~~
Above 2500 level				
~~Block 17-8~~	~~32,400~~	~~1.01~~	~~.068~~	~~.00~~
~~324 Stope~~	~~49,112~~	~~.22~~	~~.012~~	~~.12~~
~~Total 2500 level~~	~~81,512~~	~~.58~~	~~.036~~	~~.06~~
TOTAL INDICATED ORE	~~358,159~~	~~1.09~~	~~.061~~	~~.05~~

INFERRED ORE

	Tons	% Cu	% Au	% Zn
Above 1775 level				
~~Block 17-8~~	~~32,400~~	~~.92~~	~~.069~~	~~.41~~
~~201 Stope~~	~~17,447~~	~~.92~~	~~.069~~	~~.41~~
~~Total 1775 level~~	~~49,847~~	~~.92~~	~~.069~~	~~.41~~
Below 1775 level				
~~Block 21-10~~	~~177,800~~	~~1.13~~	~~.058~~	~~.02~~
~~Total 1775 level~~	~~227,647~~	~~1.09~~	~~.065~~	~~.02~~
Above 2500 level				
~~Block 17-8~~	~~32,400~~	~~.92~~	~~.069~~	~~.41~~
~~Total 2500 level~~	~~32,400~~	~~.92~~	~~.069~~	~~.41~~
TOTAL INFERRED ORE	~~260,047~~	~~1.08~~	~~.065~~	~~.05~~

BROKEN MEASURED ORE

	Tons	% Cu	% Au	% Zn
Above 1775 level				
~~Cu Stope~~	~~9,920~~	~~.50~~	~~.030~~	~~.72~~
~~Total 1775 level Stopes~~	~~9,920~~	~~.50~~	~~.030~~	~~.72~~
Below 2125 level				
~~242 Stope~~	~~10,000~~	~~.76~~	~~.070~~	~~.88~~
~~285 Stope~~	~~21,000~~	~~.38~~	~~.040~~	~~.48~~
~~Total 2125 level Stopes~~	~~31,000~~	~~.7~~	~~.057~~	~~.61~~
Above 2500 level				
~~300 Stope~~	~~20,192~~	~~.56~~	~~.031~~	~~.23~~
~~Total 2500 level Stopes~~	~~20,192~~	~~.56~~	~~.031~~	~~.23~~
TOTAL BROKEN MEASURED ORE	~~61,112~~	~~.65~~	~~.032~~	~~.47~~

TOTAL RESERVES

	Tons	% Cu	% Au	% Zn
MEASURED ORE	147,000	1.11	0.055	0.58
INDICATED ORE	1,332,731	1.04	0.060	0.35
INFERRED ORE	~~63,778~~	~~0.65~~	~~0.032~~	~~0.37~~
TOTAL ORE	877,700	0.99	0.061	0.30
	~~868,700~~	~~0.98~~	~~0.067~~	~~0.33~~
TOTAL ORE (A.W.T.)	1,024,700	1.01	0.060	0.34
	2,271,208	1.00	0.058	0.32

