MME Form 9
Rev. Nov. 65

UNITED STATES
DEPARTMENT OF THE INTERIOR
Geological Survey

OFFICIAL DOCKET FILE Contract No. 2244 Docket No. 6587

Application
- [ ] Denied
- [ ] Withdrawn

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

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

Folder No. 1:

Left Side

- [ ] Royalty Audits
- [✓] Certification of Discovery 11/18/68
- [ ] Closing Letter
- [x] Cost Audits January 1969
- [ ] Termination Notice or Agreement
- [ ] Recision Notice
- [ ] Assignment of Contract
- [ ] Contract Amendments
- [x] Contract with all exhibits and annexes 8-4-67
- [ ] Owner's Consent to Lien and Subordination Agreement
- [ ] Application and Attachments

Right Side

- [ ] Project Summary (final)
- [ ] Work Completed Analysis (final)
- All other material filed in chronological order including the following reports if checked:
- [ ] Field Team Semiannual Report for Certified Project
- [X] Final Field Team Report (Tab) 9-20-68 and
- [x] Operator's Final Report (Tab) Suppl. 9-29-68
- [ ] Interim Field Team Reports
- [ ] Operator's monthly reports and all attachments
- [X] On-site Exam. Report (Tab)
- [ ] Settlement Sheets
- [ ] Drill Logs

Additional Folders:

Left Side

Folders No. _____: Reports
- [ ] Analysis of Semiannual Inspection Reports
- [ ] Project Summary (Interim) by MME Engineers

Right Side

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

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

Folders No. _____: Settlement Sheets

Folders No. _____: Drill Logs

Folders No. _____: Royalty Material

72195-65

I-C-DC-OME-4-69

UNITED STATES
DEPARTMENT OF THE INTERIOR

Office of Survey and Review

Audit Operations

OFFICIAL
COPY
O. M. E.
RECEIVED
FEB 28 1969

INITIALS	CODE
	130
bel	120
	120
	130
	120

Certified subject to audit

Report of Review-Contract 2244
Docket No. OME-6587 (Silver)
Development Operating Corp. (Operator)
Jefferson County, Montana

Washington, D.C.
January 1969

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
OFFICE OF SURVEY AND REVIEW
AUDIT OPERATIONS, REGION I
1325 K STREET, N. W., ROOM 614
WASHINGTON, D. C. 20005

JAN 27 1969

Memorandum

To: Director Geological Survey

From: Regional Director, Audit Operations, Region I

Subject: Review of Contract 2244
Docket No. OME-6587 (Silver)
Development Operating Corp. (Operator)
Jefferson County, Montana

As requested by the Chief, Office of Minerals Exploration (OME) we have made a cost review of Contract 2244. The results of our review are shown in the attached report.

C. D. Bare

On January 8 and 9, 1969, we reviewed the contract files of the Office of Minerals Exploration (OME) pertaining to their minerals exploration Contract No. 2244 with the Development Operating Corp. (Operator), and examined the related disbursement records in the Branch of Budget and Finance, Administrative Division, Geological Survey.

The contract was awarded on August 4, 1967, for $90,000, the total estimated costs of the project, with OME participation on a 75 percent basis. The contract provided for certain exploratory mining operations to be performed by the Operator on land consisting of five patented lode mining claims, three patented millsite claims, two unpatented millsite claims, and two unpatented lode mining claims in the Elkhorn mining district and townsite, Jefferson County, Montana. The exploration was to be performed by crosscutting, drifting, and raising on the 550-foot level of the Elkhorn mine for silver-bearing ore bodies in and along three or more silicified fracture zones. Sampled mineral deposits were to be assayed for gold and silver, lead, and zinc.

Repayment of disbursed Federal funds plus interest at 7 percent was to be made on the basis of established royalties on all minerals and metals produced from the land during the exploratory operations and for a period of 10 years from the date of the contract or until

the amount contributed by the Government is fully repaid, whichever occurs first, where the Government issues a certification of possible production. The contract was to be completed within 18 months from the date of the contract or by February 4, 1969.

Work under the contract was completed in July 1968. The units of work authorized and paid under the contract are summarized on Exhibit I. We believe the claimed and accepted costs of $89,685, and the OME participation on the 75 percent basis for $67,264, was proper under the terms of the contract. Field inspections were made and voucher submissions by the Operator were approved by the OME Region I office. The final OME inspection report stated that the calculated ore reserves indicate that the exploration was successful in finding three widely spaced small ore bodies rich in silver. On November 18, 1968, OME issued a certification of possible production under the contract.

C. D. Bar

Regional Director

EXHIBIT I

Summary of contract terms, accepted costs, and unexpended balance

Fixed Unit Costs	Estimated Amount	Accepted Costs	Unexpended Balance
Constructing headframe, including installation of complete hoisting equipment	$ 500		$ 500
Constructing compressor house, including installation of compressed air facilities	250		250
Rehabilitating main shops	7,850	$ 7,850	
Rehabilitating 550-foot level drift	5,500	5,500	
Crosscutting and drifting including timbering, 1,500 feet @ $45 per foot	67,500	67,455	45
Raising, including timbering, 100 feet @ $47 per foot	4,700	6,157	(1,457) 1/
Assaying			
Gold and silver, 200 samples @ $3.50 per sample	700	315	385
Lead, 140 samples @ $2.50 per sample	350	67	283
Zinc, 140 samples @ $2.50 per sample	350	3	347
Office expense, 12 months @ $40 per month	480	480	
Incidental allowance for engineering for each foot of crosscutting, drifting, and raising completed, 1,600 feet @ $1.14 per foot (rounded)	1,820	1,858	(38)
Total	$90,000	$89,685	$ 315
OME Participation - 75%	$67,500	$67,264	$ 236

1/ Represents cost of 31 feet more than the estimated 100 feet provided for in the contract as this particular element is not a maximum.

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
10/18/68	Kirkemo	120
10/30	Johnson	110
		220
11/1/68	Bless Long	140
Appd Sol. Office		120M
11/15	Valyquard	
11/18	Klepp	
		110
		220

UNITED STATES OF AMERICA
CERTIFICATION OF POSSIBLE PRODUCTION
UNDER AN EXPLORATION CONTRACT

Development Operating Corp.
P. O. Box 34
Boulder, Montana 59632

INTERIOR DEPT.
NOV 1 1968
SOLICITOR

Re: OSR-4587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2344

Gentlemen:

Pursuant to Article 4 of the referenced contract, as amended, the Government hereby certifies that mineral or metal production may be possible as a result of the exploration work.

Therefore, royalties shall be paid to the Government as provided in the contract on all production from the land described in the contract from August 4, 1967, to August 4, 1977, or until the sum of $67,263.88, subject to audit, is fully repaid with interest at the rate of 7 percent per annum, whichever occurs first. The payment of royalties is secured by a lien upon the land and upon any production therefrom.

Audit report Jan. '69
$67,264.00

Royalty payments should be made in favor of the U. S. Geological Survey and mailed or delivered to the Field Officer, Region I, Office of Minerals Exploration, U. S. Geological Survey, U. S. Courthouse, Room 656, West 920 Riverside Avenue, Spokane, Washington 99201. Each payment should be accompanied by two copies of settlement sheets or other suitable sales evidence showing the date of sale, name of the purchaser, the quantity and grade of the production sold, the price per unit, and the gross proceeds and allowable deductions therefrom. The purchaser should be notified of the Government's royalty on production and directed to pay the royalty, computed as provided in the contract, directly to the Government.

The Field Officer should be promptly notified upon the commencement of any production and upon any extended cessation thereof. Production unsold or unused six months after extraction from the ground should be reported promptly to the Field Officer.

Attention is specifically invited to the provisions of Article 2(a) of the contract referring to the preservation of the Government's royalty rights. Two true copies of any instrument transferring, surrendering, or encumbering any of said rights shall be furnished to the Field Officer.

Dated this 18th day of November, 1968.

THE UNITED STATES OF AMERICA

FRANK E. JOHNSON (glr)

Frank E. Johnson
Chief, Office of
Minerals Exploration

cc: Director's Reading File
Division File
Economic Geology File
Branch of Budget and Finance
Assoc. Sol. - Room 6554
Docket copy
OME Region I
Frank E. Johnson
130(2)
Mr. Kirkemo
OME Reading file

Mr. Anker B. Henningsen
2282 Arbutus Road
Victoria, B. C. Canada
Mr. Charles S. Youlden and M
Mrs. Martha Ann Youlden
1159 West Steel Street
Butte, Montana 59701
Mrs. Laura I. Walker, 904
West Platinum, Butte, Montanta
59701

GLAult/bsl 10/18/68

MME FORM 6 REFERENCE SLIP
REV. 2-59 OFFICE OF MINERALS EXPLORATION

	DATE	INITIALS
TO: Chief, OME	9/22/67	
1. Re: OME-6587 (Silver) Development Operating Corp.	OFFICIAL COPY	
2. Elkhorn Mine Jefferson County, Montana	O. M. E. RECEIVED	
3.	SEP 22 1967	
4. M.L.S. Mary L. Smelser for	INITIALS CODE	
5. D. R. MacLaren		
FROM: Fld. Officer, Reg. I		

FOR: Check items for action desired

X Action	___ Reply for signature of	HK	___ Surname
___ Approval	___ Investigate		___ Signature
___ Comment	___ Recommendations		___ File
___ Conference	___ Rewrite		
___ Instructions	Your information		

REMARKS: Transmittal of the Government and Budget and Finance's copy of Amendment No. 1.

INT.-DUP. SEC., WASH., D.C. M56300-62

Gover[illegible]nt's copy

EXPLORATION CONTRACT
DEVELOPMENT OPERATING CORP.
OME-6587

AMENDMENT NO. 1

It is agreed this 15th day of September, 1967, between the United States of America, acting through the Department of the Interior, U. S. Geological Survey, hereinafter called the "Government," and Development Operating Corp., hereinafter called the "Operator," that Exploration Contract 2244 (OME-6587), dated August 4, 1967, is amended effective the date of the contract as follows:

1. In Exhibit A, under the heading General Provisions, the second paragraph is revised to read as follows:

"Mine rails shall be not less than 12-pound size, air lines not less than 2-inch diameter, water lines not less than 1-inch diameter, and vent lines not less than 12-inch diameter."

2. In Exhibit A, under the heading Description of the Work, the first paragraph is revised to read as follows:

"The initial work shall consist of rehabilitating the Elkhorn main shaft and 550-foot level south drift. If, at some future time during the life of the contract, it becomes necessary to the project, with prior approval of the Government confirmed in writing, the Operator may construct a head frame and compressor house at the collar of the Elkhorn main shaft and install all appurtenant equipment."

This amendment shall not be construed to increase the estimated total cost of the contract, the aggregate amount which the Government may be required to contribute, the amount of any item designated as maximum, nor the fixed unit cost of any item of work.

Executed in quadruplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By Frank E. Johnson
Chief, Office of Minerals Exploration
U. S. Geological Survey

Long
Kirkemo
Johnson
Kiilsgaard

DEVELOPMENT OPERATING CORP.

By Robt E. Tally

Title Mgr.

9-21-67.

MME Form 7
(2/63)

OFFICIAL FILE

Date	Surname	
9/6/67	RM Smith	120
9/7/67	Kirkham	120
		110
		120M

September 6, 1967

Memorandum

To: The File

From: R. M. Smith, Office of Minerals Exploration

Subject: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Justification for Amendment No. 1

The contract as originally written was not satisfactory to the Operator. In order not to delay the start of the work, the Operator signed the contract after making pen and ink changes which were approved by the Field Officer.

The objectionable feature was the mandatory requirement to construct a head frame and compressor house andinstall appurtenant equipment. These items may or may not be necessary to the project, depending upon whether or not ore is discovered. If ore is found, it should be hoisted, and a head frame will be required. Waste is to be dumped into the old stopes and access for the crew is through the air shaft and a 20-foot raise nearby, both of which are sufficient if ore is not discovered.

These alternatives were overlooked when the contract was prepared; otherwise, the desired flexibility would have been written into the original contract. In order to protect the Government from possible improper use of these items (such as preparation for a subsequent deep-level project which might not be approved), the Field Officer deleted them entirely from the Description of the Work but not from the Estimated Costs of the Work.

It is the Operator's wish to retain them but to make them contingent upon their actual need. I recommend, therefore, that the contract be amended accordingly.

In addition, the Operator requested permission to use 12-pound rail instead of 16-pound rail because his stock of 16-pound size was insufficient to complete the job and only 12-pound is locally available for purchase. Since 12-pound is heavy enough

for the job, I recommend the request be approved. Since the difference in price of about $0.10 per foot (less 50% salvage) is less than the amount of "rounding" used to compute the approved unit cost of $45.00 per foot for drifting and cross-cutting, and since the unit cost is already lower than approved unit costs for similar OME projects, I recommend no change in the schedule of Fixed Unit Costs.

Roscoe M. Smith

Roscoe M. Smith

cc: Director's Reading File
Division File
Economic Geology File
OME Docket
OME Reading File
Mr. Smith

RMSmith/gla 9-6-67

Government's copy

MME Form 51
July 1965

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
U. S. Geological Survey

EXPLORATION CONTRACT
(Short Form)

Docket	Commodity	Contract No.	County	State
OME 6587	Silver	2243	Jefferson	Montana

It is agreed AUG 4 1967 (Date), between the United States of America, acting through the Department of the Interior, U. S. Geological Survey, hereinafter called the "Government," and

Development Operating Corp., a Montana corporation

whose mailing address is P. O. Box 14, Boulder, Montana 59632, hereinafter called the "Operator," as follows:

ARTICLE I. Authority and scope.--(a) This contract, entered into under the authority of Public Law 701, 85th Cong., 2d sess. (72 Stat. 700; 30 U.S.C. § 641 - 646), consists of this form, the attached Annex I (land description), Exhibit A (work and costs), and the maps and documents listed. The work is a search for new or unexplored deposits of the commodity designated above. The Operator shall begin the work on or before August 5, 1967 (Date), and, subject to the provisions of Article 7 and Exhibit A, shall complete the work within 18 months from the date of the contract.

(b) The description of the work and the fixed cost for each unit of work to be performed (per foot of drilling, per foot of drifting, per hour of operations, etc.) are hereby agreed upon as specified in Exhibit A. The estimated total cost of the work is $90,000.00. The Government will contribute 75 percent of the total fixed unit costs of the work performed, not in excess of $67,500.00 in accordance with the provisions of Articles 4 and 5.

(c) Interest computation.--Simple interest at the rate of 7 percent shall accrue from the dates Federal funds are made available until the period specified for payment of royalty expires, or until the amount of Federal funds contributed is fully repaid with interest.

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

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

See Annex I

(b) The Subordination Agreement of the holder of any claim, lien, or encumbrance listed above and (if the Operator does not hold the legal title) the Lien Agreement of any holder of the legal title of the land (lessor, seller, optionor, etc.) are attached as follows:

See Annex I

(c) The Operator shall preserve and maintain his right, title, or interest in the land and his right to the possession thereof for the purposes of this contract, and shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of this contract. The Operator shall neither transfer, convey, nor surrender the land nor any right, title, or interest therein, nor permit nor suffer any claim, lien, or encumbrance thereon, without expressly referring to and providing in the instrument of conveyance, lien, or encumbrance for the preservation of the Government's right to a royalty on production and liens for the payment thereof. Two true copies of such instrument shall be furnished to the Government. If the Government's rights to royalty as provided in Article 6 have been terminated, the provisions of this paragraph (c) shall become inapplicable.

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

(b) Government may inspect.--The Operator shall consult with and inform the Government on all phases of the work as it progresses. The Government may enter at all reasonable times to inspect the work under the contract and production operations during the period that royalty is payable to the Government. The Operator shall provide the Government with all reasonable means of access for such inspections.

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

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

(b) Monthly reports.--The Operator shall provide the Government with four copies of monthly reports in three sections as follows:

(1) Operator's Monthly Voucher claiming costs for work performed;

(2) Operator's Progress Report showing the number of units of the various types of work performed; and

(3) a narrative report of the work performed during the reporting period, including adequate engineering-geological maps or sketches, drill hole logs and locations, and assay reports on samples taken concurrently with advance in mineralized ground.

(Forms for reporting under (1) and (2) above will be provided by the Government.)

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

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

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

ARTICLE 6. Repayment by Operator.--(a) Certification.--If the Government considers that mineral or metal production from the land covered by the contract may be possible as a result of the exploration work, it shall so certify in writing to the Operator at any time not later than six months after a sufficient final report and final accounting (see Article 5) have been furnished.

(b) Royalty on production.--The Operator, whether or not the producer (for example, if the Operator either transfers or does not retain his interest in the land), shall pay to the Government a royalty on all minerals and metals mined or produced from the land as follows:

(1) irrespective of any certification of possible production--from the date of the contract until the lapse of the time within which the Government may issue such certification or until the total net amount contributed by the Government is fully repaid with interest, whichever occurs first; or

(2) if the Government issues a certification of possible production--for a period of ten years from the date of the contract or until the total net amount contributed by the Government is fully repaid with interest, whichever occurs first.

(c) Payment of royalty.--(1) The Government's royalty shall be five percent of the gross proceeds (including any bonuses, premiums, allowances, or other benefits) from the production sold, in the form sold (ore, concentrate, metal, or equivalent), at the point of delivery (the f.o.b. point); except, that charges of the buyer arising in the regular course of business and shown as deductions on the buyer's settlement sheets (such as treatment processes performed by the buyer, sampling and assaying to determine the value of the production sold, and freight payable by the buyer to a carrier (not the Operator or producer)), shall be allowed as deductions in arriving at the "gross proceeds" as that term is used herein. No costs of the Operator or producer are deductible in arriving at the "gross proceeds" as that term is here used.

The term "treatment processes" means those processes (such as milling, concentrating, smelting, refining, or equivalent, but excluding fabricating or manufacturing) applied to the crude ore or other production after it is extracted from the ground to put it into a commercially marketable form.

(2) The Government's royalty shall be computed and paid currently upon each lot sold, held, or used in integrated operations, as the case may be.

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

(e) Lien for payment.--To secure the payment of royalty (see Article 6(b)), the Operator hereby grants to the Government a lien upon his interest in the land and upon any production of minerals and metals therefrom until the royalty claim is extinguished by lapse of time or is fully paid.

(f) Notice to purchasers.--The Operator or producer shall give notice of the Government's claim for royalty to any purchaser of the production, and shall authorize and direct such purchaser to pay the royalty directly to the Government and to furnish the Government with copies of the settlement sheets. If the records of any production and sales or other disposition of production, whether the production is by the Operator or by others, are not made available to the Government, the amount of the royalty may be estimated by the Government, and this estimate shall be final and binding upon the Operator or producer.

(g) No obligation to produce.--Nothing in this contract shall be construed as imposing any obligation on the Operator or the Operator's successor in interest to engage in any production operations.

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

ARTICLE 7. Termination of the Government's Obligations.--(a) If the Government determines that operations at any time have failed to achieve anticipated results and further work is not justified, the Government may give the Operator written notice thereof, and thereupon:

(1) the Government shall be free of all obligation to pay on account of units of work not then performed; and

(2) the Operator shall be free of all obligation to prosecute the work other than such as may be necessary and incidental to final accounting and reporting.

(b) If the Government determines that the Operator is in default under the terms of the contract, the Government may give the Operator written notice of such default with a specification of reasonable time within which the default must be cured; and if the Operator fails to cure such default as required, thereupon:

(1) the Government shall be relieved of all obligation to pay on account of units of work not performed when the notice was given, and

(2) the Operator shall be free of all obligation to prosecute the work other than such as may be necessary and incidental to final accounting and reporting.

The Government may also avail itself of any other remedy the law may provide for breach of contract, including the right to rescind the contract and to demand repayment of all moneys contributed by the Government under the contract.

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

(d) The determinations of the Government are subject to appeal under Article 11.

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

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

ARTICLE 10. Nondiscrimination in Employment.--The provisions respecting nondiscrimination in employment which are required by section 301 of Executive Order 10925, dated March 6, 1961, as amended and supplemented, are attached hereto as Exhibit B and are hereby incorporated in and made a part of this contract.

ARTICLE 11. Disputes.--Any dispute arising under this contract which is not disposed of by agreement shall be decided by the Director, U. S. Geological Survey, who shall reduce his decision to writing and mail or otherwise furnish a copy thereof to the Operator. The decision of the Director, U. S. Geological Survey, shall be final and conclusive unless, within 30 days from the date of receipt of such copy, the Operator mails or otherwise furnishes to the Director, U. S. Geological Survey, a written appeal addressed to the Secretary of the Interior. The decision of the Secretary or his duly authorized representative for the determination of such appeals shall be final and conclusive unless determined by a court of competent jurisdiction to have been fraudulent, or capricious or arbitrary, or so grossly erroneous as necessarily to imply bad faith, or not supported by substantial evidence.

The term "Director, U. S. Geological Survey," as used herein includes his duly authorized representative.

ARTICLE 12. Work Hours Act of 1962 - Overtime Compensation.--This contract, to the extent that it is of a character specified in the Work Hours Act of 1962 (Public Law 87-581, 76 Stat. 357-360) and is not covered by the Walsh-Healey Public Contracts Act (41 U.S.C. 35-45), is subject to the following provisions and to all other provisions and exceptions of said Work Hours Act of 1962.

(a) Overtime requirements.--No Operator or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any laborer or mechanic to be employed on such work in excess of eight hours in any calendar day or in excess of forty hours in any workweek unless such laborer or mechanic receives compensation at a rate of not less than one and one-half times his basic rate of pay for all hours worked in excess of eight hours in any such calendar day or in excess of forty hours in any such workweek, as the case may be.

(b) Violations; liability for unpaid wages; liquidated damages.--In the event of any violation of the clause set forth in subparagraph (a) of this paragraph, the Operator and any subcontractor responsible therefor shall be liable to any affected employee for his unpaid wages. In addition, such Operator and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed, with respect to each individual laborer or mechanic employed in violation of the clause set forth in subparagraph (a) of this paragraph, in the sum of $10 for each calendar day on which such employee was required or permitted to work in excess of eight hours or in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in subparagraph (a) of this paragraph.

(c) Withholding for unpaid wages and liquidated damages.--The U. S. Geological Survey may withhold or cause to be withheld, from any moneys payable on account of work performed by the Operator or subcontractor, such sums as may administratively be determined to be necessary to satisfy any liabilities of such Operator or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (b) of this paragraph.

ARTICLE 13. Copeland (Anti-Kickback) Act--Nonrebate of wages.--The regulations of the Secretary of Labor applicable to contractors and subcontractors (29 CFR, Part 3), made pursuant to the Copeland Act, as amended (40 U. S. C. 276c) and to aid in the enforcement of the Anti-Kickback Act (18 U. S. C. 874) are made a part of this contract by reference. The Operator will comply with these regulations and any amendments or modifications thereof and will be responsible for the submission of affidavits required of independent contractors thereunder. The foregoing shall apply except as the Secretary of Labor may specifically provide for reasonable limitations, variations, tolerances, and exemptions.

ARTICLE 14. Changes and added provisions.--

Executed in quadruplicate the day and year first above written.

THE UNITED STATES OF AMERICA

DEVELOPMENT OPERATING CORP.
(Operator)

By Robt. E. Tally

Title Gen. Mgr.

By William D. Bolen
Acting Director, U. S. Geological Survey

Appd. Sol. Office
Long
Smith
Kirkemo
Johnson
Dover
Tuck

I, Howard A. Johnson (Name), certify that I am the secretary of the corporation named as Operator herein; that Robt. E. Tally (Name), who signed this contract on behalf of the Operator, was then General Manager (Title) of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

Howard A. Johnson

[CORPORATE SEAL]

EXPLORATION CONTRACT
DEVELOPMENT OPERATING CORP.
OME-6587

ANNEX I

The land, including all rights thereto, referred to in Article 2 of the contract consists of five patented lode mining claims, three patented millsite claims, two unpatented millsite claims, and two unpatented lode mining claims, in Secs. 11 and 14, T. 6N., R. 3 W., MPB&M, Elkhorn (unorganized) mining district and Townsite, Jefferson County, Montana. It is shown on Fig. 1 entitled, "Claim map . . . Development Operating Corporation, Elkhorn Mine," attached and made a part hereof.

The patented lode mining claims are as follows:

Name	Patent No.	U. S. Survey No.
A. M. Holter	15347	1374
Hardin	18553	2523-A
Silver Star	19766	2689-A
James R. Keene	28704	1890
Sophia	23222	3882

The patented millsite claims are as follows:

Name	Patent No.	U. S. Survey No.
Hardin Millsite	18553	2523-B
Silver Star Millsite	19766	2689-B
Elkhorn Millsite	20448	2516

The unpatented millsite and lode mining claims are recorded in the office of the Jefferson County Clerk and Recorder, Boulder, Montana, as follows:

Name	Book	Page
Silver Dollar No. 1 Millsite	53	7
Silver Dollar No. 2 Millsite	53	8
Elkhorn Fraction No. 1 (included in James R. Keene)		
Elkhorn Fraction No. 2 (included in Hardin)		

The Operator is the owner of the unpatented claims and is in possession of the patented land under the terms of a Lease executed April 20, 1966, by Laura I. Walker, Charles S. Youlden and Martha Ann Youlden, and Anker B. Henningsen, the owners.

A Lien and Subordination Agreements executed by the owners March 13, 1967, is attached and made part hereof.

MME Form 52
Jan. 1959

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

FOR GOVERNMENT USE ONLY
Operator
Docket No. OME –
Contract No. 14-23-090 – 2242
Contract Date AUG 4 1967

LIEN AND SUBORDINATION AGREEMENTS[1]

To the United States of America:

That certain land in the County of Jefferson, State of Montana,

described ~~as follows:~~[2] in a lease, dated April 20, 1966, and recorded in Misc. Book 13, Page 55, official records of Jefferson County,

hereinafter called the "land", is the subject of a proposed exploration contract, hereinafter called the "Contract", between the United States of America, hereinafter called the "Government" and

Development Operating Corp.,[3]

hereinafter called the "Operator". In consideration for and as an inducement to the Government executing the Contract, the undersigned:

1. (a) Being the owner of an interest in the land, hereby grants to the Government a lien upon all of his right, title, and interest in the land and upon any production of minerals therefrom to secure the payment to the Government of the royalty on production provided for by the Contract, and agrees if the Operator's interest should be surrendered or terminated at any time prior to the expiration of the rights of the United States under said Contract to pay royalty to the Government according to the terms of said Contract; or

(b) Being the holder of a claim, lien, or encumbrance against the land, hereby subordinates his claim, lien, or encumbrance in or against the land and in any production therefrom to the rights of the Government under the Contract with respect to royalty on production and liens to secure same.[4]

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

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

None

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

2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease /or contract, deed, or other document/ dated_____, and recorded in Book_____, Page____, official records of said county". If (b) is used, the book and page of recordation must be inserted above. If the space provided is insufficient, use an Annex and refer to the Annex in the space.

3/ Insert name exactly as it appears in the Application MME Form 40.

4/ Subparagraph 1(a) does not apply to the holder of a claim, lien, or encumbrance.

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

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

6. Added provisions None (State "None" or "See Annex No. ____".)

Dated this 13th day of March, 19 67.

Anker B. Henningsen (Seal)	2282 Arbutus Rd.	(Street)
Anker B. Henningsen	Victoria, B.C.	(City & State)
Charles S. Youlden (Seal)	1159 W. Steel Street	(Street)
Charles S. Youlden	Butte, Montana	(City & State)
Martha Ann Youlden (Seal)	1159 W. Steel Street	(Street)
Martha Ann Youlden	Butte, Montana	(City & State)
Laura I. Walker (Seal)	904 West Platinum	(Street)
Laura I. Walker	Butte, Montana	(City & State)
(Seal)		(Street)
		(City & State)
(Seal)		(Street)
		(City & State)

I, _____ (Name), certify that I am the _____ (Title—Secretary, etc.) of the corporation named herein; that _____ (Name), who signed this agreement was then _____ (Title—Pres., Vice-Pres., etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____ (Corporate Seal)

RECEIVED
INT.-DOP. SEC., WASH., D.C. 21103
APR 17 1967
O. M. E.
SPOKANE, WASH.

EXPLORATION CONTRACT
DEVELOPMENT OPERATING CORP.
OME-6587

EXHIBIT A

The purpose of the project is to explore by crosscutting, drifting, and raising on the 550-foot level of the Elkhorn mine for silver-bearing ore bodies in and along three or more silicified fracture zones ("contacts") which are about parallel with and as much as 480 feet in the footwall of the Elkhorn vein (hanging-wall ore bodies, Elkhorn-Red Lion contact) in Pilgrim dolomite (Cemetery limestone) of Cambrian age.

General Provisions

All drifts, crosscuts, and raises shall be not less than 5 by 7 feet in cross section and shall be timbered as necessary. Drift and raise sets shall be of not less than 8- by 8-inch timber, or equivalent round timber. Raises shall be timbered to provide a chute and manway with lagging on the chute side and ladders on the manway side.

Mine rails shall be not less than 16-pound size, air lines not less than 2-inch diameter, and water lines not less than 1-inch diameter, and vent lines not less than 12-inch diameter.

All significantly mineralized areas traversed by the drifts, crosscuts, or raises shall be sampled normal to the trends of the deposits at intervals not exceeding 5 feet. In addition, a representative bulk sample may be taken of each round broken, but no such sample shall represent more than 5 linear feet of workings.

All samples, from whatever source, shall be split as necessary and one split assayed. The Operator shall store one split of each sample in a suitable container properly labeled.

Stored samples shall be made available for Government inspection and possible use, and may be disposed of with prior Government approval.

All splits of samples for assay shall be analyzed for gold and silver, and for lead and/or zinc as warranted.

True copies of assay certificates and maps or sketches showing the work completed, the location, width, and assay value of all

samples assayed, and the geological formations and structures traversed by the workings shall be furnished monthly to the Government.

The Operator shall provide such equipment, materials, power, supervision, labor, and technical services as may be required to perform the work in a satisfactory manner.

The location, direction, and extent of each work item shall be subject to Government approval.

Description of the Work

The initial work shall consist ~~of erecting a headframe and compressor house at the collar of the Elkhorn main shaft, installing all appurtenant equipment,~~ and of rehabilitating the Elkhorn main shaft and 550-foot level south drift to operating condition.

After the initial work is completed, a crosscut shall be driven approximately due west from a point in the 550-foot level south drift approximately 500 feet south of the main shaft. It is anticipated that mineral showings will be intersected by the crosscut at the 230-, 360-, and 480-foot "contacts." It is estimated that 460 feet of crosscutting will be required to intersect the 480-foot "contact."

Drifts shall be driven northerly and/or southerly on the best showings in the crosscut. It is estimated that 1,040 feet of drifting will be required to explore the mineral showings.

Raises may be driven to explore or further delinate ore bodies found by crosscutting or drifting. It is estimated that 100 feet of raising may be required.

The approximate location of the crosscut and the provisional locations of the drifts are shown in red on Fig. 2 entitled, "Proposed exploration, Elkhorn mine," attached and made part hereof.

Estimated Costs of the Work 1/

Fixed Unit Costs

Constructing headframe, including installation of complete hoisting equipment 2/	$ 500.00

Constructing compressor house,		
including installation of compressed air facilities 2/		$ 250.00
Rehabilitating main shaft 2/		7,850.00
Rehabilitating 550-foot level drift 2/		5,500.00
Crosscutting and drifting, including		
timbering, 1,500 feet @ $45.00/foot		67,500.00
Raising, including timbering,		
100 feet @ $47.00/foot		4,700.00
Assaying,		
Gold and Silver,	200 samples @ $3.50/sample	700.00
Lead	140 samples @ $2.50/sample	350.00
Zinc	140 samples @ $2.50/sample	350.00
Office expense, 12 months @ $40.00/month		480.00
Incidental allowance for engineering for		
each foot of crosscutting, drifting, and		
raising completed,		
1,600 feet @ $1.14/foot (rounded)		1,820.00
Total Estimated Fixed Unit Costs		$90,000.00
Government Participation @ 75%		$67,500.00

1/ The Government retains no equity in any of the equipment or materials used.

2/ The unit of work is the completed job.

EXHIBIT B

NONDISCRIMINATION IN EMPLOYMENT

(Section 202, Executive Order 11246, September 24, 1965)

"During the performance of this contract, the contractor agrees as follows:

'(1) The contractor will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

'(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, or national origin.

'(3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under Section 202 of Executive Order No. 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

'(4) The contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

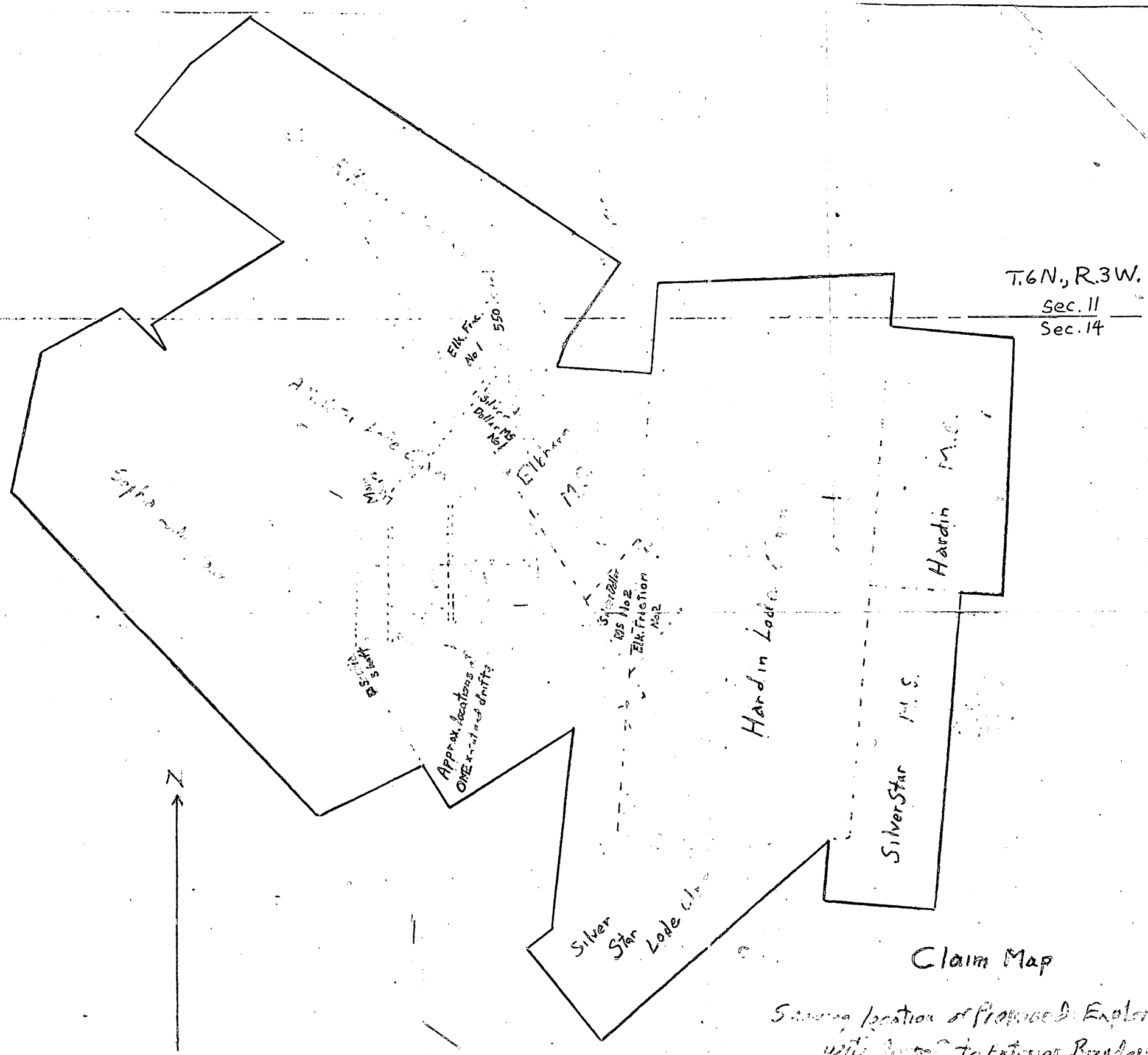
'(5) The contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

'(6) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be cancelled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

'(7) The contractor will include the provisions of Paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, That in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.'"

U. S. Geological Survey
Office of Minerals Exploration

OME-6587
Development Operating Corp.



Claim Map

Showing location of proposed Exploration with respect to Exterior Boundaries

Development Operating Corporation
Elkhorn Mine

Jefferson County Montana

300 200 100 0 300 feet

March 1967

Fig. 1

L E A S E

This Agreement, entered into this 20th day of ~~March~~ April, 1966, by and between Laura I. Walker, of Butte, Montana, the first party, Charles S. Youlden and Martha Ann Youlden, his wife, of Butte, Montana, the second parties, Anker B. Henningsen, of San Mateo, California, the third party, all hereinafter mentioned collectively as the Lessors, and Development Operating Corp., a Montana corporation, of Suite 6-10 First National Bank Building, Butte, Montana, the fourth party, hereinafter called the Lessee, WITNESSETH that:

WHEREAS each of the first, second and third parties, is the owner of an undivided one-third interest in that certain real property situated in the Elkhorn (unorganized) Mining District, in Jefferson County, Montana, hereinafter more particularly described; and

WHEREAS it would be to the interest of all the said owners that mine workings on the said mining claims be explored and examined, and development work performed to ascertain the advisability of the resumption of mining operations on said properties, and if so to proceed therewith; and whereas such exploration, examination and development will involve substantial expenditures; and

WHEREAS the first and second parties do not now desire to participate financially in such an undertaking, but the third party has indicated his willingness to organize, and finance for that purpose, the corporate fourth party under the provisions and conditions hereinafter set forth;

NOW, THEREFORE, this is to witness that the first, second and third parties, as the Lessors herein, for good and sufficient consideration, the receipt of which is hereby acknowledged, hereby lease to the fourth party as Lessee, for a term of ten years commencing at 12:00

o'clock noon, Mountain Standard Time, on the 1st day of April, 1966, those certain parcels of real property situated in the Elkhorn (unorganized) Mining District, Jefferson County, Montana, more particularly described as follows, to-wit:

1. The following described patented lode mining claims, placer mining claims and millsites, to-wit:

A. The A.M. Holter Lode Mining Claim, Lot No. 39, Survey No. 1374.

B. The Hardin Lode Mining Claim and Millsite, Lots No. 52 A and 52 B, Survey No. 2523.

C. The Silver Star Lode Mining Claim and Millsite, Lots No. 53 A and 53 B, Survey No. 2689.

D. The James R. Keene Lode Mining Claim, Lot No. 44, Survey No. 1890.

E. The Sophia Lode Mining Claim, Lot No. 3882, Survey No. 2878.

F. The Elkhorn Millsite, Lot No. 51, Survey No. 2516.

G. The Bowden Placer Mining Claim, Lot No. 6091, Survey No. 4012, in Township 6 North, Range 3 West, Montana Principal Meridian.

H. That certain portion of Lot numbered Thirty-eight (38) embracing a portion of Township numbered Six (6) North, Range Three (3) West of the Principal Meridian of Montana and known as the Turnley (Elkhorn) Placer (patented) Mineral Survey No. 1348, lying and being below a line running from corner numbered Ninety-two (92) of said placer, to the Northerly line of the right of way of the Elkhorn Branch of the Northern Pacific and Montana Railroad, where the same crosses said claim between corners numbered Eighty (80) and Eighty-one (81), and corners numbered One Hundred and Four (104) and One Hundred and Five (105), thereof, said portion of said placer consisting of all that portion thereof lying northerly of said railroad crossing between that point and the line running from the corner numbered Ninety-one (91) to corner numbered Ninety-two (92), aforesaid, as shown by the patent for said Lot 38 as the same appears of record in the office of the

County Recorder of Jefferson County, Montana, in Book _____ of U.S. Patent Record on page 53 thereof, to which reference is hereby made for greater particularity of description. Said portion of said placer claim included in this lease embraces an area of Twenty-five (25) acres, more or less;

II. Lots numbered Fifteen (15), Nineteen (19), Twenty (20), and Twenty-one (21) in Block numbered One (1) of the Townsite of Elkhorn, Jefferson County, Montana, according to the plat of the said Townsite on file in the office of the County Clerk and Recorder of Jefferson County, Montana, and recorded in Book One of Plat records at page 39.

Together with any and all water, water rights, ditches and ditch rights appurtenant to said lodes, placer, millsites or other real property, or any thereof, owned or used in connection therewith, and the right to use the same either on or off the said property, and together with all machinery and equipment owned by the Lessors, and buildings and other improvements now on said property or owned or used by the Lessors in connection with said property, and any and all ore dumps and tailing dumps situated on said property, together with all and singular the tenements, hereditaments and appurtenances belonging or in anywise appertaining to said property.

The Lessee shall on or before the 1st day of June, 1966, enter upon the said leased property and commence exploration, examination and development thereof in such manner and to such extent as the Lessee in its discretion shall determine.

In the event the said exploration, examination and development shall in the Lessee's judgment warrant further development of and production from said properties, it shall continue operations thereon, continuously thereafter as long as it shall deem advisable.

No rents or royalties shall be payable to the Lessors until the net profits of the operation, after taxes, shall have reimbursed the Lessee for its expenditures in said exploration, examination and development

operations, plus interest at the rate of five per cent (5%) per annum from date of expenduture until date of repayment (up to a maximum of ten years' interest).

After the reimbursement thereof, the Lessee shall pay or cause to be paid to the Lessors as rental for the said property a royalty of 10% of the net smelter, mill or mint returns upon any and all ores, minerals, metals and other products extracted from the said property, and upon any and all concentrates manufactured from ores extracted therefrom, and also upon all subsidy, quota or premium payments received from any governmental office, department, bureau, corporation, or other agency, provided that royalties on such payments are permitted by the statutes, rules and regulations controlling such governmental agency. Net smelter, mill or mint returns are hereby defined as the cash proceeds paid by the smelter, mill, mint or other purchaser of such ores, concentrates, metals or minerals after deduction of transportation, smelting, milling and mint charges only; provided, however, that if the Lessee shall mill ores from the said property and shall ship concentrates manufactured therefrom, it shall be entitled to deduct from the proceeds thereof, before the computation of royalties to be paid hereunder, the Lessee's milling costs, in addition to the said transportation, smelting, milling and mint charges.

One-third of the said royalties shall be paid direct to each of the first, second and third parties, the Lessors herein, by the smelter, mill, mint or other purchaser of ores, concentrates, metals or minerals, unless such purchaser shall refuse to make such direct payment, in which case the same shall be paid by the Lessee immediately upon receipt of the said proceeds. The Lessee shall notify each Lessor in writing of each shipment of ores, concentrates, metals or minerals from the said property, including dates, approximate weights, means of transportation, and name and address of smelter, mill, mint or other purchaser, and shall deliver to the Lessors copies of all assays and

smelter, mill and mint returns, and also semi-annual progress reports.

Beginning with the calendar year 1968, the Lessee shall perform during each full calendar year of this lease, at least one thousand man-shifts of labor in its operations in connection with said properties.

The Lessee shall at its own cost supply all machinery, tools, supplies, materials, equipment and labor for the said operation, and shall keep the said property free and clear of liens for labor done or materials furnished in connection therewith.