HOWE SOUND COMPANY

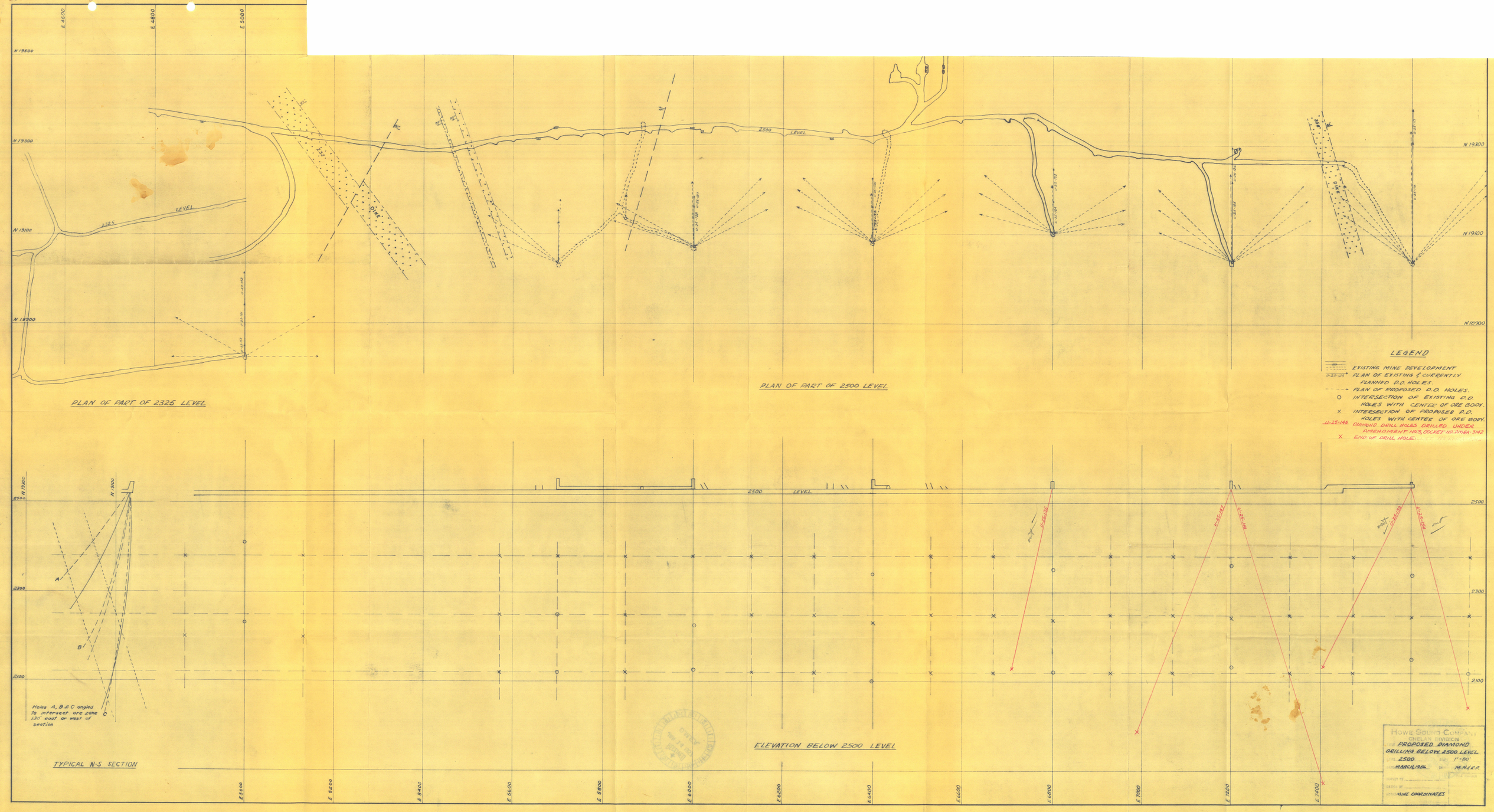
CHELAN DIVISION

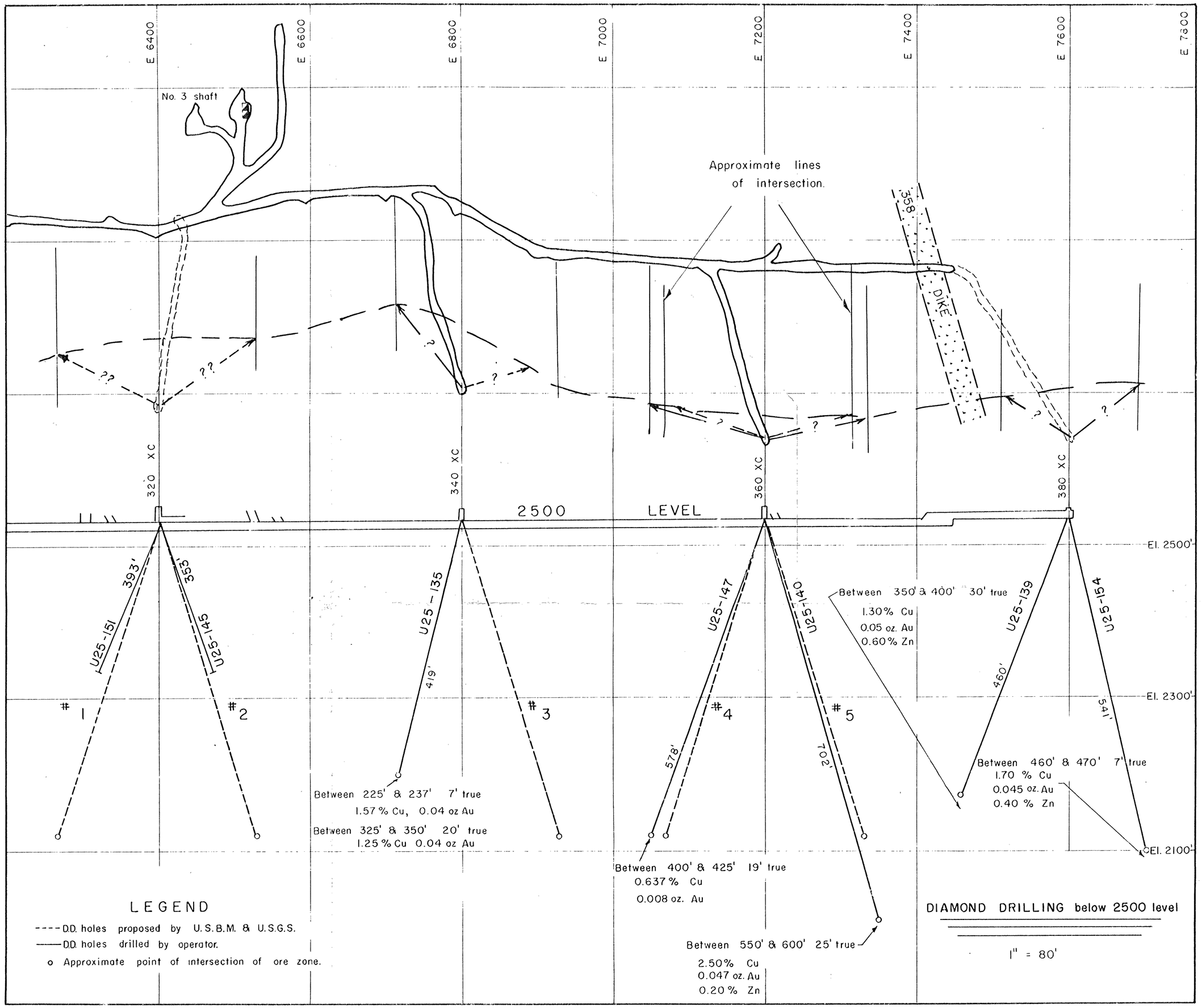
WEST-EAST SECTION

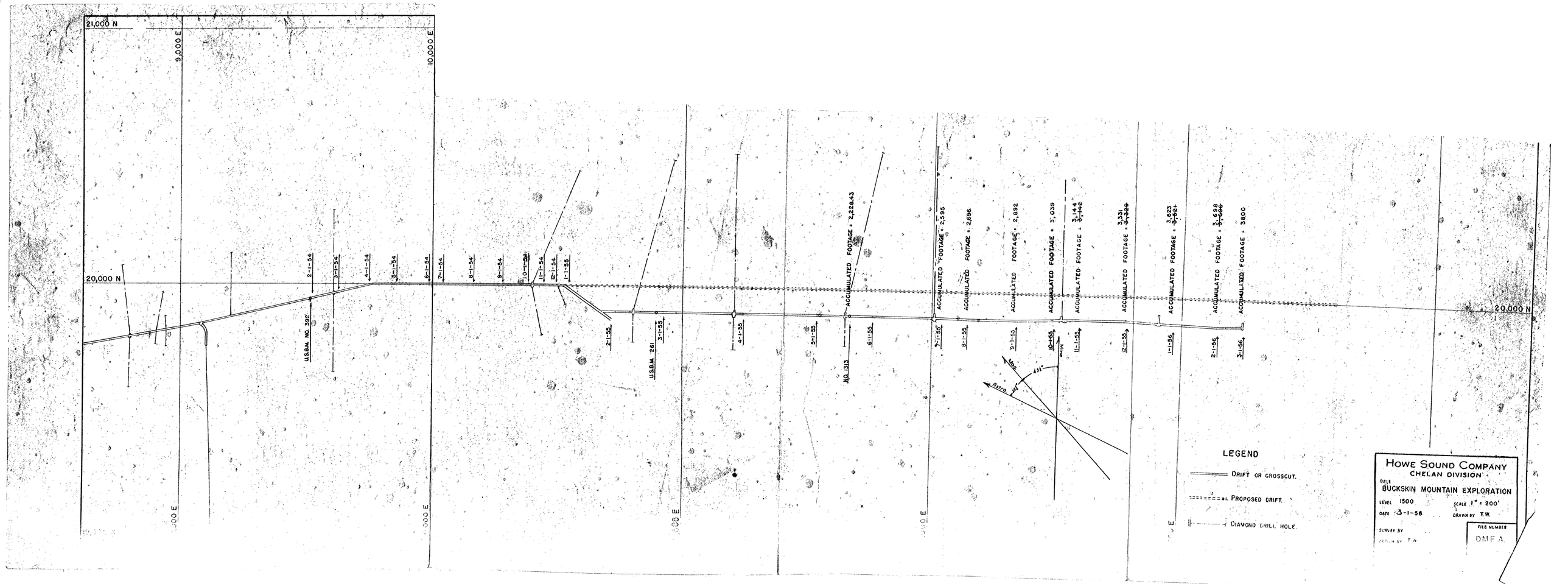
HOLDEN MINE

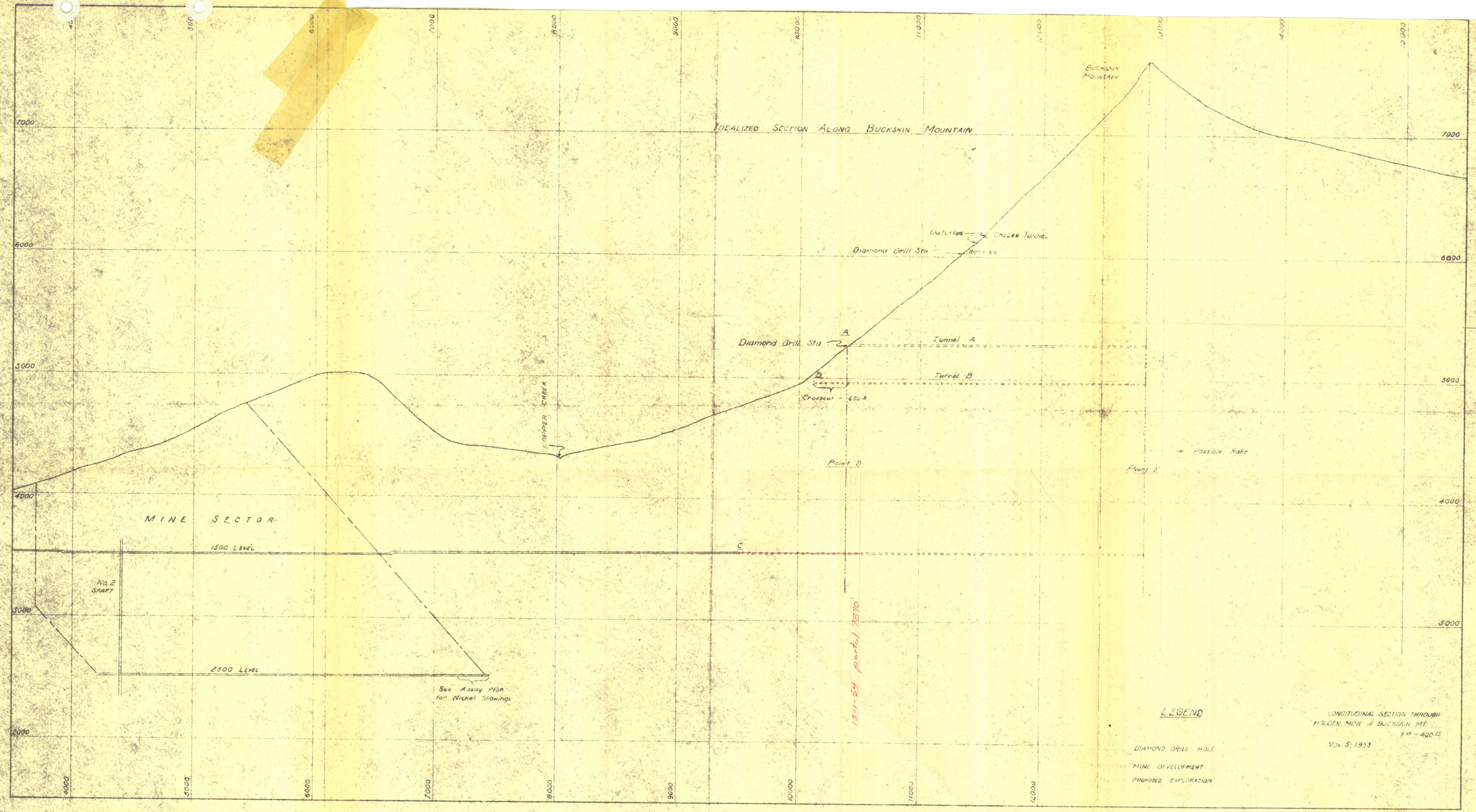
SHOWING ORE RESERVE BLOCKS

SCALE: 1 IN = 200 FT. DEC. 31, 1952


E 4600
E 4800
E 5000
N 19500
N 19300
N 19100
N 18900
2325
LEVEL
DIKE
PLAN OF PART OF 2325 LEVEL
2500
LEVEL
PLAN OF PART OF 2500 LEVEL
LEGEND
EXISTING MINE DEVELOPMENT
PLAN OF EXISTING & CURRENTLY PLANNED D.D. HOLES.
PLAN OF PROPOSED D.D. HOLES.
INTERSECTION OF EXISTING D.D. HOLES WITH CENTER OF ORE BODY.
INTERSECTION OF PROPOSED D.D. HOLES WITH CENTER OF ORE BODY.
DIAMOND DRILL HOLES DRILLED UNDER AMENDMENT NO.3, DOCKET NO. DMBA-342
END OF DRILL HOLE
2500
2300
2100
A
B
C
Holes A, B & C angled to intersect ore zone 130' east or west of section