The Lessee shall post or cause to be posted and maintained in three public places upon the said property, including the entrance to its office, notices to the effect that the same is being worked and operated by the Lessee under a lease from the owners, that the Lessee is in actual control and management of the said operations, and that neither the Lessors nor the said property shall be in any way liable for labor, supplies or any other debts contracted by the Lessee, its officers, agents, successors or assigns, in connection with the said operation. The Lessee shall at all times during the term of this lease carry sufficient coverage for all its operations, and for all its employees in such operations pursuant to this lease, under one of the authorized plans of the Workman's Compensation Act of the State of Montana, and such liability and other insurance as may be required by the laws or mining regulations of the State of Montana, and also, for the protection of both Lessors and Lessee, effective and adequate liability insurance against damage to persons and property by reason of its said operations or possession of said property, and shall protect the Lessors against all costs, loss and damage which may arise by reason of injury to any persons upon or in connection with the said property, whether thereon employed or not, or which may arise by reason of injury to any person, livestock or other property as the result of any work or operations of the Lessee or of its possession or occupancy of the said property.

The Lessor shall at its own cost and expense keep and maintain the said property of the Lessors in as good condition and repair as shall

be feasible. The Lessors shall pay promptly when due and before delinquent, all property taxes levied or assessed against their ownership thereof during the term of this lease. The Lessee shall pay promptly when due and before delinquent all taxes upon any and all property of whatever nature placed upon the said premises by it during the term of this lease. The parties shall pay their respective shares of any taxes upon the production of ores, metals and minerals therefrom.

The Lessors shall have the right at their own cost and risk to be present in person or by representatives at all reasonable times during operations, but without interference therewith, and to examine the Lessee's workings, operations, and maps, and its records with respect to sampling, assaying, smelter, mill and mint returns, sales and records of shipments.

Time is of the essence of this agreement, and the Lessee's failure to make or cause to be made any payment as herein provided, or to keep or perform any covenant, promise or agreement in accordance with the terms and provisions hereof, shall at the election of a majority of the first, second and third parties, the Lessors herein, work a forfeiture hereof, whereupon any and all moneys which shall have been paid by the Lessee to the Lessors as royalties or otherwise shall be deemed forfeited to them. Provided, however, that in the event of such default on the part of the Lessee and the election of the Lessors as aforesaid to terminate this lease on account thereof, the Lessors shall give the Lessee a written notice of their intention to declare such forfeiture and to terminate this lease on account thereof, which notice shall specify the particular default or defaults relied upon, and the Lessee shall have thirty days after the giving of such written notice from the Lessors in which to remedy such default, and if the same shall be so remedied, and there be no further default during the said period, there shall be

no forfeiture therefor. The waiver by the Lessors of a particular breach shall not be construed as a waiver of any other breach, nor shall it impair the Lessors' rights resulting from such other breach.

In the event that the Lessee shall be delayed at any time in keeping or performing any covenant, promise, agreement or obligation hereunder by any act or neglect of the Lessors, or by a strike, lock-out, unusual transportation delay, order of duly constituted governmental authority, unavoidable casualty, act of God, or any other cause beyond the control of the Lessee, such delay shall not be deemed a breach of this lease or a default on the part of the Lessee constituting ground for forfeiture hereof, and during any time the Lessee is so delayed it shall be excused from the performance of such of the provisions hereof as may be thereby delayed.

Any and all machinery, equipment, implements, devices, rails, pipes, piping, tools and other property of whatever nature that may be used with or placed upon the said property or any part thereof for any purpose by the Lessee, shall be and remain its property and shall not become a part of the real estate or a fixture thereon, and all thereof shall remain personal property removable by the Lessee and may be removed from the realty by it or its successors or assigns at any time prior to the termination of this lease by lapse of time or otherwise, or at any time within six months thereafter; provided, however, that all timbering in place in any shaft, drift, tunnel or other underground working shall remain in and upon the premises and become a part thereof and the Lessee shall not remove any thereof.

In the event this lease shall then be in full force and effect, the Lessee shall at its election have the option to renew the same for a further period of ten years, by giving the Lessors written notice of its election not less than thirty days prior to the expiration of the original term hereof.

In further consideration of these premises and of the payments to be made and covenants and conditions to be performed hereunder, the Lessors severally and collectively hereby grant to the Lessee the sole and exclusive option to purchase the said property at any time during the entire term of the lease, or any extension or renewal hereof, for the sum of Two Hundred Fifty Thousand Dollars ($250,000.00) for each one-third interest, or a total of Seven Hundred Fifty Thousand Dollars ($750,000.00); provided, however, that any and all royalties and other payments made hereunder before exercise of this option to purchase shall apply upon and be credited against such purchase price. Upon exercise of this option by the Lessee with respect to each or any Lessor, and payment or tender to such Lessor of his or her proportionate part of said purchase price, such Lessor shall execute and deliver to the Lessee a good and sufficient grant deed to his or her interest in the said property and a current abstract showing merchantable title in the Lessors. The Lessors shall also deliver to the Lessee all maps, reports and other documents in their possession concerning the said property.

Unless and until the Lessee exercises its option to purchase said leased property as above provided, then in the event of any proposed sale of said property, or any part thereof, during the original or extended period of this lease by the Lessors or either of them, such owner or owners shall submit the proposed price and terms thereof to the other Lessors, if any, and to the Lessee in writing, and such other Lessors and Lessee shall have thirty days thereafter in which to elect in writing to purchase the same at said price and upon said terms, with the preferential right in the other Lessor or Lessors, if any. Provided, that in case of any sale of said leased property, or any part thereof, to any party or parties other than the Lessee, the said property sold shall nevertheless remain subject to all the terms and conditions

of this lease, including the option to renew and the option to purchase hereinabove set forth. Upon the termination of this lease in any way the Lessee shall in the same manner give the Lessors notice of the proposed prices and terms of any proposed sale of its machinery, tools, supplies and equipment, and the Lessors shall have thirty days thereafter in which to elect in writing to purchase the same at said prices and upon said terms.

The Lessee shall have the right, under the terms and subject to all the conditions of this agreement, to remove ores, waste, water and other materials from the said leased property and to carry on general mining operations pertaining thereto by means of shafts and workings on other properties, and to remove ores, waste, water and other materials from other properties and to carry on general mining operations pertaining to such other properties on the surface of or through shafts and workings on the said leased property; but until weighed and sampled, all ores extracted and removed from the said leased property shall be kept separate from ores extracted from any other properties.

The Lessee shall have the right to cancel, terminate and surrender this lease and relinquish the property to the Lessors at any time during the original or extended term hereof by giving the Lessors thirty days prior written notice; provided, however, that the Lessee shall remain liable for the payment of all royalties due or accrued at the effective date of such termination.

Upon termination of this lease by lapse of time or otherwise, the Lessee shall surrender peaceable possession of the said property and every part thereof to the Lessors, and the Lessors may take immediate possession thereof; provided, however, that the Lessee shall have six months after such termination, as hereinabove provided,

within which to remove all property of whatever nature placed by it upon the said premises, and not belonging to the Lessors.

Any notice to be given under any provision of this agreement shall be deemed delivered when deposited in the United States Post Office, as sealed, first-class, prepaid, certified or registered mail, addressed to the several parties hereto as follows:

1. To the first party at 904 W. Platinum Street, Butte, Montana;

2. To the second parties at 1159 Steel Street, Butte, Montana;

3. To the third party at 200 Santa Inez Road, San Mateo, California;

4. To the fourth party at 6-10 First National Bank Building, Butte, Montana.

All royalties shall be paid or sent to the Lessors at the same addresses, one-third to the first party, one-third to the second parties, and one-third to the third party.

Provided, however, that upon written notification to the other parties, their successors or assigns, by any party, successors or assigns, of a change of such address, royalties shall be paid and notices given, to such new address.

This agreement shall extend to and be binding upon, and shall inure to the benefit of the heirs, executors, administrators, successors and assigns of the respective parties hereto.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands the day and year first above written.

Laura L. Walker
First Party

Charles S. Spoulden
Martha Ann Spoulden
Second Parties

Arthur B. Hemingway
Third Party
by Robert A. Hemingway
His Attorney in Fact

Lessors

Development Operating Corp.,
a Montana corporation
by Robt. R. Tally
President Gen. Mgr.

Attest:
Amanda Johnson
Secretary

Lessee

STATE OF MONTANA)
: ss.
COUNTY OF SILVER BOW)

On this 20th day of ~~March~~ April, in the year 1966, before me, _____ [illegible], a Notary Public for the State of Montana, personally appeared Laura I. Walker, to me personally known to be the person described in and whose name is subscribed to the within instrument, and acknowledged to me that she executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my [illegible] the day and year in this certificate above written.

[illegible]
Notary Public for the State of Montana
Residing at Butte, Montana
My commission expires June 25, 1966

STATE OF MONTANA)
: ss.
COUNTY OF SILVER BOW)

On this ~~[illegible]~~ 20th day of ~~March~~ April, in the year 1966, before me, _____ D. L. Holland, a Notary Public for the State of Montana, personally appeared Charles S. Youlden and Martha Ann Youlden, his wife, to me personally known to be the persons described in and whose names are subscribed to the within instrument, and severally acknowledged to me that they executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal the day and year in this certificate above written.

D. L. Holland
Notary Public for the State of Montana
Residing at Butte, Montana
My commission expires April 6, 1968

Book 13 of Misc. Page 65

STATE OF Oregon)
COUNTY OF Multnomah) ss.

On this 22 day of ~~March~~ April, in the year 1966, before me, H. E. Rosendahl, a Notary Public for the State of Oregon, personally appeared Robert A. Henningsen, known to me to be the person whose name is subscribed to the within instrument as the attorney in fact of Anker B. Henningsen, and acknowledged to me that he subscribed the name of Anker B. Henningsen thereto as principal, and his own name as attorney in fact.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my [illegible] the day and year in this certificate above written.

NOTARY PUBLIC STATE OF OREGON

H. E. Rosendahl
Notary Public for the State of Oregon
Residing at Portland, Oregon
My commission expires 12-20-66

STATE OF MONTANA)
COUNTY OF SILVER BOW) ss.

On this 25 day of ~~March~~ April, in the year 1966, before me, [illegible], a Notary Public in and for the State of Montana, personally appeared Robert E. Tally, to me personally known to be an officer, to-wit: the ~~President~~ General Manager of Development Operating Corp., the corporation that executed the within instrument, and acknowledged to me that such Corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal, the day and year in this certificate above written.

87132

[illegible]
Notary Public for the State of Montana
Residing at Butte, Montana
My commission expires June 25, 19[illegible]

STATE OF MONTANA, County of Ravalli, hereby certify that [illegible]

Indexed

MME FORM 6 REFERENCE SLIP

REV. 2-59 OFFICE OF MINERALS EXPLORATION

TO:		DATE	INITIALS
1.	Chief, OME	12/23/66	
	Re: Transmittal of Application for		
2.	Financial Assistance (Silver?)		
	Development Operating Corp.		
3.	Elkhorn Silver Mine		
	Jefferson County, Montana		
4.	M. L. S.		
	M. L. Smelser for		
5.	D. R. MacLaren		
FROM:	Fld. Officer, Reg. I		

FOR: Check items for action desired

X Action ____ Reply for signature of ____

____ Approval ____ Investigate ____ Surname

____ Comment ____ Recommendations ____ Signature

____ Conference ____ Rewrite ____ File

____ Instructions ____ Your information

REMARKS: In order to save time, I am forwarding the attached application. Mr. MacLaren will send in his comments when he returns to the office on 1/3/67. There was a former DMEA contract (Idm-E739 - DMEA-3385), Elkhorn Consolidated, Inc., Dunstone Mine, Jefferson County, Montana, on this property.

INT.-DUP. SEC., WASH., D.C. M56300-62

RECEIVED
APR 17 1967
O.M.E.
SPOKANE, WASH.

MME Form 40
Jan. 65

RECEIVED
DEC 15, 1966

Budget Bureau No. 42-R1508
Approval expires Dec. 31, 1968

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

OFFICIAL COPY
H. F. RECEIVED
DEC 27 1966
MINERALS COLE

APPLICATION FOR FINANCIAL ASSISTANCE IN MINERALS EXPLORATION

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

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

Development Operating Corp.
P.O. Box 14
Boulder, Montana

APPLICANT DO NOT USE THIS BLOCK

DOCKET NUMBER: 6587

DATE RECEIVED: 12/27/66

REGION: I

DIVISION CODE:

BUSINESS ORGANIZATION *(Check one)*

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

STATE IN WHICH FIRM IS ORGANIZED: Montana

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

NAME	ADDRESS	TITLE
Anker B. Henningsen	2282 Arbutus Rd. Victoria B.C. Canada	President
Robert A. Henningsen	2627 S.E. 82nd Ave Portland, Oregon	V. Pres.
Robert E. Tally	P.O. Box 14 Boulder, Montana	Treas. & M'gr.
Howard A. Johnson	1st Nat'l Bank Bldg. Butte, Montana	Sect.

MINERAL(S) FOR WHICH YOU WISH TO EXPLORE

ESTIMATED COST OF PROJECT
$

PROPERTY NAME: Elkhorn Silver Mine
LOCATION COUNTY: Jefferson
STATE: Mont.

GENERAL INSTRUCTIONS

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

CERTIFICATION

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

DATED

X Anker B. Henningsen
BY *(Signature)*

President
TITLE

...ully false statement or certification to any Department or Agency of the United States Government is a criminal offense. ...itle 18, Sec. 1001.

INFORMATION REQUIRED WITH THIS APPLICATION

1. Financial Eligibility:

(a) Submit evidence of efforts made within 90 days preceding the filing of this application to obtain credit from your bank of account and at least one other banking institution or other private source of credit. Such evidence shall include true copies of correspondence which show: (1) date of loan request, (2) amount and terms requested, (3) proposed use of loan funds, and (4) the replies from credit sources. If the loan was offered under terms which you consider unreasonable, state why you consider them so.

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

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

2. Applicant's Rights in Land:

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

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

(c) For all land or mineral rights encumbered or not owned, submit five copies of Lien and Subordination Agreements on MME Form 52. If the agreements cannot be obtained, state reasons and provide copies of letters of refusal.

3. Physical Description:

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

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

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

(d) Describe known ore reserves, giving quantities and grades and sampling methods used. Support your statement with copies of assay certificates and assay maps if available.

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

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

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

4. Accessibility of Property:

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

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

5. Exploration Work:

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

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

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

6. Experience:

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

7. Estimate of Costs:

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

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

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

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

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

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

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

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

P.O. Box 14
Boulder, Montana
11-28-66.

U.S. Dept. Of Interior
Office Of Minerals Exploration
Geological Survey
So.157 Howard Street
Spokane, Washington 99204
Att'n. D.R. MacLaren.

Dear Mr. MacLaren:

Attached hereto please find two copies of our application for D.M.E. loan on the Elkhorn Silver Mine, located in Jefferson County, Montana, for your consideration.

If there is further information required please contact me at my home:

Robt. E. Tally
1721 East Mountain Street
Pasadena, California 91104
Tel: 213-79-73747

Yours very truly,

Robt. E. Tally

Robt. E. Tally
Mining Engineer

RECEIVED
DEC 15, 1966

Proposed Work - see p. 9-10-11

THE ELKHORN MINE

This mine is located approximately 9 miles N.E. of Boulder, Montana, in Jefferson County. Access is by 7 miles of paved roads on Highway 281 to a well marked sign "Elkhorn" and 12 miles of fair dirt road.

The property contains ten patented claims totaling 110.5 acres. It is jointly owned in equal individed one-third interests by Mrs. David C. Walker and Mr. Charles S. Youlden, both of Butte and Anker B. Henningsen of Victoria, B.C., Canada. Lien & subord. required can be obtained - see letters to Banks.

The town of Elkhorn is practically a ghost town, attracting considerable tourist trade in the summer. Of the reported 3000 residents once populating the immediate area, there are now four families in permanent residence and several others that have cabins that have been kept up for use in summer and hunting season. The balance of about fifty old houses have deteriorated in most instances to near collapse.

The elevation of the collar of the Elkhorn Shaft is 6610' and has heavy snow in season. The road is part county and part forest service and is kept open to the mine all winter long.

The Montana Power Company serves the town and mine with a 12,000 volt power line.

Several old buildings on the mine property are in a condition of near collapse and are a fire hazard and not safe to walk around. No equipment from previous operations remains on the mine property, with the exception of an old steam-air hoist near the collar of the Sophia Shaft. When was this written?

The town of Boulder with a population of around 2,000 is located on Highway 91, 36 miles from Butte and 30 miles from Helena and is served by the Great Northern Railway.

Butte, chiefly because of the Anaconda Mining Company operations there, is the logical mining supply center, many of the leading mining equipment manufacturers having outlets in the immediate area. American Smelting & Refining Company have their lead and silver smelter in East Helena; the Anaconda copper smelter is located in Anaconda and their zinc plants in Great Falls and Anaconda.

Domestic water is available from springs a short distance from the property and for industrial purposes the mine currently makes 200 gpm.

The mine was opened in the late 1870's and was in almost continuous operation from 1881-1912. An English syndicate acquired and operated the mine from 1888-1899. Longmaid purchased the property at that time and operated until 1912, although idle from 1902-1906, because of the depressed price of silver. Production records show a recovery of about $14,000,000, chiefly silver. Since 1912 very little underground mining has been done. Tailings ponds and mine dumps have been reworked to the point of almost exhaustion of any mineral values. Some underground leasing was done by the Elkhorn Mining Co. from 1945-1951. Shipments of approximately 7000 ton were made in this time to the Helena Smelter, the settlement sheets of which show a weighted average metal content of 0.0178 oz Au; 11.10 oz Ag; 12.15 % Pb; 2.55% Zn 0.14% Cu; with a net return of $22,900 or $3.29/T, after payment of rail freight, smelter charges, 10% royalty to owners and 5% to original lessor. Some 100 tons of these shipments resulted in rejection. In all fairness to the lease production, the ore is most difficult to evaluate by visual methods and only an assay wall is positive.

In 1954 the Mentor Exploration Co. L'td. of Toronto, Canada, leased the property, agreeing to spend a minimum of $25,000 on an exploration program, with an option to purchase. The mine was dewatered to the 550' level and contracts let for diamond drilling from the 550' and 110' levels from the main working and from the Sophia workings. Some 34 holes were drilled amounting to 7000'. At this time Mentor was also leasing the Basin Jib Mine located at Basin, some 9 miles south of Boulder, and encountered some free gold, causing considerable excitement among the principals. Interest in the Elkhorn waned to the extent that sludge samples were totally disregarded and not picked up from the drill site, nor analyzed. The core was logged and split where deemed advisable and shipped to Toronto to the head office. The logs with assay results, when finally acquired were of a negative nature, in so far as outlining any major deposits of ore is concerned. Considerable mineralization was encountered along with seams, fractures, etc. The prime drill contractor, a graduate mining engineer of good professional standing states that he encountered good ore in almost every hole he drilled and that in his humble opinion the deposit has real potential.

The brittle character of the rich ore is pointed out in Weed's report on page 64, where he states "The fine particles of ore carried up in pumping mine waters pass through settling tanks in which the slimes are caught. These slimes have averaged over 200 ounces of silver and 4-5 percent lead, and the waste waters from the cobbing house yields slimes carrying 77 ounces of silver and 4% of lead." It is known that core recovery in brecciated zones where mineralization was likely to occur was very low as can be seen in the log of Hole 32, where core recoveries of 4-25% are listed.

Walt Smith, the miner who helped split the core, (and who probably knows the ore better than anyone, having worked in the mine for years) states that in many holes, broken core was not recognized as ore and no assays were made. For example, in Hole 13, the core from 0-40' was not assayed although in his opinion it was good ore.

In view of the above it is difficult to accept the diamond drill results as representing true values of the ore and mineralized zones penetrated by the drill holes.

According to King, Longmaid purchased the Hecla Mine and closed the Elkhorn Mine in 1912. In June 1910, all available ore was extracted and they were prepared to shut down. The manager decided to explore the footwall possibilities previous to a stop order and mined approximately 86,000 tons of footwall ore, averaging 19.5 oz. Ag.; 0.025 oz. Au.; and 1.0% Pb. Heads of this mineral content today would have net value of $20.64 smelter returns based on 20::1 concentrate with an 80% recovery. The Hecla looked like another Elkhorn Mine, without the high investment of the Elkhorn, so all development work was discontinued and the mine closed. Longmaid did not make a go of the Hecla and attempted to make a deal on the Elkhorn but could not get together on a price and the Elkhorn has been virtually idle since that time.

The Elkhorn is a well developed mine with three shafts and mine levels cut at 100' intervals, slope distances. The main shaft, called the Elkhorn shaft, is inclined on a 32° slope down to the 1050' level, where it steepens to about 45° with main haulage levels through the ore zones on 100' intervals. It is approximately 8 x 10 in size and driven adjacent to the shale-dolomite contact, untimbered except in caved areas. This shaft was caved from the collar down 150' requiring heavy timbers, short sets, driving spiling, etc., but as of this date is now open to this point. A small amount of caving is found between 1250' and 3600' S. D. The worst of the caved area of the shaft is over. It is expected that the shaft is open, other than for cleaning, from the 350 to 1050' levels, no timbering required.

The air shaft is also inclined 40° on the contact down 270' from which point it connects through a doghole to an old stope, which in turn is open to the 450' level. It has been used mainly for ventilation purposes and is not a service shaft, other than a means of entry and exit. It is now served with an electric hoist. This

shaft was sloughed from a few feet of the collar to the dogleg. This was hand-mucked, the shaft rigged with track and pipe, electric wiring and lights and we started pumping from the 110', following the water with track and mine car for disposal of the muck at the surface.

The Sophia Shaft is vertical and down 110' serving the footwall ore zone at this elevation. It is currently filled for an approximate distance of 35' in the very middle, and open at the top and bottom for equal distances. It is bulkheaded just above the 110' level for purposes of safety in entry and exit to the Sophia workings. Current entry to the Sophia workings is through the stopes open from the 450' level.

Until such a time as the Elkhorn Shaft is open, there is no service shaft to the underground workings, although one can get through both the Air Ahst and Elkhorn Shaft to the 450 and 550' levels.

Since the mine was filled with water to about 100' below the collar of the Air Shaft, it was mucked out to this point, timbered where necessary, made safe and a 50 H.P. centrifugal motor pump installed. On the average our pumping capacity has been 300 gpm, the mine making 200 gpm and the gain or drawdown 100 gpm. The current drawdown is 1"/hr although the average from the start has been 0.53"/hr. The current buildup is 1½"/hr, when the pump is down. We have continued pumping down below the 550' level, winding the pipe and hoses through the stopes and now have established a station with float valve control at this point, holding the water at this elevation until such a time as the Elkhorn Shaft is open to this depth. A new pumping installation will be used in the Elkhorn Shaft and the Air Shaft installation moved to the Elkhorn Shaft down to the 1050' level. The water will be held at the 550' level until the Elkhorn Shaft is opened to this elevation. Then it is proposed to commence the exploration program in the footwall area by driving 1500' of X-Cut and drift in the mineralized zone of the footwall from the 550' level, which is in itself a six months program. The pumping program will be carried on from the Elkhorn Shaft down to the 1050' elevation, such that about the time the exploration program is complete on the 550' level, the 1050' level will be cleaned out and again the water held just below the 1050' level while a similiar exploration of 1500' of X-Cut and Drifts is conducted on the 1050' level.

Mr. Robert E. Tally, Consulting Engineer of Pasadena, California, was retained to evaluate the mining property in 1965 and after inspection on the surface, recommended dewatering the mine in stages

and take a look at it underground. This recommendation was based chiefly on the excellent reports of Weed, King, Swayne and others, along with talking to people associated with and working in the mine during previous operations, including that of Longmaid. Equipment was acquired, the Air Shaft mucked out and pumping operations commenced June 13, 1966, and was put on a hold basis on October 28, 1966, a pumping time of approximately four months. Down time was negligible.

The early operations hoisted all the ore mined to the surface where it was hand-cobbed. The English syndicate had 38 oz. heads and Longmaid 10 oz. heads. The reject from the cobbing went to the mine dump and for Longmaid 10 oz. material went direct to the mill and anything over that figure was shipped to the smelter. All mine extraction was by single jack and moil, even after the advent of machine hammers, mainly to control the quality of the ore and to eliminate overbreaking and dilution. The ore was difficult to differentiate and extreme care was exercised by those responsible.

The rock in most instances has held up remarkably well over the years, with an occasional stull placed normal to the hanging and footwalls, averaging about 15'. These old timers took pride in their work, mined clean, leaving picture book results. Very little development work was done by the Longmaid operation, except for that in the footwall area, chiefly from the 1050' level on down. Subsequent work by leasers robbed the pillars, undermined the shaft in places, same for haulage levels, didn't mine clean, permitting dilution of the ore to the point that in some cases it was not accepted by the smelter.

On July 11th this year, work was commenced on opening the Elkhorn Shaft with dozer at the collar, followed up with an air slusher, on down under the foundation of the old hoist house. The hoist house, head frame and part of the mill was razed to clear collar operations and the shaft opening, as cleaned, was square setted. Bad ground was immediately encountered, caving to the surface, necessitating spiling, short sets, breast board, etc. We are now through this caved area and in under the brown in solid ground and open ground in sight for another 75'. Progress in this caved area has averaged 1.0' per day of double shift, working two forty hour shifts per week.

GEOLOGY

The geology of the area and the mine itself, has been thoroughly described by Weed, Klepper and others; and by King and Swayne whose reports are included with this application. In order to maintain continuity it will be recapped briefly.

GENERAL GEOLOGY

The Elkhorn district lies at the eastern margin of the Boulder batholith, an intrusive granitic mass 25 by 75 miles in extent, Fig. 1-a. Rocks bordering the batholith, in this locality are folded and altered limestones, sandstones, and shales of Paleozoic age, Fig. 1-b. They comprise the long ridges lying east of Elkhorn. A large variety of rock formations and types are present and, although the district covers but a small area, evidence of a long series of profound disturbances can be found within it.

The sedimentary rocks are so metamorphosed locally that their original characteristics may be obscured. However the sedimentary origin is apparent and the attitude of the beds can be made out. They embrace a part of the pre-Cambrian Belt series, together with all of the Paleozoic formations of Montana. Mesozoic strata are present one to three mies east of Elkhorn.

The igneous rocks, intrusive into the sediments, range from gabbros and diorites which are the oldest, to aplitic granite which is the youngest; and andesitic lavas comprise a large part of the Elkhorn mountains two to five miles northeast and east of the district. The ore deposits, essentially replacements of dolomitic Cambrian limestones, are related to the processes accompanying the intrusions, and are thought to be late Cretaceous or early Tertiary in age. Individual rock types are thoroughly described in the accompanying reports and will not be covered herein.

The stratified rocks cover a relatively small part of the district, and their normal characteristics have been in a large part obliterated locally by the metamorphism they have undergone. The altered strata are traceable eastward or southward into corresponding unaltered strata. "The rocks are all tilted and dip easterly at angles from 30 to 55 degrees." Lithologic distinction and sub-division are difficult in the area of meta-

morphism, and sometimes impossible to make from hand specimens alone.

The rocks have been divided into lighologic units and correlated with the beds in nearby parts of the state, although a different set of local names has been used. The individual formations have been thoroughly described by the previously mentioned authors, but because of their importance in regard to the Elkhorn mine the Cemetery limestone and Elkhorn hornstone will be re-described here.

Cemetery Limestone: This limestone is exposed at Elkhorn cemetery, hence its name. Its total thickness approximates 650 feet. There are several members. The lowest consists of 70 feet of a blue limestone; the next above, 50 feet in thickness, is a dark blue limestone; the third member is made up of about 330 feet of light blue limestone; the top 200 feet includes a white or light gray limestone having a crystalline granular texture. The Cemetery dolomite-limestone at Elkhorn corresponds to the Pilgrim dolomite found in the rest of the state. Most of the districts ore deposits lie in this formation.

Elkhorn Hornstone: This formation was correlated with the Dry Creek shale by Perry, and with the Red Lion formation by Klepper. It is about 40 feet thick and appears to be a "cap rock" for the main Elkhorn ore deposits. It consists of thin-bedded dense quartzites and fine grained calcareous shales much indurated.

STRUCTURE

The sedimentary formations have been tilted to the east and dip 30-55 degrees in that direction, and strike approximately north. In the area covered by the Holter and Keene claims the prevailing attitude is disturbed by local folding of the Elkhorn shale and the limestones directly above and below it. Minor faulting and fracturing of the limestones occur in the vicinity of this folding and is believed to have resulted from it to some degree. The breccia zones and minor slip planes described in the Elkhorn workings and ones visible on the 65 foot level of the Sophia probably have resulted from minor adjustments to the folding.

ORE BODIES

The most complete description of the main (hanging wall) ore bodies was by Weed, whereas the report by Rowland King gives the most thorough description of the footwall deposits. Of particular importance in Kings report are the letters from Mr. Josiah Bowden

who was manager for the Longmaid interest, and who was the last person to operate the property as a full scale mine.

Prior to 1902 the ore was mined from two shoots deposited along two NE plunging minor anticlinical crests on the east flank of a major anticline. The minor anticlines merge near the surface and diverge down the plunge to give the deposit the form of an inverted V. Fig. 4-a. Small amounts of ore were mined from irregular replacement bodies in the footwall of the main limestone shale ore horizon. These Weed called footwall bodies and noted that they were "isolated bodies connected by fissures or rusty stringers with quartz ore shoots, but of irregular shape and position, and often of large size." A stratification plane marked by seams of argillaceous material occurs at 35 to 50 feet stratigraphically from the dolomite-shale contact and was considered to be footwall of the deposit by the original operators. This is commonly called the "40 foot contact" as it occurs approximately 40 feet horizontally from the hanging wall of the main ore bodies. The English Syndicate did no mining and practically no exploration in the footwall beyond this "contact".

During the first few years of Longmaids operation he was content merely to produce ore that the original operators could not handle in their mills. When this was almost exhaused his manager, Mr. Bowden, began to investigate the possibility of finding new deposits deeper in the dolomitic footwall. Because of his successful efforts the mine operated for two more years producing 86,000 ton ore in the footwall area before being shut down and sold to the present owners. According to Bowdens letter to Rowland King they "developed the fact that there was a series of ore bodies on contacts 40, 80 and 160 feet from the hanging wall". Most of their work was on the lower levels. Bowden mined ore on the 40, 80 and 160 contacts below the 1050 level and on the 40 and 80 contacts above the 550 level. Fig. 5-a. No mining was done on the 80 and 160 contacts between the 550 and 1050 levels.

In 1929 the Sophia shaft was sunk to a depth of 115 feet and the 110 level established for the purpose of exploring the footwall territory. Ore horizons were found at 230 and 360 feet from the dolomite shale contact by this work. The 360 contact was mined sporadically until 1951, Figs. 5-b to 5-j; and some minor stoping was done on the 230 contact.

THE PROGRAM

Since the mine is under water below the 550' Level and since there is no main service to the underground workings until such a time as the Elkhorn is opened up to below the 550' Level, any exploration program must therefore contain these two items as well as the exploration proper.

The water is currently being held stationary just below the 550' Level. The Elkhorn Shaft is being cleaned and timbered and currently is open to the 200' Level, having gone through 150' of badly caved ground, requiring spiling, timbering with 10 x 10' timbers, using half sets in particularly bad ground. This caved area is cleared and timbered under a brow of solid ground. The shaft work is outlined in detail and is estimated to be down to about the 330' Level by January 15th and the balance should be under control at that time at less cost and considerably less time.

Our plan of procedure is to continue to pump to hold the water at the 550' Level until the Elkhorn Shaft is open to the 550' Level, at which time the level will have been prepared as to proper grade, drainage, track, pipe, bridging and catwalks, so that it may serve as a main entry for men and equipment. Some 500' of X-cut is planned from the 550' Level to intercept the mineralized ore zones at 230, 360 and 480 feet horizontally from the strike of the ore on the 550' Level. As these ore zones are encountered they will be explored both north and south by drifting along the strike a total of about 1000', making a program of some 1500' of X-cut and drifting. While this is going on the pumping station will have been moved from below the Air Shaft to the Elkhorn Shaft and pumped down to below the 1050' Level and the water held there until the exploration program is complete on the 550' Level. The clearing of the Elkhorn Shaft will follow the pumping and since the shaft is reported to be open this will not be a major operation. The 1050' Level will then be cleared and equipped with track and pipe, such that if the exploration program proves favorable a similiar program of 1500' of X-cut and drifting on this level will be established. Detailed cost estimates of this program, with capital expenditure, cash flow and time schedule are included in the scope of this application.

THE TARGET

After rehabilitating the Elkhorn Shaft to the 550' Level we propose to explore the footwall area on this level by means of x-cutting and then drifting along mineralized zones in the footwall beneath the main orebody. These mineralized zones in the footwall have been locally termed contacts, so many feet from the main shale-dolomite contact, and are known to exist the following horizontal distances from the contact, namely 40, 80, 160, 230, 360 and 480'.

Weed definitely established that the ore shoots occur under arches or flexures on the east limb of a major anticline. With one exception, the only footwall orebodies mined up to 1899 were those found up to 35-50' from the shale hanging wall. At this distance a thin seam of argillaceous limestone, 1/4 - 2" in thickness occured which prior to Longmaid's operations was considered the footwall of the ore zone. However, the same processes which caused arching and brecciation along the hanging wall contact, also caused similiar conditions in the footwall dolomite, permitting the entry of mineralizing solutions.

Mr. Josiah Bowden, manager for Longmaid, discovered new footwall orebodies 80 and 160' from the hanging wall. These deposits were mostly in the lower levels and enabled Longmaid to continue operations for another twenty-seven months after exhaustion of the ore obtained by cleaning up the old stopes left by the English Syndicate. In the interim the Hecla Mine was purchased by Longmaid and they were anxious to commence operations there and sold the Elkhorn Mine without fully exploring the footwall potential. King states that some 86,000 ton were mined from these lower footwall orebodies during a period of twenty-seven months from 1910 - 1912. The value of this ore today is about $2,500,000. In Bowden's letter to King in August, 1939, he wrote "it seems to me there are great possibilities to develope in the footwall of the Elkhorn Mine, and the section from the 450' Level to the 1050 ' Level has not been developed to any extent".

The sinking of the Sophia Shaft in 1929 and the leasing done in the middle forties disclosed ore in the footwall at 230 and 360' from the hanging wall contact.

Sampling the Sophia area shows good mineralization. Narrow samples varying in width from 2"-5' show silver values in excess of 100 oz/T. Wider samples show values of 2-10 oz/T. The ore zone at the 230' contact in the Sophia 20 and 100' Levels shows good structure and mineralization. The supplement shows mapping of this area in 8' floors.

Mentor's drilling in the fifties shows the mineralized ore zone at the 230' "Contact" to be continuous from the surface to 100' vertically below the 550' Level. It also shows a wide well mineralized ore zone at about 480' from the hanging wall. Stopes mined on the 80' mineralized zone are accesible on the 450' Level.

To summarize, ore occurrences are known in the footwall area at 40, 80, 160, 230, 360 and 480 feet from the shale hanging wall. Observation indicates that mineralized ore zones not wide enough to make an orebody are marked by mineralized seams that when followed lead to the ore. Quoting Bowden, "Whenever a knifeblade of ore can be found, it pays to follow it up and develop it, as it often leads to another lense of ore".

A program of exploration into the footwall area at the 550' Level can be expected to be successful in opening up orebodies at several of the known ore "contacts". If results here justify further work, a similiar program will be considered on the 1050' Level.

LABOR

The prevailing labor rate in the area for experienced miners is $3.00 per hour. Currently we are paying the Butte scale of wages in effect as of May 1966, $2.60 per hour or $20.76 per day. Since that time there has been an increase in this scale, although we are under agreement to an "as is" scale until January 15, 1967. The Elkhorn Queen Mine about two miles from us is currently paying miners $3.00 per hour and we have agreed to meet that scale on that date.

Industrial Accident Insurance cost us 10%, Social Security 4.2% and Unemployment 2.7% or a total of 16.9% on all wages.

The following cost estimates are based on work from January 15th in timewise and for labor scale.

PUMPING

1. Holding water at 550' Level, while Elkhorn Shaft is opened:

Power cost - 20,000 kw hrs/mo - 1½/mo period	$ 286.00/mo
Labor: - Electrician and mechanic 1/2 time $650.00/mo x 1½	429.00

2. Pumping installation at Elkhorn Shaft:

Crew 4 men - 2 weeks time:	Working foreman	$ 325.00
	Hoistman	308.00
	Topman	308.00
	El. & Mech.	
	Total	$ 941.00

3. Pumping 550' - 1050' Levels - 5 mo. period.

Maximum head - 600' @ pumping capacity of 300 gpm. Present pump rated O.K. for 500' head. Second pump for the additional 100' head and holding at 1050' level while driving X-cuts and drifts on 1050' Level.

Time: 300'/2' per day = 150 days or 5 mo. plus moving from Air Shaft to Elkhorn Shaft and installation = 6 mo. Total

Labor:	Electrician and mechanic 1/2 time $650.00/mo/2 x 5 mo. =	$ 1620.00
Power:	24 hr. day & 7 day week. 300-500' head 30,000 kwhr for 3 1/3 mo. 500-600' head 45,000 kwhr for 1 2/3 mo. Lowering pump every 10'	$ 1230.00 750.00 350.00
	Sub-Total	$ 3950.00
	Total	790.00/mo

4. Holding water @ 1050' Level - 6 mo. period

Labor:	Electrician & mechanic 1/2 time	$ 1950.00
	Power 2/3 time = 30,000 kwhr	2200.00
		$ 4150.00/6 mo.
		700.00/mo.

RECAP PUMPING

1.	Holding Water @ 550' Level 1½ mo.	$ 1404.00
2.	Pump Installation	941.00
3.	Pumping 550' Level - 1050' Level - 5 mo.	3950.00
4.	Holding water @ 1050' Level - 6 mo. period	4150.00
	Total	$10445.00

For itemized pumping equipment see New Equipment Cost List, Item No. 12

03

RECAP OF SHAFT WORK

To 550' Level - Distance 570'

Interval	147-220'	220-245'	245-280'	280-340-	340-360'	360-570'	Total
Feet	73	25	35	60	20	210	423
Days	6	9	8	5	5	11	48
Labor	$1014	1522	1353	846	846	1860	7441
Timber	--	320	320	240	286	60	1226
Rail & Pipe	315	110	156	267	89	935	1872
Sills	58	20	28	40	32	117	295
M & Repair	76	114	102	64	64	140	560
Power	90	135	120	75	75	165	660
Total	$ 1553	$ 2221	$ 2079	$ 1532	$ 1392	$ 3277	$ 12054
Cost/Ft.	$ 21.30	$ 89.00	$ 59.30	$25.50	$70.00	$15.60	$ 28.50

From 550' Level - 1050' Level. Distance 500'/20' = 25 da.

500' x $15.60 per foot open shaft 78 $ 7800

Labor	$169.10/day
Power	15.00
M. & R.	12.70
Rail & Pipe	4.45/ft.
Sills	.80/ft.

Condition of Shaft:

148-220' Good walls and back. Half filled with muck
220-245' Under open cave, shaft plugged to top of timbers; stoped out on right wall, condition of left wall unknown at this date.
245-280' Timbered & lagged. Left wall lagged 245-260' Good wall on left. 260-280'. Right wall stoped out, but holding.
280-340' Open shaft, partly filled with slough and slabs. Right wall stoped out in part.
340-360' Floor undermined for about 20'
360-570' Shaft in good shape with minor slough on floor.

ELKHORN SHAFT

Data:

Size: 8 x 10', inclined @ 32 degrees, where open.

Depth: 2300' sloped distance. 1480' vertical distances

The shaft was caved from the collar to approximately 150' s.d. This has been bad ground, caving to the surface, requiring spiling, short sets, etc. The average daily advance has been 1.0' double shift. The shaft is now caught up with 10 x 10 timbered square sets and is now under solid ground. Future progress will be considerably faster and at less cost.

Details:

147-220' This requires mucking out, laying of track and pipe, etc.
73' x 10 x 8 x 1/2 = 2400 cu. ft.
Muck 40 cars/shift in 16 cu. ft. cars or 14 cu. ft. with slusher = 560 cu ft/shift or 1120/double shift, or 3 days mucking.
One day shifting slusher ramp.
Two days laying track sills, rail, pipe and cleaning up
Total of 6 days @ 12' advance/day.

220-245' Forepole through 25'
Place posts & caps every 3' or 9 sets required

2 x 9 = 18 posts x 7'	=	126'	of 10 x 10" timber
9 caps x 6'8"	=	60'	Do.
9 double caps x 6'8"	=	60'	8 x 8"
Girts		36'	8 x 8"
Total		2242	Ft. B.M.

4 x 6" for forepoles and top lagging 7 pcs 8'/set.
56 x 8 = 448 lin. ft. or 1000 FBM
Side lagging 6 only 2 x 10" on each side
12 x 25 = 300 lin. ft. or 500 FBM
Total 3740 FBM or 4000 FBM

25 x 10 x 10' = 2500 cu. ft.
Muck 20 cars/shift or 240 cu. ft.

Mucking	5 days
Moving slushed ramp	1 day
Timbering & spiling	3 days
Total	9 working days.
	1 set/day

245-280' Now timbered with posts and caps.
Undisturbed timber will be reinforced with pony sets.
Sets required = 7 sets, doubled

7 x 4 = 28 posts x 7' of 10 x 10"		= 196'		
14 caps x 6'8"	Do	= 95'		
Girts	8 x 8"	= 42'		
	S.T.		2644	FBM
Top lagging 3 x 10"		140'	350	FBM
Side lagging, 1 side 2 x 10		210'	350	FBM
Stull, on side			400	FBM
	Total		3744	FBM
	Use		4000	FBM

Mucking: 10 x 10 x 35' = 1750 cu. ft.
This muck can be slushered up hill, loaded into cars and hoisted at the start to make a good opening and then slushed down shaft.

Time:	Mucking	3 days
	Timbering	3 days
	Laying sills, track, pipe	2 days
	Total	8 days

280-340' This area is open but looks dangerous. Will require occasional sets and many stulls and head boards to control the side of the shaft. Muck should be hand gobbed to side or slushed down to the hole at 340-360' which has undercut the shaft here. Will assume 1/2 distance is protected by drift sets at 5' spacing, making 6 sets of posts and caps.

Posts 12	10 x 10"	84'	1034	FBM
Caps 6	Do	40'	1034	FBM
Top Lagging	3 x 10"	125'	375	FBM
Girts	8 x 8"	40'	215	FBM
	Total		1624	FBM
	Use		1800	FBM

20 Stulls Rd. Timbers and Hd. Boards 1200 FBM

Time: 5 days to clean, set timber and carry track.

340-360' The shaft has been undermined for about 20' here and it has to be worked from the top. It is proposed to bridge this solid with 30' length round timbers averaging 12" diameter and decking with 4 x 10" sill material, solid. The ground is open for about 40' under the shaft.

It will take about 1 shift to cut the bridging timbers, slash transport and deliver to the job site in the shaft.

Decking: 4 x 10" x 12' x 36 pcs. = 1440 FBM

Time: About 5 days to cut dapts, install bridging timber, place rail, pipe, etc.

360-570' 210' of open shaft requiring little if any timber other than sills for track and perhaps a minor amount at the 550' Level. Time is estimated to be 11 days making about 20'/day.

X-CUTS AND DRIFTING

Data:

Size - 5 x 7. No timbering required. Dry ground = 35 cu. ft/lin. ft.

Mine Car - 16 cu. ft. capacity, end dump with roller bearings.

Track - 18" gage and use 20 lb. rails.

Drills - Jackleg with 1½" Carset Bits and 72" hex. steel. 6.0' round

Break - An average 4.5' round

Work - 2-40 hr/week shifts, day and afternoon

Drill Speeds - Average 1.0' min. in dolomite and ore.