TYPICAL N-S SECTION
2500
LEVEL
ELEVATION BELOW 2500 LEVEL
E 5200
E 5400
E 5600
E 5800
E 6000
E 6200
E 6400
E 6600
E 6800
E 7000
E 7200
E 7400
HOWE SOUND COMPANY
CHELAN DIVISION
PROPOSED DIAMOND DRILLING BELOW 2500 LEVEL
2500
1"=80'
MARCH, 1956
M.A.I.E.R.
MINE COORDINATES


E 6400
E 6600
E 6800
E 7000
E 7200
E 7400
E 7600
E 7800
No. 3 shaft
Approximate lines of intersection.
358'
DIKE
320 XC
340 XC
360 XC
380 XC
2500 LEVEL
El. 2500'
El. 2300'
El. 2100'
393'
U25-151
355'
U25-145
#1
#2
U25-135
419'
#3
Between 225' & 237' 7' true
1.57 % Cu, 0.04 oz Au
Between 325' & 350' 20' true
1.25 % Cu 0.04 oz Au
U25-147
578'
#4
U25-140
702'
#5
Between 400' & 425' 19' true
0.637 % Cu
0.008 oz. Au
Between 550' & 600' 25' true
2.50% Cu
0.047 oz. Au
0.20 % Zn
Between 350' & 400' 30' true
1.30% Cu
0.05 oz. Au
0.60% Zn
U25-139
460'
U25-154
541'
Between 460' & 470' 7' true
1.70 % Cu
0.045 oz. Au
0.40 % Zn
LEGEND
---- DD. holes proposed by U.S.B.M. & U.S.G.S.
—— DD. holes drilled by operator.
o Approximate point of intersection of ore zone.
DIAMOND DRILLING below 2500 level
1" = 80'


21,000 N
20,000 N
9,000 E
10,000 E
U.S.B.M. NO. 392
U.S.B.M. 261
NO. 1313
ACCUMULATED FOOTAGE = 2,228.43
ACCUMULATED FOOTAGE = 2,595
ACCUMULATED FOOTAGE = 2,696
ACCUMULATED FOOTAGE = 2,892
ACCUMULATED FOOTAGE = 3,039
ACCUMULATED FOOTAGE = 3,144
ACCUMULATED FOOTAGE = 3,331
ACCUMULATED FOOTAGE = 3,623
ACCUMULATED FOOTAGE = 3,698
ACCUMULATED FOOTAGE = 3800
LEGEND
DRIFT OR CROSSCUT.
PROPOSED DRIFT.
DIAMOND DRILL HOLE.
HOWE SOUND COMPANY
CHELAN DIVISION
TITLE
BUCKSKIN MOUNTAIN EXPLORATION
LEVEL 1500
SCALE 1" = 200'
DATE 3-1-56
DRAWN BY T.W.
SURVEY BY
FILE NUMBER
DMEA