Volume of Round - 160 cu. ft. or 20 mine cars.

Cu. Ft/Ton in place = 12 cu. ft.

Cu. Ft/Ton broken - 20 cu. ft.

Work Time Effeciency - Work about 6.5 hrs/8 hr. shifts = 80% effec.

Mucking Machine - 12-B Eimco Specs. B Deck.

Capacity 5-7 cu. ft.
Air Consumption - 20-35 cfm @ 125 lbs. pressure
Complete loading cycle - 6 secs.
Loading time @ 24 secs.

Air Locomotive - 401 Eimco or equivalent

Receiver vol. 38 cu. ft. @ 125 lbs. pressure.
Length of haul/tank air - 750 ft.
Pulls 18-20 T train load
Max. length of haul 750 ft.
Average length of haul 430'
Speed - about 5 miles/hr.
Tram cycle - 3 cars, 15 min; 100 mins/rd.;
1 hr-45 mins.

Round In and Round Out Cycle:

Drilling Time	1.8 hrs.
Mucking Time	1.75 hrs.
Loading Explosives	0.50 hrs.
S.T.	4.00 hrs.

80% operating effec.	5.00 hrs.
Rounds/shift 6.5 hrs.	1.3
Double shift	2.6
Footage/double shift	11.7
Time/1500'	130 working days
	6.0 months

Explosives: Prill with gel for detonator, and use fire fuse.

Labor: Local wage for experienced miners in the area is $3.00/hr x 1.169 or $3.50/hr. or $28.00/day cost to operator.

Direct Labor:	2 man crew/shift or 4 man/day x $28.00		$112.00
	Cost/ft. 112.00/11.7'		9.60/ft.
Support Labor:	2 Hoist men	$ 56.00/day	
	2 Top men	56.00	
	1/2 foreman @ $29.10	14.45	
	S.T.	126.55/day	126.55
			10.80/ft.
Direct Supply Cost	4.5' Round		
	Bits, 1 @ $13.50 ea.	.50	
	Steel 1 @ 13.50 ea.	.50	
	Prill Explo.75# $10.00	7.50	
	Gel. 18 sticks	2.52	
	Fire Fuse 150' @ 2¢/ft.	3.00	
	No. 6 caps 18 @ 3¢	.54	
	Rail 60# @ 20¢	12.00	
	Track Spikes @ 8¢ ea.	.80	
	Splice Plates & Bolts	.51	
	2" pipe @ 60¢/ft.	2.70	
	1" pipe @ 40¢/ft.	1.80	
	Valves @ 15¢/ft.	.68	
	Vent Tube @ $1.60/ft.	7.20	
	Track Ties @ 60¢ ea.	1.20	
	S.T.	41.45/4.5'	41.45
	@ 4.5' advance/round		9.20/ft/
Power, Compressor, Hoist and Blower		17.40/day	
Maintenance and Repair on above:		10.75	
	S.T.	28.15/day	28.15
	@ 11.7'/day		2.40/ft/
	Total	$308.15/day	$ 32.00/ft.

Estimated cost of 1500' @ $32.00/ft $ 48,000.00

550' LEVEL COST

The level is rough - undermined in places, requiring bridging, is not well planned as to grade or drainage and requires track and pipe.

Time:	Laying track	6 days	
	Installing pipe	2 days	
	Bridgings and leveling	2 days	
	Total	10 days	
Labor 10 days @ $169.10 =			$ 1690.00
Track:	360' Track @ $4.45/ft.	$1600.00	
Pipe and Valves:	360' 1" & 2" pipe, included with track		$1600.00
Power for Compressor and Hoist			150.00
M and Repair			87.00
Sills	360' @ 27¢/ft.		194.00
	Total		$3721.00
			10.35/ft.

1050' LEVEL

Same as for 550' Level - now under water	$3721.00
	10.35/ft.

NEW EQUIPMENT COST	FOB Mine
1 - 350 cfm Electric Compressor - 75 H.P. Stationary	$ 8000.00
2 - JR-38C Jacklegs or equivalent	2630.00
54 - 7/8" - 72" Hex. Steel @ $13.50 ea.	730.00
54 - 1½" Carset Bits @ $13.50 ea.	730.00
1 - Special Bit Grinder	100.00
1 - Prill Air Loader	50.00
1 - Model 12-M Air Mucking Machine or equivalent	4000.00
1 - Model 401 Emmco Air Locomotive or equivalent	4000.00
6 - 16 cu. ft. Mine Cars - used	600.00
1 - 15 H.P. Vent Fan	500.00
1 - 50 H.P. Electric Hoist - used	3000.00
1 - Wooden Head Frame	1000.00
1 - Wood Frame Shop	500.00
1 - 2MRV Centrifugal Pump 50 H.P.	1600.00
500' - 6" Diam. Naylor Lightweight Pipe, Victaulic Conn.	1250.00
Hose, valves, and special fittings	600.00
Electric wiring, switches and fixtures	1500.00
1 - Steel Transfer Water Tank, Underground	500.00
1 - Wooden Discharge Water Launder	500.00
S.T.	31790.00
Contingency	3210.00
Total	35000.00

Maintenence and Repair 5 year life

$35,000.00/5 = 7,000.00/yr/12 = 585.00 mo/22 = 26.50/day

COST ESTIMATES

Management, Engineering and Geology:

Engineer - $800.00/mo x 1.169	$ 935.00/mo
Manager - 1350.00/mo x 1.169	1580.00
1 Geologist @ $50.00/day - 2 days/wk	506.00
1 Helper @ $28.00/day	241.00
Total	3262.00/mo
15 mo. x $3262.00	48930.00

Office Equipment and Insurance:

Rental Office Equipment	25.00/mo
Supplies	50.00
Telephone	20.00
Insurance	23.50
Rent	37.50
Bookkeeper	618.00
Total	774.00/mo
15 mo x $774.00	11600.00

Transport - Dodge Pickup 1955

1600 mi/mo x $0.10/mi.	160.00/mo
$160.00 x 15	2400.00

Assays:

Assume sample every 4.5' in drifts only
Determinations - Au; Ag; Pb; Zn; and Cu; as required. 1100' drift to be sampled
1100/4.5 = 250 samples x $8.50 — 2125.00

Fringe Benefits:

Accident Insurance	10% Payroll	
Social Security	4.2%	
Unemployment Insurance	2.7	
Total		16.9%

Note: The miners, foreman, engineer, geologist, electrician-mechanic are either currently employed or available in the immediate area.

TOOLS AND SUPPLIES

Tool and Supply cost to date has been $150.00/mo x 15 $ 2250.00

PERSONAL SERVICES

Work Schedule: Plan on working 2 shifts for 40 hours each week. The pumping is for 24 hours per day, seven days per week, thus requiring a 6 day week from the working foreman and a watchman to keep people off the property when no one else is there and to check the water flow in case of trouble to call the foreman.

1 -	Watchman, local resident, on social security	$ 146.13/mo
2 -	Bookkeeper, currently not used	618.00
3 -	Working Foreman, local resident, experienced	650.00
4 -	Electrician-mechanic, thoroughly experienced	650.00
5 -	2 Hoist Engineers @ $618.00 each	1236.00
6 -	2 Topmen @ 618.00 each	1236.00
7 -	4 miners, only 2 needed until cross-cutting	2472.00
8 -	2 geologists, working weekends only @ $30.00	607.88
9 -	Engineer - experienced	935.00
10 -	Manager	1580.00

Total of 15 men

Resume of professional background of engineers and geologist attached.

AIR SHAFT

The Air Shaft will be kept open through out all the operations for reasons of ventilation. The air hoist will continue to function for means of access to the 450' Level.

Cost:	Air Hoist 7.5 H.P. Rental	$ 35.00/mo
	17 mo. x $35.00	595.00

Buildings, Material and Equipment Currently Used.

Rental:

1.	250 cfm Diesel Compressor	$ 420.00/mo.
2.	7.5 H.P. Electric Hoist	35.00
3.	Old Air Hoist - good for 500' only	25.00
	Total	475.00/mo.

Used Equipment Purchased:

1.	7.5 H.P. Gardner-Denver Slusher and Scraper	750.00
2.	16 cu. ft. end dump mine car - 1 only	100.00
3.	1 only 14 cu. ft. mine car - open end	50.00
4.	1 only 1/2 T. Dodge Pick-up 1955	400.00
5.	1 only 2MRV Motor Pump - 50 H.P.	900.00
6.	500 cfm Air Receiver	150.00
	Total	2350.00

Used Material Purchased:

1.	600' 2" Black Pipe with Couplings	240.00
2.	500' 12 lb. Track 50% salv.	150.00
	Total	390.00

New Material Purchased:

1.	480' Naylor 6" Pipe - Victaulic Couplings	1250.00
2.	Hose, valves and fittings	1000.00
3.	Electric cable, switches and gear	1500.00
	Total	3750.00

New Building:

1.	Hoist House and Air Shaft	500.00

Old Buildings Moved and Renovated:

1.	Hoist House and Shop and Elkhorn Shaft	500.00
2.	Brick Oil House	200.00
	Total	700.00

Hand Tools, Mine Safety Lamps, Safety Equipment, etc. 800.00

Total Owned Equipment $ 8490.00

Air Requirements. Supplied by manufacturer.

Jackleg	125 cfm @ 125lb. pr.	
Mucking Machine	125	Do.
Air Locomotive, 50 cu.ft/fill -		
Slusher	24	
	274	Do.
For 6600' elevation	282	Do.

Finances.

From May 1, 1966 to date $75,000.00 has been deposited to our bank account at the First National Bank of Butte, Montana. Our bank balance as of November 23, 1966 was $15,149.10, with all outstanding bills paid up to date.

The corporation has agreed to make available to us, as required, the 25% of the cost of the exploration agreed upon.

RECAP COSTS

Program No. 1. 560' Level.

1.	Pumping: Hold water @ 550' Level 1½ mo. period	$ 1404.00
2.	Elkhorn Shaft to 550' Level, 230'	4669.00
3.	1500' X-Cut and Drifting @ $32.00/ft.	48000.00
4.	550' Level - Cleaning, Truck and Pipe	3720.00
	Sub-Total	57793.00

Program No. 2 1050' Level.

5.	Move Pumping Plant to Elkhorn Shaft	941.00
6.	Pumping 550-1050' Level - 5 Months	3950.00
7.	Pumping: Hold Water @ 1050' Level - 6 Months	4150.00
8.	1050' Level - Cleaning, Truck and Pipe	3720.00
9.	1500' X-Cut and Drifting @ $32.00/ft	48000.00
10.	Elkhorn Shaft from 550' Level - 1050' Level	7800.00
	Sub-Total	68561.00
11.	New Equipment	35000.00
12.	Tools and Supplies	2250.00
13.	Maintenence and Repair	8755.00
14.	Engineering, Geology and Management	48930.00
15.	Office Expense and Insurance	11600.00
16.	Transport	2400.00
17.	Assays	2125.00
	Sub-Total	237414.00
	Contingency	22586.00
	Total	$ 260000.00
	O.M.E. Support 75%	195000.00
	D.P.C. Share 25%	65000.00
	Total Estimated Cost	$ 260000.00

TIME SCHEDULE AND CASH FLOW

From January 15, 1967

1967	Elkhorn 550'	Shaft 1050'	Pumping Hold	Pumping To 1050	X-Cut 550	X-Cut 1050	Level	Assays	New Equip.	M.& R.	Tools & Supplies	Trans-port	Office Insur.	Engr-Geo. Mgm't.
Jan.	4669		468						17500	585	150	160	774	3262
Feb.		7800	936				(550)		17500	585	150	160	774	3262
Mar.			941	395	4000		3720	89		585	150	160	774	3262
Apr.				790	8000			177		585	150	160	774	3262
May				790	8000			177		585	150	160	774	3262
June				790	8000			177		585	150	160	774	3262
July				790	8000			177		585	150	160	774	3262
Aug.			350	395	8000		(1050)	177		585	150	160	774	3262
Sept.			690		4000		3720	88		585	150	160	774	3262
Oct.			690			8000		177		585	150	160	774	3262
Nov.			690			8000		177		585	150	160	774	3262
Dec.			690			8000		177		585	150	160	774	3262
S.T.	4669	7800	5455	3950	48000	24000	7440	1594	35000	7000	1800	1920	9288	39000
Jan.			690			8000		177		585	150	160	774	3262
Feb.			350			8000		177		585	150	160	774	3262
Mar.						8000		177		585	150	160	764	3262
S.T.			1040			24000		531		1755	450	480	2312	9800
Total	4669	7800	6495	3950	48000	48000	7440	2125	35000	8755	2250	2400	11600	49000

BIBLIOGRAPHY

ASARCO ....East Helena Smelter returns

Barrell, J. Microscopical Petrography of the Elkhorn Mining District, Jefferson County, Montana. USGS Annual Report 22, Part IId

Falck, A.D. and Stewart, B. District Reconissance for Basin Tunnel Co.

Hansen, Dr. A.M. Unpublished Manuscript.

*King, Rowland, The Elkhorn Mine, Private report for Sophia Syndicate, 1938

Klepper, M. R.; Weeks, R. A.; and Ruppel, E. T. Geology of the Southern Elkhorn Mountains Jefferson and Broadwater Counties, Montana USGS Professional Paper 292

Knopf, A. Ore deposits of the Greater Helena Mining Region USGS Bulletin 527, 1913

McCarthy, J. H. and Laken, H. W. Geochemical Prospecting by Soil Analysis in Montana, Montana Bureau of Mines and Geology 1956

Pardee, J. T. Ore Deposits of the Greater Helena Area USGS Bulletin 842, 1933

Perry, Dr. E. S. Stratigraphic Control of Ore Bodies in Montana E and MF, October, 1945, Pages 96, 97

Ramseier, F. N. Geochemical Exploration of the Elkhorn Mining District and Tizer Basin, Jefferson County, Montana. Masters Thesis Montana School of Mines.

Robertson, F. Geochemical Prospecting by Soil Analysis in Montana Montana Bureau of Mines and Geology Bulletin 7, 1956

Roby, R. N., Ackerman W. C., Fulkerson, F. B. and Crowley F. A. Mines and Mineral Deposits (Except Fuels) Jefferson County, Montana, Montana Bureau of Mines and Geology Bulletin 16, 1960

Stackpole, M. D. The Elkhorn Mine, Jefferson County, Montana, Private Report 1903

Stone, R. W. Geologic Relations of Ore Deposits in the Elkhorn Mountains, Montana, USGS Bulletin 470, Pages 75-98, 1911

*Swayne, W. H. Report on the Elkhorn Mining Property, Jefferson County, Montana. Private Report for A. B. Henningsen, May, 1945

Tally, R. E. The Elkhorn Mine, Private Report for R. A. Henningsen, 1965

Walker, D. D. The Elkhorn Mine Jefferson County, Montana. Bachelors Thesis, Montana School of Mines, 1951

Weed, W. H. Geology and Ore Deposits of the Elkhorn Mining District, Jefferson County, Montana. USGS Annual Report, 22 Part IId 1902.

* Reports included with application

RESUME OF EXPERIENCE

R. A. Lindblom, 1609 Easton Drive, Burlingame, California, Diamond 4-3330. Age 53 years, single. Height 5' 10"; Weight 160 lbs. Health good. Native born. Q. security clearance while with AEC. Available immediately. Read, write and speak Spanish, but not fluently. Member AIMM&PE 13 years.

University of California (Berkeley) BS in mining, Tau Beta Pi. 19 years experience in underground and open pit mining, mine exploration and examination work. 9 years experience in the Atomic Energy Commission and the U. S. Bureau of Mines in engineering and administrative work connected with mining. Have supervisory experience in land grading, drilling, blasting and loading operations, tunneling, construction and maintenance of heavy equipment. Know land surveying, handling correspondence, report writing, contract administration, Public Land laws. Like travel and problem solving.

October 1963: Went to Malaya to be in charge of regional exploration program for Rompin Mining Co., Kuala Rompin, Malaya. Left after one month because of unsatisfactory staff relations.

August 1962: Office engineer, Morrison-Knudsen Company, Inc. at rehabilitation of dam for Pacific Gas & Electric Company, Canyon Dam, California. Kept records of materials and progress, coded time and equipment cards, assisted project engineer in supervision of surveys and in liaison with P. G. & E. personnel.

1959-1962: Self employed. Investigation of mining properties for investment purposes. Mining for own account. Mine examination and exploration.

1951-1958: Atomic Energy Commission, Grand Junction, Colorado. Assistant Chief Leasing & Development Branch, employing 16 engineers. Examined mines. Prepared joint engineering reports on ore reserves, rates and economics of ore production of different mining districts. In charge of Uranium mines leased by the Commission producing about $4,000,000 annually. In charge of administration of Public Lands withdrawn for Commission use amounting to 450 square miles. Drew up mining contracts, leasing procedures, royalty schedules, and was mining specialist assigned to special problems. Was co-author of a Bureau of Mines information circular on uranium mining. Resigned to go into mining for self.

1949-1950: Eastern Mining & Metals Co., Malaya. In charge of one section of an open pit iron mine. Supervised about 100 miners, equipment operators, mechanics and clerks. Returned to U. S.

1946-1949: Settled family mining estate in Philippines. Did mine examination work, negotiated contracts for development of mining properties held by the estate. Worked as a construction inspector at Clark Field Air Force Base. Left when options on mining properties were dropped.

1942-1945: Nicaro Nickel Co., Nicaro, Orient, Cuba. Assistant Mine Superintendent and engineer in charge of operation of the open pit mine for a $35,000,000. project for the production of nickel concentrates. In charge of early surveying, drilling and sampling; supervised mine construction and mine railroad layout; in charge stripping and loading operations and maintenance of heavy equipment for moving about 8,000 cubic yards per day. Resigned to attend to estate of brother.

1941-1942: U. S. Bureau of Mines, Washington, D. C. Administrative assistant to engineer in charge of all strategic mineral exploration projects east of the Rocky Mts. This was a wartime program of search for new sources of vital war materials such as, manganese, tungsten, chromium, etc. Resigned when offered field work in mining.

1938-1940: Self-employed. Investigation of investment opportunities in mining in Venezuela and California. Ran several small exploration projects involving tunnel driving and diamond drilling.

1934-1937: Gold mining in Philippines. Resident Manager 100 ton per day gold mine and flotation plant. Shrinkage, cut-and-fill and open stope mining methods. Resident superintendent of exploration project where we installed all camp facilities and drove 5,000 feet of exploratory tunnels. Engineer of gold dredge and in charge placer drilling and evaluation of placer deposits. Left to return to the United States.

Before, and during college years, worked as a junior clerk in an insurance office; as longshoreman in Bay area; and as a dredgehand on a suction dredge operated by U. S. Engineers in reclamation and flood control work on the Sacramento River.

REFERENCES:

Philippine experience

A. A. Friedman, Resident Manager
Old Dick Division
Cyprus Mines Corporation
P. O. Box 548
Bagdad, Arizona

Bureau of Mines:	Spangler Ricker 175 Bret Hart Avenue Reno, Nevada
Cuban experience:	Martin Hughes, Resident Manager Eagle Mountain Mine, Kaiser Steel Corp. Box 158, Eagle Mountain, California
Malayan experience:	R. E. Tally 1721 E. Mountain Street Pasadena 7, California
Atomic Energy Commission	R. H. Toole Atomic Energy Commission Grand Junction, Colorado

RESUME..... David D. Walker

Education: B.S. Mining Engineering, Montana School Mines June, 19[illegible]
B.S. Geological Engineering M.S.M. June, 1959

Experience: Employed as smelterman in Anaconda, and as a contract miner in Butte during school years

June, 1951 to June, 1956; Senior surveyor and mine engineer Montana Phosphate Products Company, Garrison, Montana. Responsible for contract measurements and calculations, Routine mine and surface mapping, Development layout, Ore Reserve calculations, Mechanical and construction plans.
Ref: F. E. Burnet, Pres. MPP Co, Spokane, Wn.
C. W. Noon, Supt. MPP Co, Garrison, Mont.

June, 1956 to October, 1960; Mine examination and exploration engineer, US Bureau of Mines Spokane Field Office, Spokane, Wn. One year full time DMEA, administration of contracts. Three years Conservation and Utilization of natural resources. Author of USBM-RI 5612 and USBM-RI 6334.
Ref: W. G. Agnew, Mining Engineer, US Dept. of the Interior, Washington, D. C.
Thomas Howard, Director of Research, USBM, Washington D. C.
R. N. Appling, Chief Mineral Resources, USBM Spokane Office, Spokane, Wn.
S. W. Zoldok, Mining Engineer, USBM, Spokane, Wn.

October, 1960 to February, 1962; Geological and Engineering consultant for W. V. Stone Enterprises, and Boulder Lake Corporation.
Ref: C. W. Potter, Anaconda Company, Butte, Montana

February, 1962 to July, 1962; Chief Mining Engineer, Trout Mining Co. Philipsburg, Mont.
Ref: C. A. R. Lambly, Bunker Hill Co. Kellog, Idaho.

July, 1962 to Present; Mining Engineer at Anaconda Company, Butte, Montana. Mt. Con Mine-5 mo. Berkeley Pit-15 mo. Asst. Unit Head Eng. Steward mine-31 mo.
Ref: R. D. Piper, Chief Mining Eng.
N. A. Jones, Asst. Chief Mining Eng.
L. N. Henton, Unit Head Eng. Steward
All at Anaconda Co. Butte, Mont.

ROBERT EARL TALLY

Born November 6, 1899 at Reno, Nevada of American parents.

Education: Columbia University. A.B.; B.S.; E.M.

Married with three grown children.

Languages: Fair Spanish

Height 6'0". Weight 175 lbs. Health - excellent.

Member A.I.M.E. Registered Professional Engineer; Colorado 1727

Professional Record

1954-1966: Have been engaged as a private mining consulting engineer, evaluating mining properties in Pakistan, Turkey, Indonesia, Canada, Mexico, Peru, several of the South Pacific Islands, Ethiopia, Aruba and the Western United States. This work has to do with the examination of mining properties and their evaluation, recommending those with merit, submitting professional reports complete as to detailed cost estimates, recommended equipment, lay out of mining operation, beneficiation, if any, along with estimates on ore reserves, exploration program and development work. Among the minerals investigated are iron ore, manganese, chrome, tungsten, titanium, coal, limestone, bauxite, gypsum,potash, gold, silver, lead,

1952: Consulting Mining Engineer for Eastern Mining and Metals Co., L'td. of Malaya. Laid out an iron ore operation in the center of the jungle country, complete and including railroad alignment to the coast, live storage at the mine and tidewater, dockage and loading ocean-going vessels at open roads. Also spent considerable time in Japan, England and Germany working on procurement of equipment and attempting to justify American equipment for use in a British Commonwealth Country during times of restrictions on American currency.

1951: Sr. Mining Engineer and Assistant Manager of the Grand Junction, Colorado branch of the Atomic Energy Commission working chiefly on uranium procurement and in charge of all leases on government owned uranium properties. Also Sr. Mining Engineer with the U. S. Bureau of Mines located at Joplin, Missouri working on lead and zinc, previous to work with A.E.C.

1949-1951: Mine Superintendent for Eastern Mining & Metals Co., L'td. of Malaya in charge of their Bukit Besi Iron Ore Property located near the east coast in the State of Trengganu. We modernized a hand screening operation of detrital ore to a modern open pit bench type mining extraction using heavy duty equipment and complete facilities for shipping the high grade iron ore to Japan.

1943-1949: Mining Engineer with E. T. Foley of Foley Bros., Inc. working on mine layouts for iron ore in California, strip coal in Montana and diatomaceous oil impregnated material in California along with being engineer in charge of several small construction jobs building roads, dams, a suspension bridge and irrigation projects.

1942-1943: Mine Superintendent and later Chief Mining Engineer for Kaiser Steel Co. Supervised the exploration, development and operation of the Vulcan Mine, producing 3,000 T/day. Worked on the procurement of raw materials essential to the operation of a large steel plant.

1938-1942: Quarry Superintendent for the California Portland Cement Co. located at Colton, California, producing 3,000 T/day for making cement.

1937-1938: Mining Engineer working on the stripping and development of the Clay Orebody located at Morenci, Arizona.

1929-1937: Started working underground summers during high school and college at the United Verde Copper Co. located at Jerome, Arizona. Served my apprenticeship by working at every job in the mine, mill and smelter, starting as mucker on to jackhammer, miner, timberman, jigger boss, shaft leader, shift boss, foreman both underground and open pit operations; worked in safety, engineering, geology, bonus departments, purchasing and storekeeper, mill, assay office, roasters, reverbatories and converters. This work has prepared me for future operations where I was in a position to train men to do these jobs from the standpoint of having done them myself.

November 15, 1966

Development Operating Corporation
P.O. Box 14
Boulder, Montana
11-22-66.

Mr. John J. Mitchell, V.P.
First National Bank
Butte, Montana.

Dear Mr. Mitchell:

In behalf of our corporation I wish to make application for a bank loan of approximately $ 200,000.00, such monies to be used for an exploration program at the Elkhorn Silver Mine located about 9 air miles S.E. of Boulder, Montana, in Jefferson County.

This mine has a history of production of approximately $ 14,000,000.00, chiefly in silver & it is our well considered opinion that there is considerable more ore to be found in this mine in the footwall, by means of a well engineered exploration program.

The property, consisting of ten patented claims is leased by us from the owners, namely Mrs. David C. Walker & Charles S. Youlden, both of Butte & Anker B. Henningsen of Victoria, B.C., Canada.

We have been on the mining property since April of this year dewatering, currently holding the water at the 550' Level while we complete the opening of the main entry shaft down to the 550' Level. The main shaft goes down to the 2300' Level with main haulage levels driven every 100', making this a well developed mine. The price of silver today along with the improvements that have been made in methods of mining extraction & ore recoveries make this a very interesting property & we consider it has real potential. The loan requested represnts 75% of the monies estimated to conduct this exploration program, the balance of approximately $ 65,000.00 will be made available through the Corporation. Security for the loan would be a lien of the property with proper Lien & Subordination Agreements signed by the owners. The property is unencumbered as of this date.

In the event that it is in agreement with your policy to consider such a loan, we are prepared to place before you all the pertinent information, data, maps reports from qualified professional engineers, maps & detailed cost estimates.

Yours very truly,

Robert E. Tally, M'gr.
Mining Engineer.

Copy

THE FIRST NATIONAL BANK
OF BUTTE
UNITED STATES DEPOSITARY
ESTABLISHED 1877
BUTTE, MONTANA
59701

November 23, 1966

Development Operating Corporation
P. O. Box 14
Boulder, Montana

Attention Mr. Robert E. Tally, Manager

Gentlemen:

Thank you very much for your letter of November 22nd in which you make application for a loan of approximately $200,000.

We regret that at this time we are not in a position to make such a loan.

Yours very truly,

John J. Mitchell

John J. Mitchell
Vice President

JJM:ch

Development Operating Corp.
P.O. Box 14
Boulder, Montana
11-22-66.

Mr. H.H. Pitts, M'gr.
Miner's Bank Of Montana
Butte, Montana.

Dear Mr. Pitts:

In behalf of our corporation I wish to make application for a bank loan of approximately $ 200,000.00, such sum to be used for an exploration program at the Elkhorn Silver Mine located about 9 air miles S.E. of Boulder, Montana, in Jefferson County.

This mine has a history of production of approximately $14,000,000, chiefly in silver & it is our well considered opinion that there is considerable more ore to be found in this mine in the footwall, by means of a well engineered exploration program.

The property, consisting of ten patented claims is leased by us from the owners, namely Mrs. David C. Walker & Charles S. Youlden, both of Butte & Anker B. Henningsen of Victoria, B.C., Canada.

We have been on the property since April of this year, dewatering the mine & are currently holding the water at the 550' Level while we complete the opening of the main shaft. This shaft goes down to the 2300' Level, with main haulage levels driven every 100', making this a well developed mine. The current price of silver along with improvements made in modern methods of mining extraction & ore recoveries make this a very interesting property which we feel has real potential for the production of silver ore. The loan requested represents 75% of the monies estimated to conduct this exploration program, the balance of approximately $ 65,000.00 to be made available by the Corporation. Security for the loan would be a lien on the property with proper Lien & Subinordination Agreements signed by the owners. Repayment of the loan would be off the top from profits shown on smelter settlement returns. The property is unencumbered as of this date.

In the event that this request for a loan meets with the policy of your bank, we are prepared to present to you complete data, pertinent information, professional engineering reports from qualified men, maps, detailed cost estimates, profiles of those in charge of the operation, etc.

Yours, very truly,

Robt. E. Tally, M'gr.
Mining Engineer.

Copy

MINERS
BANK OF MONTANA N.A.
BUTTE, MONTANA 59701

December 1, 1966

Mr. Robert E. Tally, Manager
Development Operating Corporation
P. O. Box 14
Boulder, Montana

Dear Mr. Tally:

Your letter of November 22, 1966 arrived while I was in Chicago, Illinois attending a meeting and hence the delay in answering. I hope our consideration of the proposal outlined in your letter has caused no inconvenience.

This proposition has been submitted to our loan committee, and after a thorough examination, it does not appear that this is the type of a bank loan we can consider. As of this writing, we would not know where to direct you, as from just about every standpoint this type of loan would not qualify for handling in a financial institution.

We are sorry to have to advise you as above, but there is not other alternative. We hope you will be successful in raising the money, as there seems to be much need for silver.

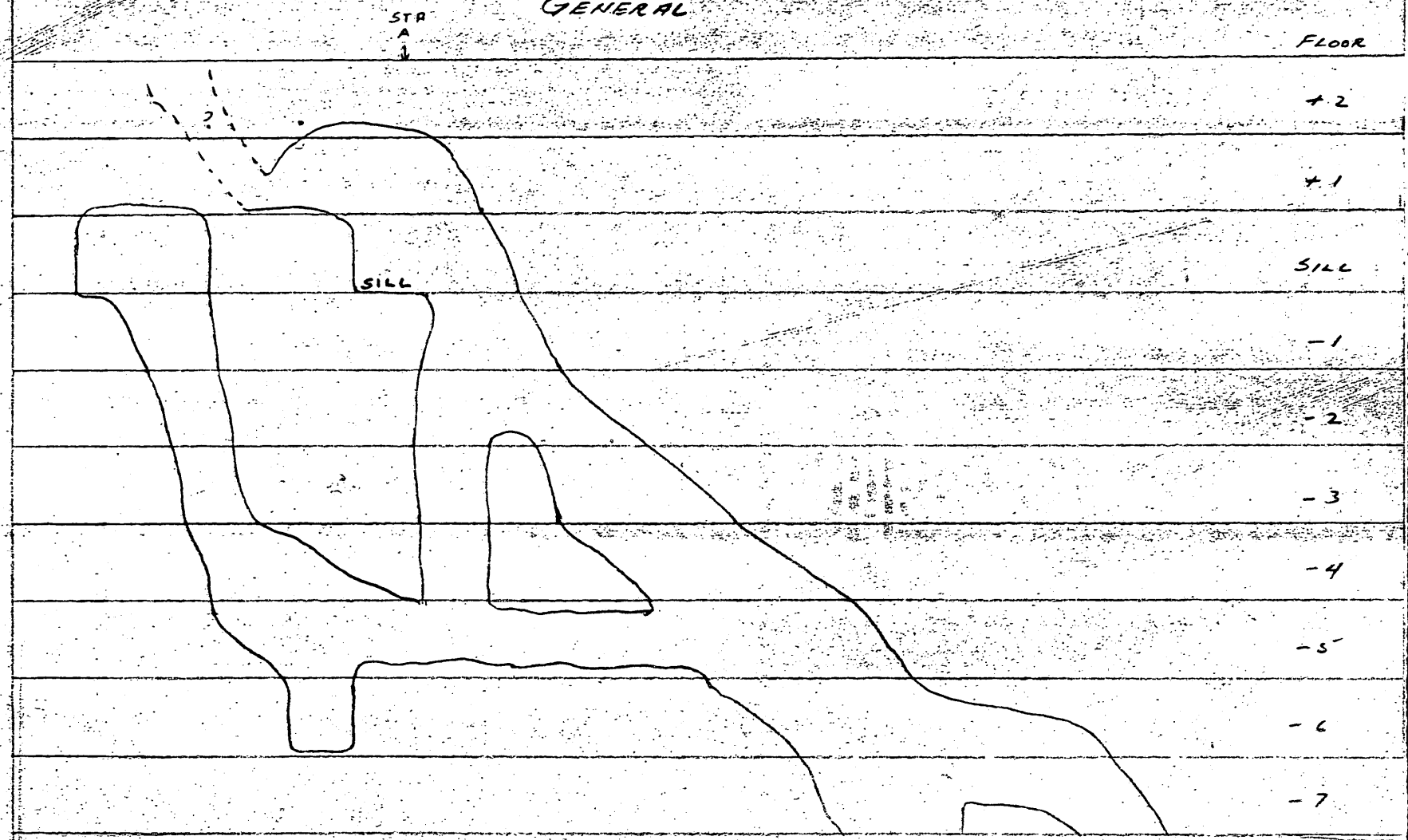
Very truly yours,

Harold Pitts

Harold Pitts:nr

President

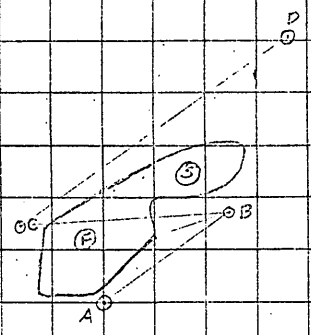
SOPHIA LONGIT. SECTION
GENERAL

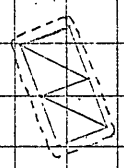


SECTION A-A' (GENERAL
SCALE 1" = 20' H&V

N 31 1/2° E

LOOKING NW





SHEET PROJECTED

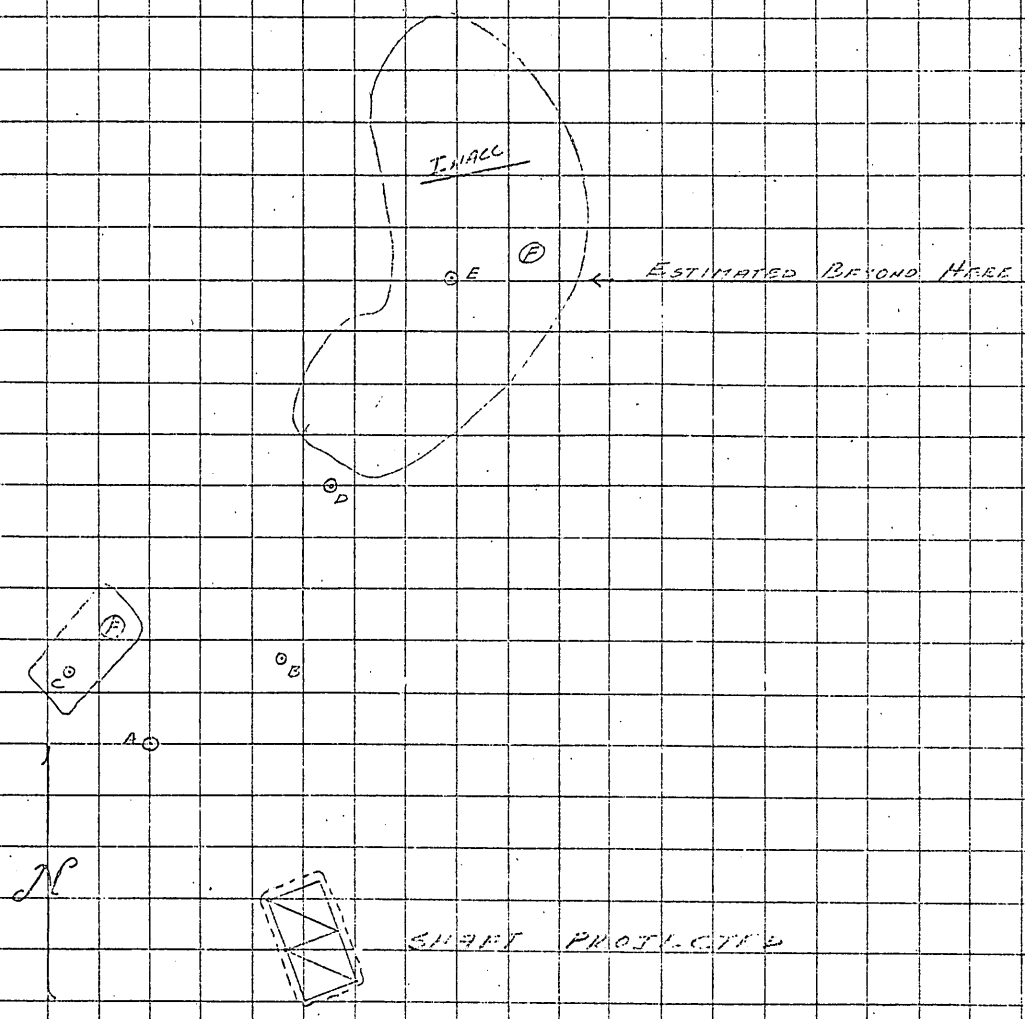
N

SOPHIA 110 STORING (BELOW)

FOURTH FLOOR

1" = 2.0'

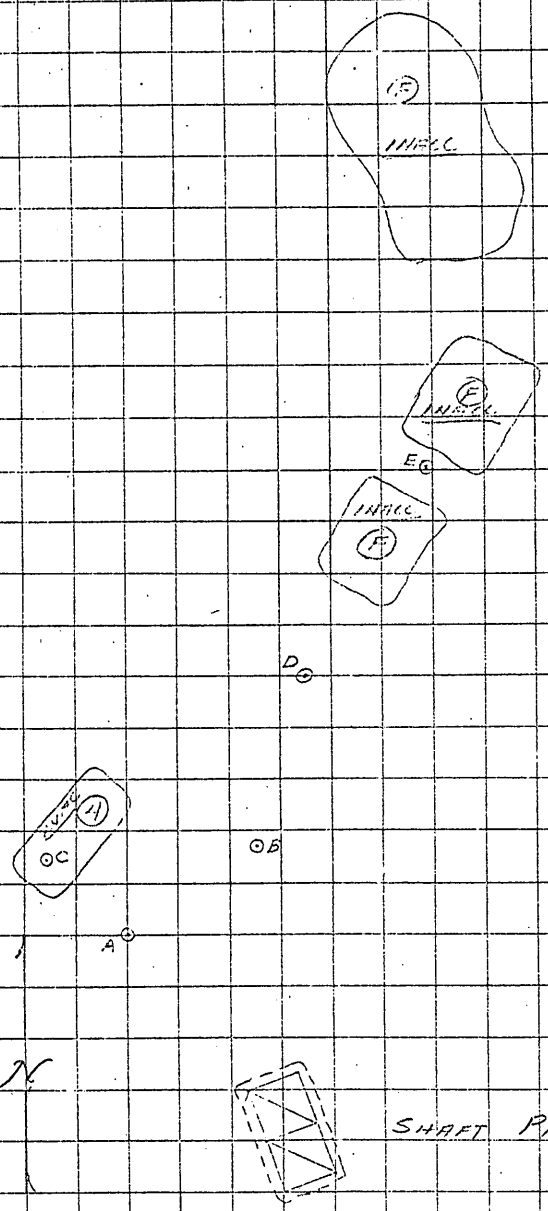
FORM NO. 3E 20 SCALE



SOPHIA 110 STORING (BELOW)

SIXTH FLOOR

1" = 2.0'



THIS WORK IS STILL UNDER WAY. AND DIMENSIONS ARE ESTIMATED.

SHAFT PROJECTED

SOPHIA 110 STORAGE (BELOW)

SEVENTH FLOOR

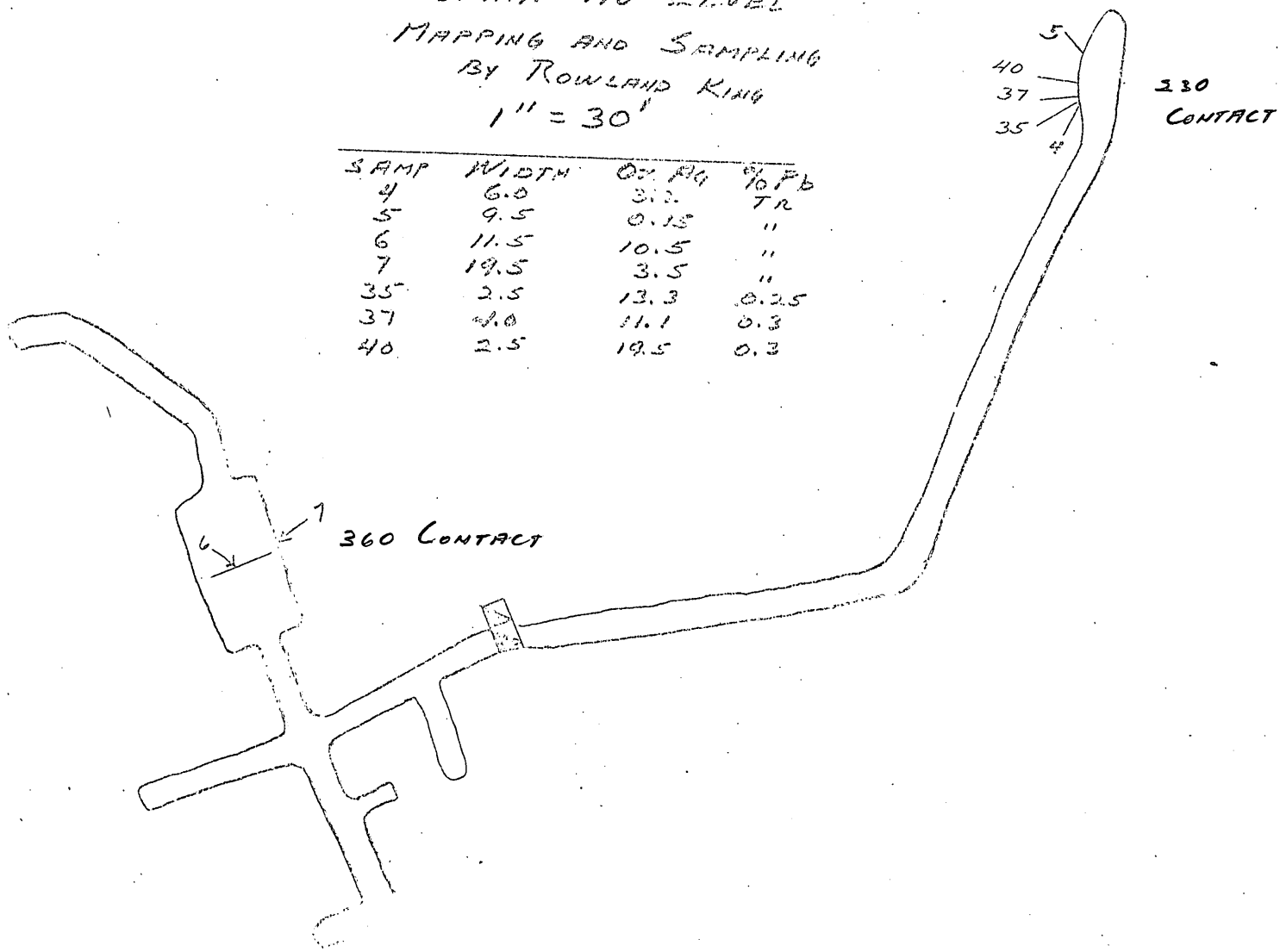
1" = 20'