IDEALIZED SECTION ALONG BUCKSKIN MOUNTAIN
BUCKSKIN MOUNTAIN
Outcrops
CALLAN TUNNEL
Diamond Drill Sta
Diamond Drill Sta
A
Tunnel A
B
Tunnel B
Crosscut - 650'±
COPPER CREEK
Point D
Point E
Possible Rake
MINE SECTOR
1500 LEVEL
C
No. 2 SHAFT
2500 LEVEL
See Assay Plan for Nickel Showings
12-1-54 partly 7870'
7000
6000
5000
4000
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2000
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7000
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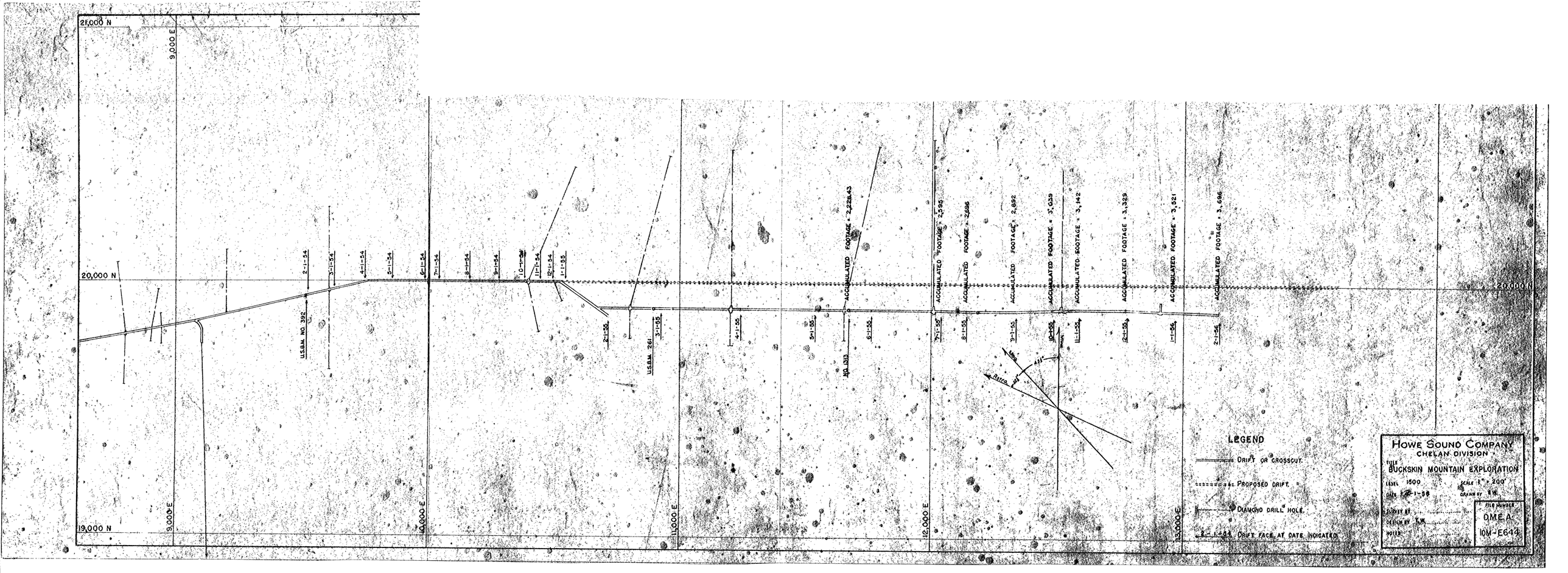
9000
10000
11000
12000
LEGEND
DIAMOND DRILL HOLE
MINE DEVELOPMENT
PROPOSED EXPLORATION
LONGITUDINAL SECTION THROUGH
HOLDEN MINE & BUCKSKIN MT.
1" = 400'±
Nov 5, 1953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U.S.B.M. NO. 392
U.S.B.M. 261
NO. 1313
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LEGEND
DRIFT OR CROSSCUT.
PROPOSED DRIFT.
DIAMOND DRILL HOLE.
DRIFT FACE AT DATE INDICATED.
HOWE SOUND COMPANY
CHELAN DIVISION
TITLE
BUCKSKIN MOUNTAIN EXPLORATION
LEVEL 1500
SCALE 1" = 200'
DATE 2-1-56
DRAWN BY S.W.
SURVEY BY
DESIGN BY S.W.
NOTES
FILE NUMBER
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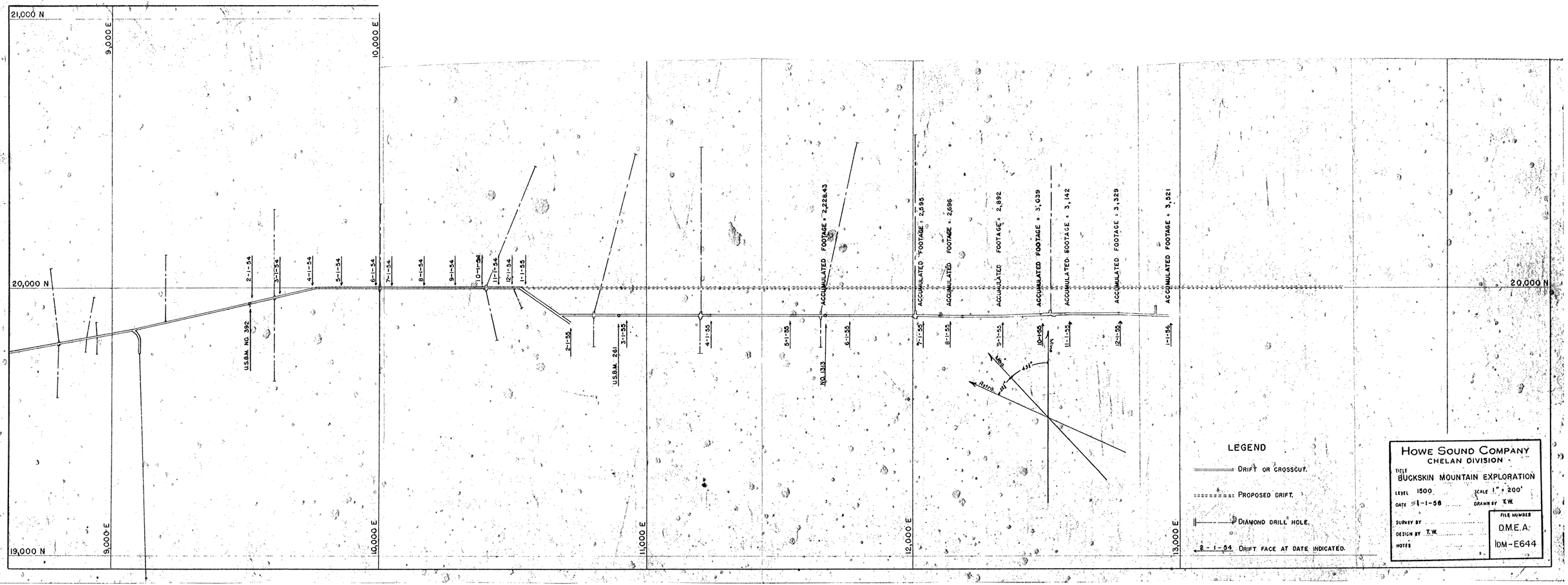
10M-E644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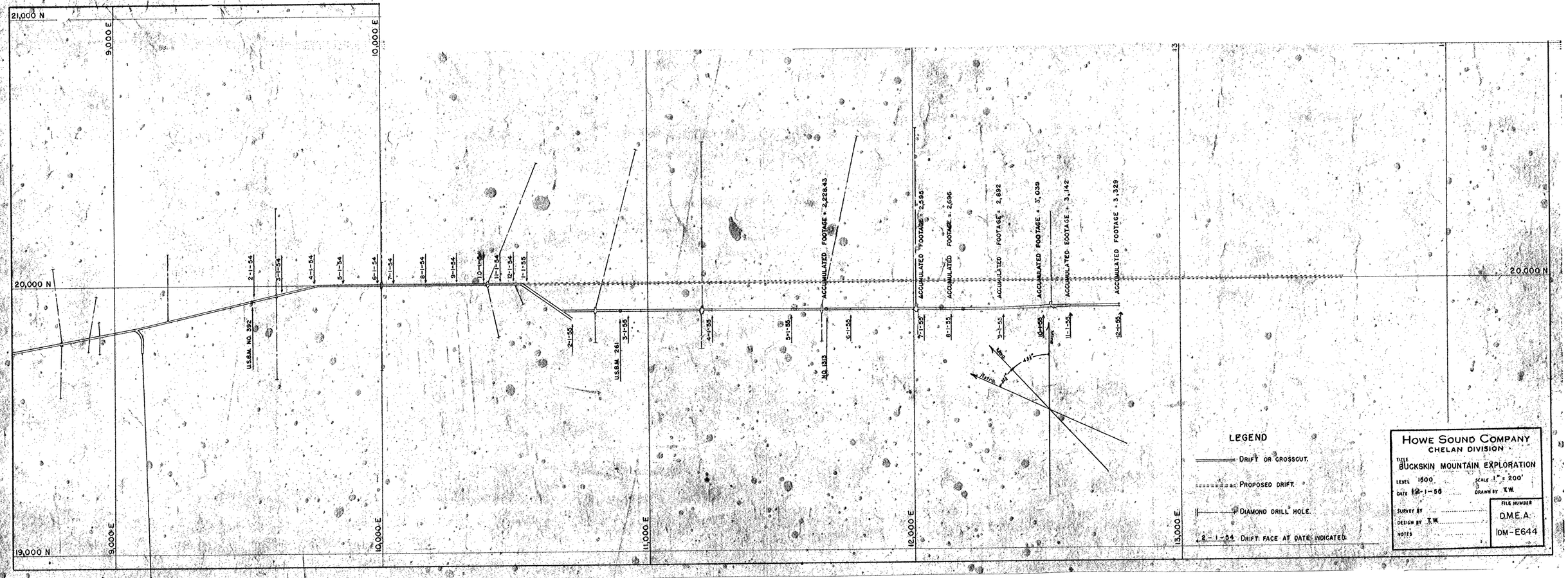
DRIFT OR CROSSCUT.
PROPOSED DRIFT.
DIAMOND DRILL HOLE.
2-1-54 DRIFT FACE AT DATE INDICATED.
HOWE SOUND COMPANY
CHELAN DIVISION
TITLE
BUCKSKIN MOUNTAIN EXPLORATION
LEVEL 1500
SCALE 1" = 200'
DATE 11-1-56
DRAWN BY T.W.
SURVEY BY
DESIGN BY T.W.
NOTES
FILE NUMBER
D.M.E.A.
DM-E644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DRIFT OR CROSSCUT.
PROPOSED DRIFT.
DIAMOND DRILL HOLE.
2-1-54 DRIFT FACE AT DATE INDICATED.
HOWE SOUND COMPANY
CHELAN DIVISION
TITLE
BUCKSKIN MOUNTAIN EXPLORATION
LEVEL 1500
SCALE 1" = 200'
DATE 12-1-56
DRAWN BY T.W.
SURVEY BY
DESIGN BY T.W.