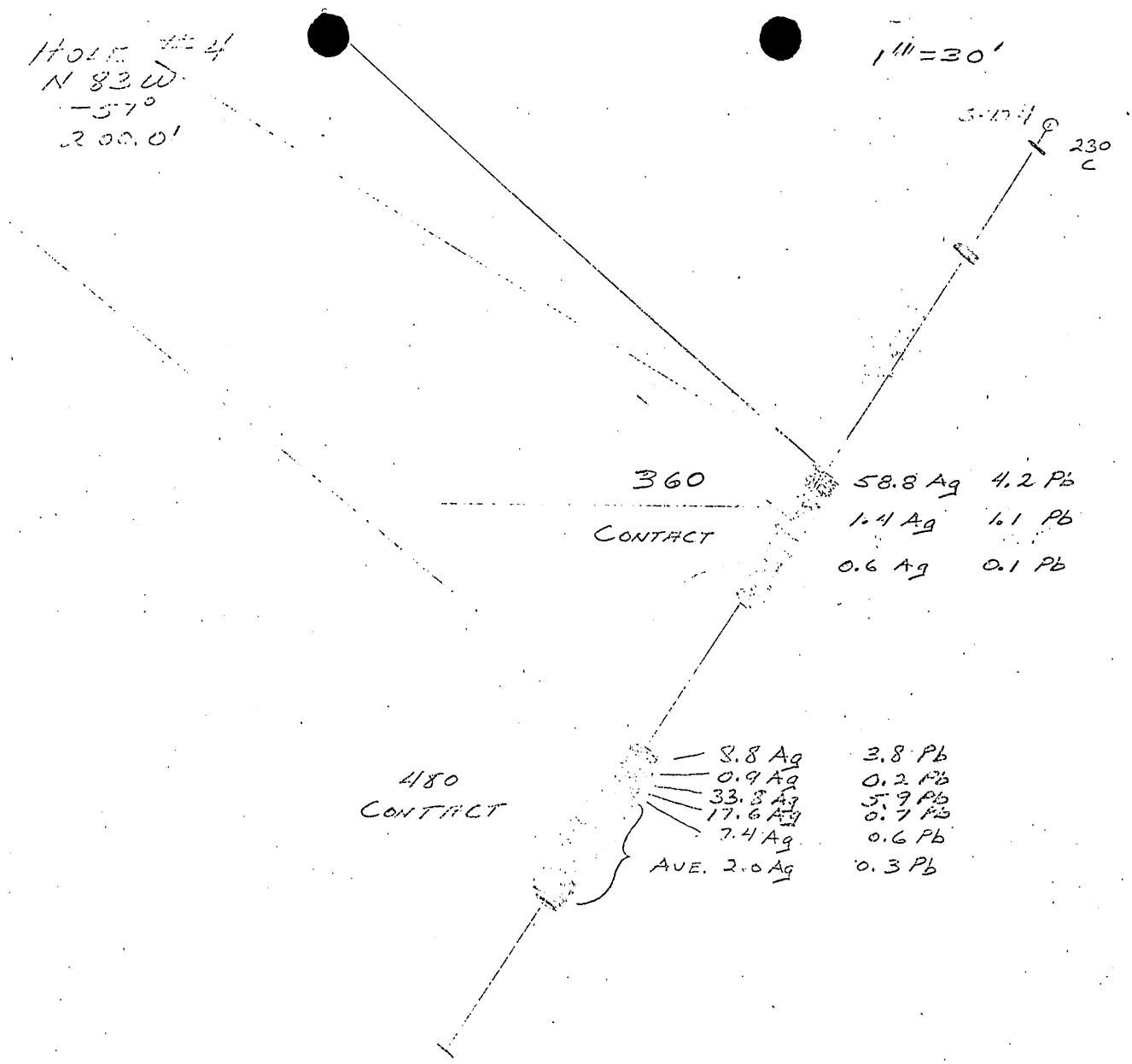
FORM NO. 3E 20 SCALE

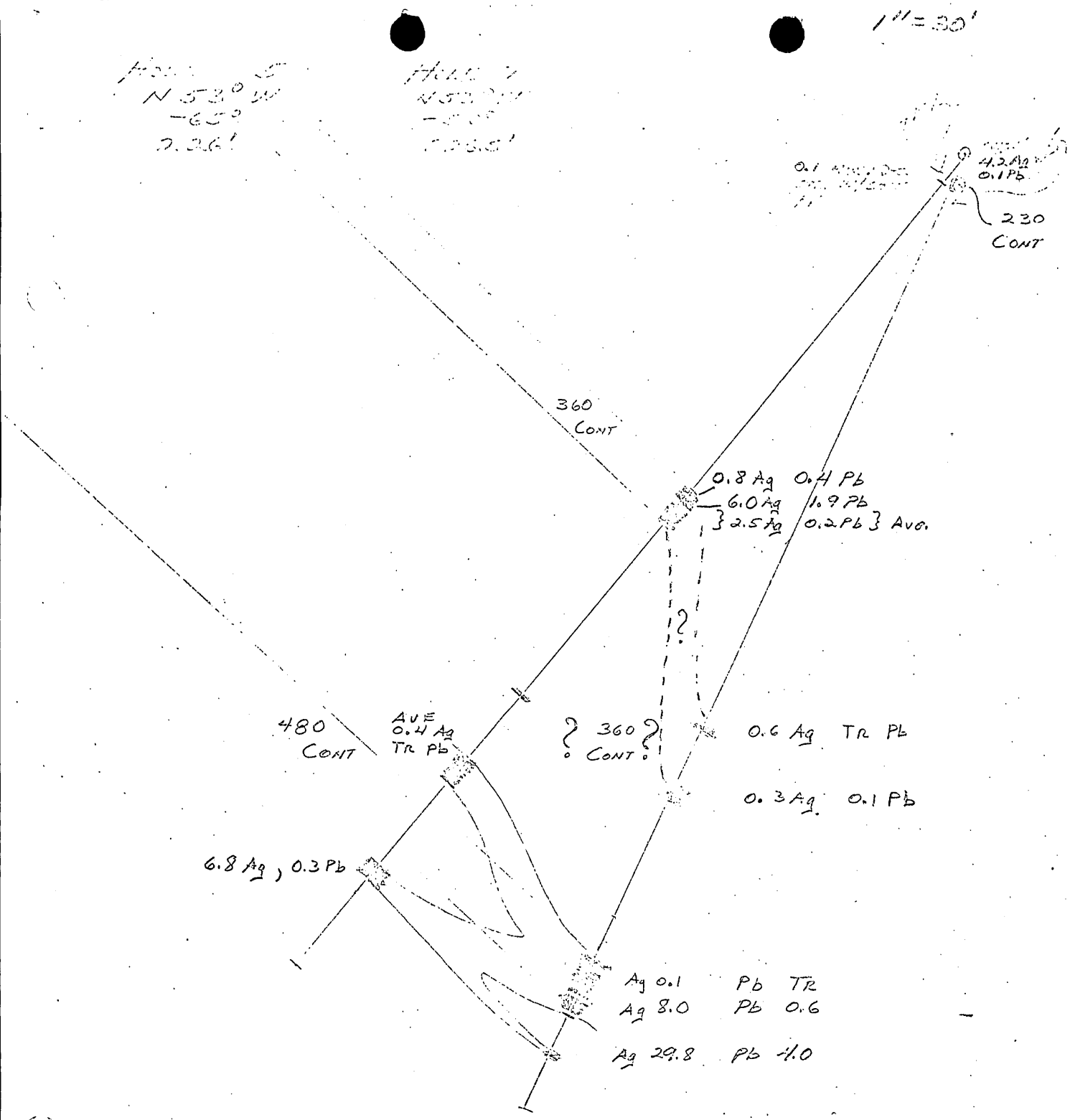
N

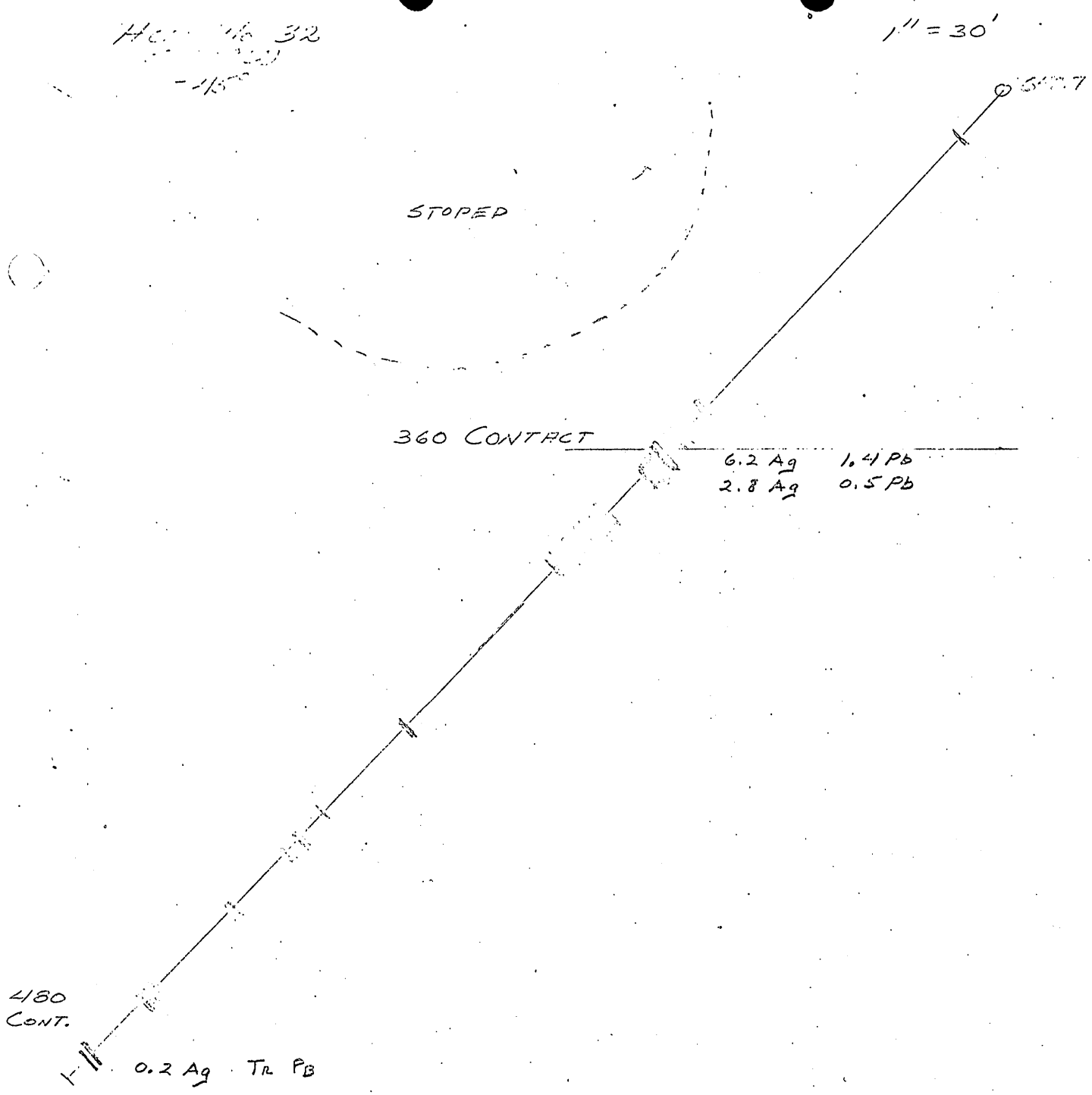
SOPHIA 110 LEVEL
MAPPING AND SAMPLING
BY ROWLAND KING
1" = 30'

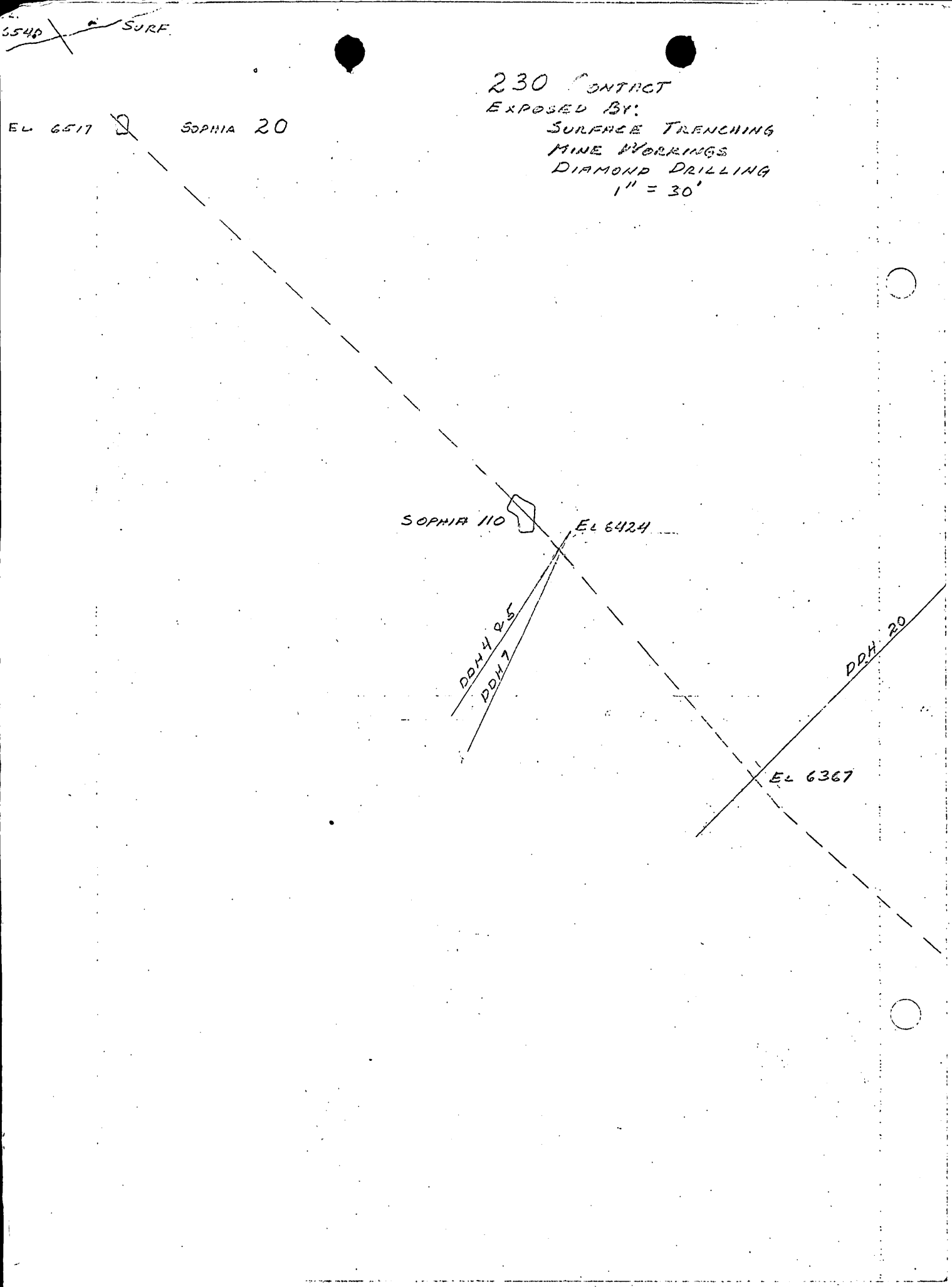
SAMP	WIDTH	OZ AG	% Pb
4	6.0	3.2	TR
5	9.5	0.15	"
6	11.5	10.5	"
7	19.5	3.5	"
35	2.5	13.3	0.25
37	4.0	11.1	0.3
40	2.5	19.5	0.3




HOLE #4
N 83 W
-57°
200.0'
1" = 30'
230
C
360
CONTACT
58.8 Ag 4.2 Pb
1.4 Ag 1.1 Pb
0.6 Ag 0.1 Pb
480
CONTACT
8.8 Ag 3.8 Pb
0.9 Ag 0.2 Pb
33.8 Ag 5.9 Pb
17.6 Ag 0.7 Pb
7.4 Ag 0.6 Pb
AVE. 2.0 Ag 0.3 Pb


1" = 30'
4.2 Ag
0.1 Pb
230
CONT
360
CONT
0.8 Ag 0.4 Pb
6.0 Ag 1.9 Pb
2.5 Ag 0.2 Pb Avg.
?
480
CONT
AVE
0.4 Ag
TR Pb
? 360 ?
CONT
0.6 Ag TR Pb
0.3 Ag 0.1 Pb
6.8 Ag, 0.3 Pb
Ag 0.1 Pb TR
Ag 8.0 Pb 0.6
Ag 29.8 Pb 4.0


1" = 30'
STOPED
360 CONTACT
6.2 Ag 1.4 Pb
2.8 Ag 0.5 Pb
480 CONT.
0.2 Ag Tr Pb


230 CONTACT
EXPOSED BY:
SURFACE TRENCHING
MINE WORKINGS
DIAMOND DRILLING
1" = 30'
EL 6517
SOPHIA 20
SOPHIA 110
EL 6424
DDH 4 & 5
DDH 7
DDH 20
EL 6367

LEASE

This Agreement, entered into this 20th day of ~~March~~ April, 1966, by and between Laura I. Walker, of Butte, Montana, the first party, Charles S. Youlden and Martha Ann Youlden, his wife, of Butte, Montana, the second parties, Anker B. Henningsen, of San Mateo, California, the third party, all hereinafter mentioned collectively as the Lessors, and Development Operating Corp., a Montana corporation, of Suite 6-10 First National Bank Building, Butte, Montana, the fourth party, hereinafter called the Lessee, WITNESSETH that:

WHEREAS each of the first, second and third parties, is the owner of an undivided one-third interest in that certain real property situated in the Elkhorn (unorganized) Mining District, in Jefferson County, Montana, hereinafter more particularly described; and

WHEREAS it would be to the interest of all the said owners that mine workings on the said mining claims be explored and examined, and development work performed to ascertain the advisability of the resumption of mining operations on said properties, and if so to proceed therewith; and whereas such exploration, examination and development will involve substantial expenditures; and

WHEREAS the first and second parties do not now desire to participate financially in such an undertaking, but the third party has indicated his willingness to organize, and finance for that purpose, the corporate fourth party under the provisions and conditions hereinafter set forth;

NOW, THEREFORE, this is to witness that the first, second and third parties, as the Lessors herein, for good and sufficient consideration, the receipt of which is hereby acknowledged, hereby lease to the fourth party as Lessee, for a term of ten years commencing at 12:00

o'clock noon, Mountain Standard Time, on the 1st day of April, 1966, those certain parcels of real property situated in the Elkhorn (unorganized) Mining District, Jefferson County, Montana, more particularly described as follows, to-wit:

1. The following described patented lode mining claims, placer mining claims and millsites, to-wit:

A. The A.M. Holter Lode Mining Claim, Lot No. 39, Survey No. 1374.

B. The Hardin Lode Mining Claim and Millsite, Lots No. 52 A and 52 B, Survey No. 2523.

C. The Silver Star Lode Mining Claim and Millsite, Lots No. 53 A and 53 B, Survey No. 2689.

D. The James R. Keene Lode Mining Claim, Lot No. 44, Survey No. 1890.

E. The Sophia Lode Mining Claim, Lot No. 3882, Survey No. 2878.

F. The Elkhorn Millsite, Lot No. 51, Survey No. 2516.

G. The Bowden Placer Mining Claim, Lot No. 6091, Survey No. 4012, in Township 6 North, Range 3 West, Montana Principal Meridian.

H. That certain portion of Lot numbered Thirty-eight (38) embracing a portion of Township numbered Six (6) North, Range Three (3) West of the Principal Meridian of Montana and known as the Turnley (Elkhorn) Placer (patented) Mineral Survey No. 1348, lying and being below a line running from corner numbered Ninety-two (92) of said placer, to the Northerly line of the right of way of the Elkhorn Branch of the Northern Pacific and Montana Railroad, where the same crosses said claim between corners numbered Eighty (80) and Eighty-one (81), and corners numbered One Hundred and Four (104) and One Hundred and Five (105), thereof, said portion of said placer consisting of all that portion thereof lying northerly of said railroad crossing between that point and the line running from the corner numbered Ninety-one (91) to corner numbered Ninety-two (92), aforesaid, as shown by the patent for said Lot 38 as the same appears of record in the office of the

County Recorder of Jefferson County, Montana, in Book _____ of U.S. Patent Record on page 53 thereof, to which reference is hereby made for greater particularity of description. Said portion of said placer claim included in this lease embraces an area of Twenty-five (25) acres, more or less;

II. Lots numbered Fifteen (15), Nineteen (19), Twenty (20), and Twenty-one (21) in Block numbered One (1) of the Townsite of Elkhorn, Jefferson County, Montana, according to the plat of the said Townsite on file in the office of the County Clerk and Recorder of Jefferson County, Montana, and recorded in Book One of Plat records at page 39.

Together with any and all water, water rights, ditches and ditch rights appurtenant to said lodes, placer, millsites or other real property, or any thereof, owned or used in connection therewith, and the right to use the same either on or off the said property, and together with all machinery and equipment owned by the Lessors, and buildings and other improvements now on said property or owned or used by the Lessors in connection with said property, and any and all ore dumps and tailing dumps situated on said property, together with all and singular the tenements, hereditaments and appurtenances belonging or in anywise appertaining to said property.

The Lessee shall on or before the 1st day of June, 1966, enter upon the said leased property and commence exploration, examination and development thereof in such manner and to such extent as the Lessee in its discretion shall determine.

In the event the said exploration, examination and development shall in the Lessee's judgment warrant further development of and production from said properties, it shall continue operations thereon, continuously thereafter as long as it shall deem advisable.

No rents or royalties shall be payable to the Lessors until the net profits of the operation, after taxes, shall have reimbursed the Lessee for its expenditures in said exploration, examination and development

operations, plus interest at the rate of five per cent (5%) per annum from date of expenditure until date of repayment (up to a maximum of ten years' interest).