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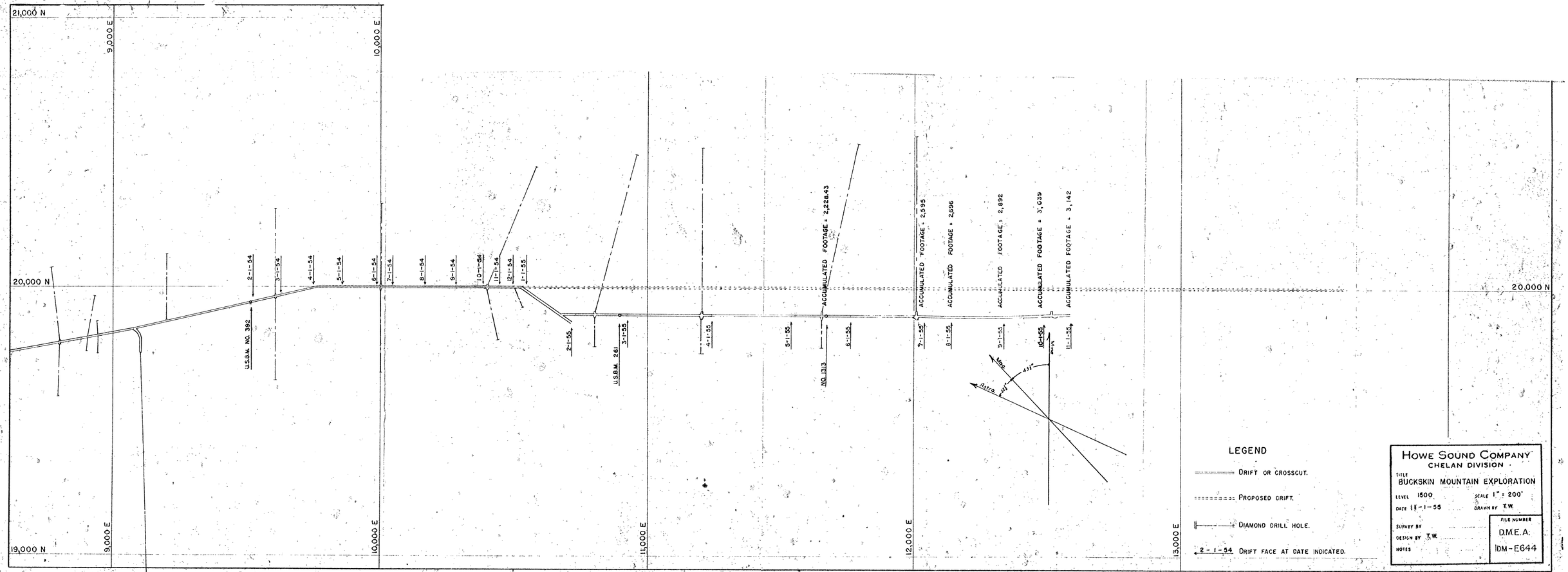
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431°
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LEGEND
DRIFT OR CROSSCUT.
PROPOSED DRIFT.
DIAMOND DRILL HOLE.
2-1-54 DRIFT FACE AT DATE INDICATED.
HOWE SOUND COMPANY
CHELAN DIVISION
TITLE
BUCKSKIN MOUNTAIN EXPLORATION
LEVEL 1500
SCALE 1" = 200'
DATE 11-1-55
DRAWN BY T.W.
SURVEY BY
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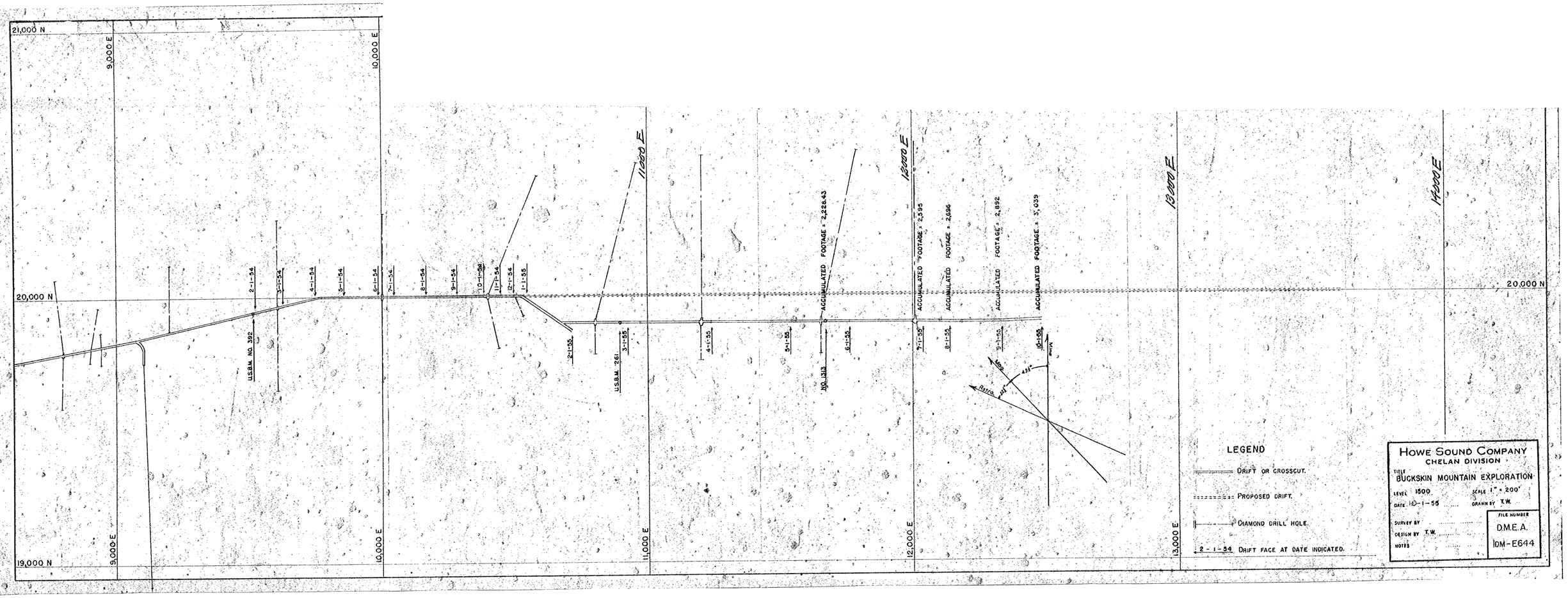
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PROPOSED DRIFT.
DIAMOND DRILL HOLE.
2-1-54 DRIFT FACE AT DATE INDICATED.
HOWE SOUND COMPANY
CHELAN DIVISION
TITLE
BUCKSKIN MOUNTAIN EXPLORATION
LEVEL 1500
SCALE 1" = 200'
DATE 10-1-55
DRAWN BY T.W.
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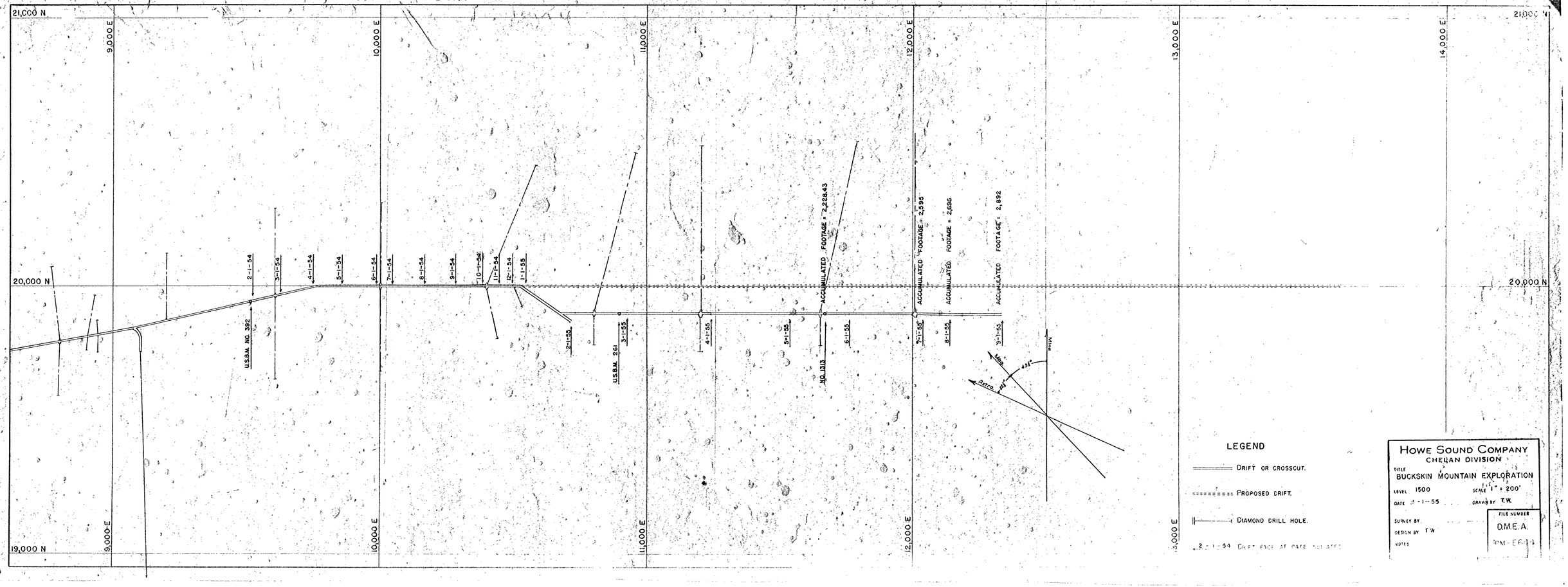
DM-E644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ACCUMULATED FOOTAGE = 2,595
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ACCUMULATED FOOTAGE = 2,892
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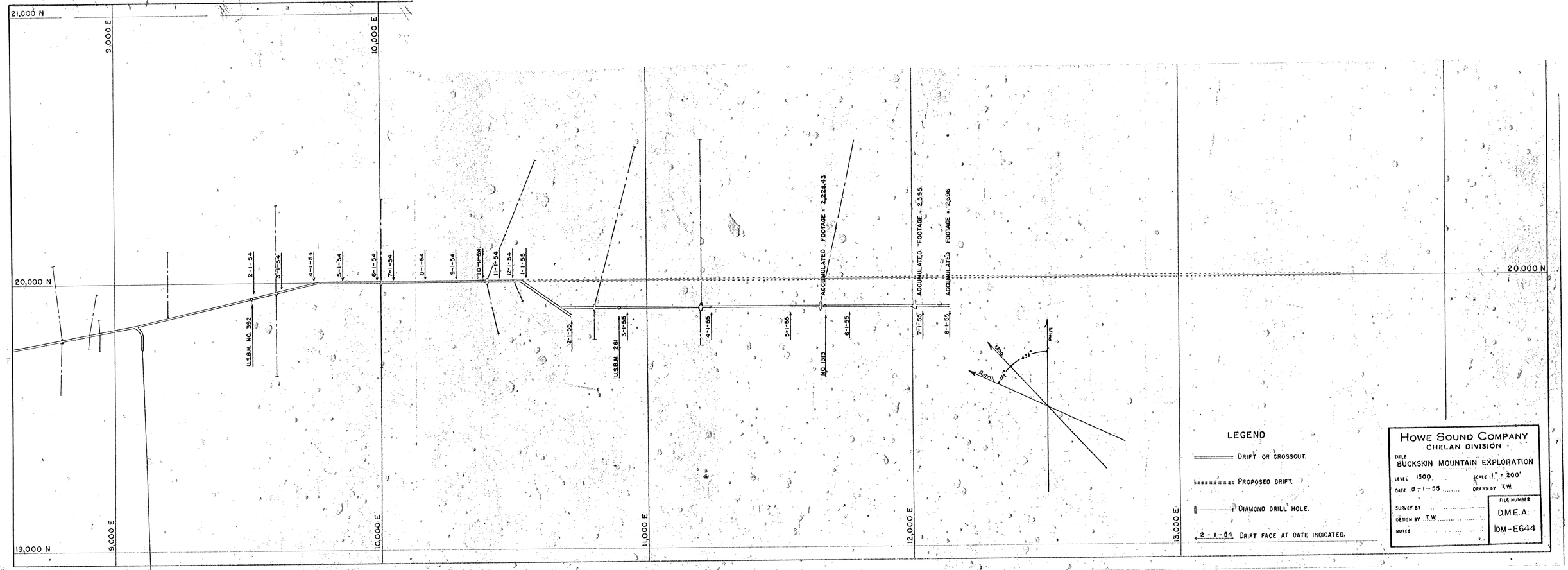
Astro.
LEGEND
DRIFT OR CROSSCUT.
PROPOSED DRIFT.
DIAMOND DRILL HOLE.
2-1-54 DRIFT FACE AT DATE INDICATED
HOWE SOUND COMPANY
CHELAN DIVISION
TITLE
BUCKSKIN MOUNTAIN EXPLORATION
LEVEL 1500
SCALE 1" = 200'
DATE 2-1-55
DRAWN BY T.W.
SURVEY BY
DESIGN BY T.W.
NOTES
FILE NUMBER
D.M.E.A.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ACCUMULATED FOOTAGE = 2,228.43
ACCUMULATED FOOTAGE = 2,595
ACCUMULATED FOOTAGE = 2,696
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LEGEND
DRIFT OR CROSSCUT.
PROPOSED DRIFT.
DIAMOND DRILL HOLE.
2-1-54 DRIFT FACE AT DATE INDICATED.
HOWE SOUND COMPANY
CHELAN DIVISION
TITLE
BUCKSKIN MOUNTAIN EXPLORATION
LEVEL 1500
SCALE 1" = 200'
DATE 8-1-55
DRAWN BY T.W.
SURVEY BY
DESIGN BY T.W.
NOTES
FILE NUMBER
D.M.E.A.
DM-E644