After the reimbursement thereof, the Lessee shall pay or cause to be paid to the Lessors as rental for the said property a royalty of 10% of the net smelter, mill or mint returns upon any and all ores, minerals, metals and other products extracted from the said property, and upon any and all concentrates manufactured from ores extracted therefrom, and also upon all subsidy, quota or premium payments received from any governmental office, department, bureau, corporation, or other agency, provided that royalties on such payments are permitted by the statutes, rules and regulations controlling such governmental agency. Net smelter, mill or mint returns are hereby defined as the cash proceeds paid by the smelter, mill, mint or other purchaser of such ores, concentrates, metals or minerals after deduction of transportation, smelting, milling and mint charges only; provided, however, that if the Lessee shall mill ores from the said property and shall ship concentrates manufactured therefrom, it shall be entitled to deduct from the proceeds thereof, before the computation of royalties to be paid hereunder, the Lessee's milling costs, in addition to the said transportation, smelting, milling and mint charges.

One-third of the said royalties shall be paid direct to each of the first, second and third parties, the Lessors herein, by the smelter, mill, mint or other purchaser of ores, concentrates, metals or minerals, unless such purchaser shall refuse to make such direct payment, in which case the same shall be paid by the Lessee immediately upon receipt of the said proceeds. The Lessee shall notify each Lessor in writing of each shipment of ores, concentrates, metals or minerals from the said property, including dates, approximate weights, means of transportation, and name and address of smelter, mill, mint or other purchaser, and shall deliver to the Lessors copies of all assays and

smelter, mill and mint returns, and also semi-annual progress reports.

Beginning with the calendar year 1968, the Lessee shall perform during each full calendar year of this lease, at least one thousand man-shifts of labor in its operations in connection with said properties.

The Lessee shall at its own cost supply all machinery, tools, supplies, materials, equipment and labor for the said operation, and shall keep the said property free and clear of liens for labor done or materials furnished in connection therewith.

The Lessee shall post or cause to be posted and maintained in three public places upon the said property, including the entrance to its office, notices to the effect that the same is being worked and operated by the Lessee under a lease from the owners, that the Lessee is in actual control and management of the said operations, and that neither the Lessors nor the said property shall be in any way liable for labor, supplies or any other debts contracted by the Lessee, its officers, agents, successors or assigns, in connection with the said operation. The Lessee shall at all times during the term of this lease carry sufficient coverage for all its operations, and for all its employees in such operations pursuant to this lease, under one of the authorized plans of the Workman's Compensation Act of the State of Montana, and such liability and other insurance as may be required by the laws or mining regulations of the State of Montana, and also, for the protection of both Lessors and Lessee, effective and adequate liability insurance against damage to persons and property by reason of its said operations or possession of said property, and shall protect the Lessors against all costs, loss and damage which may arise by reason of injury to any persons upon or in connection with the said property, whether thereon employed or not, or which may arise by reason of injury to any person, livestock or other property as the result of any work or operations of the Lessee or of its possession or occupancy of the said property.

The Lessor shall at its own cost and expense keep and maintain the said property of the Lessors in as good condition and repair as shall

be feasible. The Lessors shall pay promptly when due and before delinquent, all property taxes levied or assessed against their ownership thereof during the term of this lease. The Lessee shall pay promptly when due and before delinquent all taxes upon any and all property of whatever nature placed upon the said premises by it during the term of this lease. The parties shall pay their respective shares of any taxes upon the production of ores, metals and minerals therefrom.

The Lessors shall have the right at their own cost and risk to be present in person or by representatives at all reasonable times during operations, but without interference therewith, and to examine the Lessee's workings, operations, and maps, and its records with respect to sampling, assaying, smelter, mill and mint returns, sales and records of shipments.

Time is of the essence of this agreement, and the Lessee's failure to make or cause to be made any payment as herein provided, or to keep or perform any covenant, promise or agreement in accordance with the terms and provisions hereof, shall at the election of a majority of the first, second and third parties, the Lessors herein, work a forfeiture hereof, whereupon any and all moneys which shall have been paid by the Lessee to the Lessors as royalties or otherwise shall be deemed forfeited to them. Provided, however, that in the event of such default on the part of the Lessee and the election of the Lessors as aforesaid to terminate this lease on account thereof, the Lessors shall give the Lessee a written notice of their intention to declare such forfeiture and to terminate this lease on account thereof, which notice shall specify the particular default or defaults relied upon, and the Lessee shall have thirty days after the giving of such written notice from the Lessors in which to remedy such default, and if the same shall be so remedied, and there be no further default during the said period, there shall be

no forfeiture therefor. The waiver by the Lessors of a particular breach shall not be construed as a waiver of any other breach, nor shall it impair the Lessors' rights resulting from such other breach.

In the event that the Lessee shall be delayed at any time in keeping or performing any covenant, promise, agreement or obligation hereunder by any act or neglect of the Lessors, or by a strike, lock-out, unusual transportation delay, order of duly constituted governmental authority, unavoidable casualty, act of God, or any other cause beyond the control of the Lessee, such delay shall not be deemed a breach of this lease or a default on the part of the Lessee constituting ground for forfeiture hereof, and during any time the Lessee is so delayed it shall be excused from the performance of such of the provisions hereof as may be thereby delayed.

Any and all machinery, equipment, implements, devices, rails, pipes, piping, tools and other property of whatever nature that may be used with or placed upon the said property or any part thereof for any purpose by the Lessee, shall be and remain its property and shall not become a part of the real estate or a fixture thereon, and all thereof shall remain personal property removable by the Lessee and may be removed from the realty by it or its successors or assigns at any time prior to the termination of this lease by lapse of time or otherwise, or at any time within six months thereafter; provided, however, that all timbering in place in any shaft, drift, tunnel or other underground working shall remain in and upon the premises and become a part thereof and the Lessee shall not remove any thereof.

In the event this lease shall then be in full force and effect, the Lessee shall at its election have the option to renew the same for a further period of ten years, by giving the Lessors written notice of its election not less than thirty days prior to the expiration of the original term hereof.

In further consideration of these premises and of the payments to be made and covenants and conditions to be performed hereunder, the Lessors severally and collectively hereby grant to the Lessee the sole and exclusive option to purchase the said property at any time during the entire term of the lease, or any extension or renewal hereof, for the sum of Two Hundred Fifty Thousand Dollars ($250,000.00) for each one-third interest, or a total of Seven Hundred Fifty Thousand Dollars ($750,000.00); provided, however, that any and all royalties and other payments made hereunder before exercise of this option to purchase shall apply upon and be credited against such purchase price. Upon exercise of this option by the Lessee with respect to each or any Lessor, and payment or tender to such Lessor of his or her proportionate part of said purchase price, such Lessor shall execute and deliver to the Lessee a good and sufficient grant deed to his or her interest in the said property and a current abstract showing merchantable title in the Lessors. The Lessors shall also deliver to the Lessee all maps, reports and other documents in their possession concerning the said property.

Unless and until the Lessee exercises its option to purchase said leased property as above provided, then in the event of any proposed sale of said property, or any part thereof, during the original or extended period of this lease by the Lessors or either of them, such owner or owners shall submit the proposed price and terms thereof to the other Lessors, if any, and to the Lessee, in writing, and such other Lessors and Lessee shall have thirty days thereafter in which to elect in writing to purchase the same at said price and upon said terms, with the preferential right in the other Lessor or Lessors, if any. Provided, that in case of any sale of said leased property, or any part thereof, to any party or parties other than the Lessee, the said property sold shall nevertheless remain subject to all the terms and conditions

In further consideration of these premises and of the payments to be made and covenants and conditions to be performed hereunder, the Lessors severally and collectively hereby grant to the Lessee the sole and exclusive option to purchase the said property at any time during the entire term of the lease, or any extension or renewal hereof, for the sum of Two Hundred Fifty Thousand Dollars ($250,000.00) for each one-third interest, or a total of Seven Hundred Fifty Thousand Dollars ($750,000.00); provided, however, that any and all royalties and other payments made hereunder before exercise of this option to purchase shall apply upon and be credited against such purchase price. Upon exercise of this option by the Lessee with respect to each or any Lessor, and payment or tender to such Lessor of his or her proportionate part of said purchase price, such Lessor shall execute and deliver to the Lessee a good and sufficient grant deed to his or her interest in the said property and a current abstract showing merchantable title in the Lessors. The Lessors shall also deliver to the Lessee all maps, reports and other documents in their possession concerning the said property.

Unless and until the Lessee exercises its option to purchase said leased property as above provided, then in the event of any proposed sale of said property, or any part thereof, during the original or extended period of this lease by the Lessors or either of them, such owner or owners shall submit the proposed price and terms thereof to the other Lessors, if any, and to the Lessee in writing, and such other Lessors and Lessee shall have thirty days thereafter in which to elect in writing to purchase the same at said price and upon said terms, with the preferential right in the other Lessor or Lessors, if any. Provided, that in case of any sale of said leased property, or any part thereof, to any party or parties other than the Lessee, the said property sold shall nevertheless remain subject to all the terms and conditions

of this lease, including the option to renew and the option to purchase hereinabove set forth. Upon the termination of this lease in any way the Lessee shall in the same manner give the Lessors notice of the proposed prices and terms of any proposed sale of its machinery, tools, supplies and equipment, and the Lessors shall have thirty days thereafter in which to elect in writing to purchase the same at said prices and upon said terms.

The Lessee shall have the right, under the terms and subject to all the conditions of this agreement, to remove ores, waste, water and other materials from the said leased property and to carry on general mining operations pertaining thereto by means of shafts and workings on other properties, and to remove ores, waste, water and other materials from other properties and to carry on general mining operations pertaining to such other properties on the surface of or through shafts and workings on the said leased property; but until weighed and sampled, all ores extracted and removed from the said leased property shall be kept separate from ores extracted from any other properties.

The Lessee shall have the right to cancel, terminate and surrender this lease and relinquish the property to the Lessors at any time during the original or extended term hereof by giving the Lessors thirty days prior written notice; provided, however, that the Lessee shall remain liable for the payment of all royalties due or accrued at the effective date of such termination.

Upon termination of this lease by lapse of time or otherwise, the Lessee shall surrender peaceable possession of the said property and every part thereof to the Lessors, and the Lessors may take immediate possession thereof; provided, however, that the Lessee shall have six months after such termination, as hereinabove provided,

within which to remove all property of whatever nature placed by it upon the said premises, and not belonging to the Lessors.

Any notice to be given under any provision of this agreement shall be deemed delivered when deposited in the United States Post Office, as sealed, first-class, prepaid, certified or registered mail, addressed to the several parties hereto as follows:

1. To the first party at 904 W. Platinum Street, Butte, Montana;

2. To the second parties at 1159 Steel Street, Butte, Montana;

3. To the third party at 200 Santa Inez Road, San Mateo, California;

4. To the fourth party at 6-10 First National Bank Building, Butte, Montana.

All royalties shall be paid or sent to the Lessors at the same addresses, one-third to the first party, one-third to the second parties, and one-third to the third party.

Provided, however, that upon written notification to the other parties, their successors or assigns, by any party, successors or assigns, of a change of such address, royalties shall be paid and notices given, to such new address.

This agreement shall extend to and be binding upon, and shall inure to the benefit of the heirs, executors, administrators, successors and assigns of the respective parties hereto.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands the day and year first above written.

_____ First Party	Development Operating Corp., a Montana corporation
_____	by _____ ~~President~~ Gen Mgr.
_____ Second Parties	Attest:
_____ Third Party	_____ Secretary
by _____ his Attorney in Fact	Lessee
Lessors	

STATE OF MONTANA)
COUNTY OF SILVER BOW) ss.

On this 20th day of ~~March~~ April, in the year 1966, before me, _____, a Notary Public for the State of Montana, personally appeared Laura I. Walker, to me personally known to be the person described in and whose name is subscribed to the within instrument, and acknowledged to me that she executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal the day and year in this certificate above written.

Notary Public for the State of Montana
Residing at Butte, Montana
My commission expires_____

STATE OF MONTANA)
COUNTY OF SILVER BOW) ss.

On this 20th day of ~~March~~ April, in the year 1966, before me, _____, a Notary Public for the State of Montana, personally appeared Charles S. Youlden and Martha Ann Youlden, his wife, to me personally known to be the persons described in and whose names are subscribed to the within instrument, and severally acknowledged to me that they executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal the day and year in this certificate above written.

Notary Public for the State of Montana
Residing at Butte, Montana
My commission expires_____

STATE OF _____)
COUNTY OF _____ } ss.

On this 22 day of March, in the year 1966, before me, _____ _____, a Notary Public for the State of _____, personally appeared _____, known to me to be the person whose name is subscribed to the within instrument as the attorney in fact of Anker B. Henningsen, and acknowledged to me that he subscribed the name of Anker B. Henningsen thereto as principal, and his own name as attorney in fact.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal the day and year in this certificate above written.

_____
Notary Public for the State of _____
Residing at _____
My commission expires _____

STATE OF MONTANA)
COUNTY OF SILVER BOW } ss.

On this 20th day of ~~March~~ April, in the year 1966, before me, _____ _____, a Notary Public in and for the State of Montana, personally appeared _____, to me personally known to be an officer, to-wit: the President, of Development Operating Corp., the corporation that executed the within instrument, and acknowledged to me that such Corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal, the day and year in this certificate above written.

_____
Notary Public for the State of Montana
Residing at Butte, Montana
My commission expires _____

OFFICIAL COPY
O. H. S.
RECEIVED
DEC 27 1935

K I N G R E P O R T

THE ELKHORN MINE

SUMMARY & CONCLUSION

The claims described herein lie about half way between Butte and Helena. They cover about 110 acres, sufficient for all purposes.

The lease agreement, which covers a 30-year period with low royalty payments, is a fair one.

The ore bodies occur in limestone (dolomite) on the flanks of the Boulder batholith. (a large body of granite).

The original mine workings were in saddles, or folds, in the dolomite directly under an impervious slate hanging-wall.

The foot-wall bodies are true replacements in the dolomite and have been found as far as 360 feet away from the main hanging-wall.

Early operators confined their foot-wall mining to the first "contact", which is from 35 to 50 feet from the main hanging-wall. The Longmaids explored the footwall, from the mine levels below the 1,080 level, and found two additional contacts, one at 80 and the other at 160 feet from the hanging wall. In 1929 a Butte operator sank the Sofia shaft, this is 360 feet from the hanging wall and has definitely proved the existence of good ore at that distance. Recently some small amount of work at 230 feet from the hanging wall exposed still another contact, or replacement zone.

The chief economic metal is silver, with this are commercial quantities of gold and lead.

The average grade of the ore mined from the footwall from 1910 to 1912 was 19.6 ounces of silver, about 0.025 ounces of gold and from 2 to 3% lead.

Original location was made in 1875; from that date until 1912 the property was worked almost continuously. Early operators shipped high-grade ore directly to the smelter and treated second grade (35 to 40 ounces) by salt roast and pan amalagamation. This

method was in use until 1899 when the ore from deeper levels was so base as to make treatment costs prohibitive. The Longmaids purchased the property in 1899, they installed gravity concentration and operated until 1912, when the present owners bought the claims.

From available data it appears the Elkhorn mine produced approximately 8 million dollars in silver, gold and lead up to 1899. Actual smelter settlement sheets for the Longmaid operation (1901-1912) show a gross production of $2,674,072. This covers an actual operating period of slightly more than seven years. It is quite evident that the total production for this property has been in excess of $10,000,000.

Figures taken from smelter reports show that for the work in the foot-wall, below the 1,080 level, the gross value of the products shipped was $925,535; this covers a 27-month period. The average monthly net smelter returns for this latter period was $24,100.

Preliminary sampling done by me recently in the foot-wall territory showed a weighted average value of $8.91 per ton over an average width of 5.76 feet. 84½% of this value is in silver, the balance in gold and lead.

The claims are served by three shafts; the main incline is down 2,300 feet -- the air shaft (incline) connects with the 450 level. The Sofia shaft (vertical) is down 115 feet from the collar and about 40 feet above the 450 level. This latter shaft is completely timbered and in excellent condition. The main shaft is caved for a short distance near the surface, otherwise it is in good shape. The air shaft is of value down as far as the 450 level.

During the months from June to September there is a considerable flow of water into the mine -- during the balance of the year the amount is small and presents no serious pumping problem.

The entire property is served with electric power. A fair mountain road connects the camp with the railroad and highway at Boulder, a distance of 19 miles.

The property is well supplied with all necessary camp buildings such as, bunkhouse, cookhouse, hoist and compressor house and dwellings.

The completely equipped flotation mill of Elkhorn Metals Inc., lies within 3/4 of a mile of the mine and is ready for immediate use. With the present ball mill this has a daily capacity of 100 tons of mine ore and can be easily increased with additional grinding equipment.

A number of preliminary metallurgical tests indicate definitely that from 75 to 80% of the values can be recovered by straight

flotation. A combination of gravity-flotation-cyanidation will bring this up of 85 to 90%.

It should be possible to extract, treat and ship this ore for not to exceed $5.50 per ton. This would include a liberal allowance for developement work.

It is recommended that the Sofia shaft be equipped with an electric hoist, and a compressor installed at the collar. A crosscut of 110 feet will connect the 80-foot contact workings with the Sofia shaft and all ore in the footwall above the 450 level can be hoisted through the Sofia shaft. Work to the north, on the main hanging wall and also into the hanging-wall can be deferred, although both of these projects have very interesting possibilities.

During the past 2½ years I have lived on the mining claims and have had many opportunities to investigate various phases of the deposit. Since April of this year I have been engaged in intensively studying the entire matter and particularly the possibilities that undoubtedly lie in the foot-wall limestone.

Considering only the foot-wall territory between the main slate hanging-wall and the Sofia shaft, and from the surface down to the 1,080 level, there is sufficient evidence available to warrant the strong belief that this block of ground contains a very substantial tonnage of ore that will produce good profits.

The relationship of the granite batholith to the sediments; the folding of the sediments with their brecciation, which resulted in the ore channels under an impervious roof, and the fact that this brecciation has extended for some distance into the foot-wall from the slate roof, thus permitting the flow of the same mineral bearing solutions into this territory, leads to the definite conclusion that in an area of such intense mineralization there is certain to be large bodies of replacement ore that intelligent exploration work will disclose. The actual existence of many such ore bodies has been proved on the 40-80 and 160-foot contacts in the levels below 1,080 feet, and on the 40-80-230- and 360-foot contacts above the 450 level.

These conditions combined with the relative accessibility; the existence of three shafts; the small amount of dead work necessary to reach ore; the grade of such ore; the presence of a modern flotation mill in the camp that is immediately available, and the final fact that the former operators proved conclusively that these foot-wall bodies could be mined and treated at a handsome profit, lead only to the conclusion that this project certainly presents an opportunity where the investment of a comparatively small amount of capital can earn very substantial returns.

REPORT ON PROPERTIES OF SOFIA SYNDICATE, LTD.

LOCATION:

The group of mining claims described herein are situated in Jefferson County, State of Montana, in township 6 North, Range 3 West of Montana Meridan, and in sections 11-14-15 and 22 of the above townships. The claims lie to the north, the east and to the southwest of the townsite of Elkhorn. The County Seat of Jefferson County is at Boulder, which is due west of Elkhorn some 12 miles and is connected by a county road some 19 miles in length. Boulder is located on U. S. Highway No. 10 and is 36 miles north of Butte and 30 miles south of Helena.

CLAIMS, REAL ESTATE AND TITLES:

Included in the holdings are five quartz lode mining claims, to wit: "A. MW. Holter", "Hardin", "Silver Star", "James R. Keene", "Sophia". Three mill sites, vis: "Hardin", "Silver Star", "Elkhorn". Two placer claims: "Elkhorn" and "Bowden". Three lots in the Elkhorn townsite. The foregoing claims and mill sites ALL are patented and of record in the Clerk's office at Boulder. The townsite lots are held as real estate and are also of record in the same office. Taxes for all of the above ground are paid up to date. Titles rest equally in the following owners: 1/3 to D. C. Walker of Jefferson County, Montana; 1/3 to Morril D. Stackpole of Mexico; and 1/3 to Phyllis M. Henningsen of Portland, Oregon.

EMBRACE A TOTAL OF 110.72 ACRES.

LEASE AGREEMENT:

The foregoing three owners and Laura I. Walker, wife of D. C. Walker, entered into a lease agreement with Elkhorn Metals, Inc. on April 25, 1938, the terms of which are as follows:

1. All of the above described property together with all water rights, tailing dams, dumps and other property on the claims is included in the lease.

2. Term of lease is 30 years with an option to renew for a like period.

3. Starting July 24, 1938 lessees are required to work at least 50-man shifts per month of 30 days (2 men for 25 days), after which they are to work 100-man shifts per month during the life of the lease. Any excess man-shifts may accumulate and be applied during any shut-down period (or curtailment period) for the balance of the year in which such excess accumulated and for the entire year following.

4. Provision is made of suspension of operations due to decreased market price for metals; if such suspension shall exceed a 12-month

period, lessee is to pay taxes on real property for ~~each~~ such time in excess of 12 months that property is idle. This action will keep the lease in good standing.

5. To pay to owners a royalty of 7½% of net smelter returns (proceeds after deduction for freight, treatment, assaying, and representation charges) on all ore extracted from mine or dumps and treated in the mill. On raw shipping ore (not milled) the royalty is 12½% on the net smelter returns.

6. The right to purchase all three of any one of the interests in the property if and when an owner, or the owners, desire to sell. Lessee given 60-day period in which to meet price and terms offered to any other parties.

Sofia Syndicate, Ltd. acquired the above lease by transfer from Elkhorn Metals, Inc., with an agreement that the present complete milling plant and equipment of Elkhorn Metals, Inc. would be available for the use of Sofia Syndicate.

GENERAL GEOLOGIC FEATURES:

Walter Harvey Weed spent the better part of three seasons at Elkhorn and made a very comprehensive report for the United States Geological Survey; this was published by the Government in 1902 under the title "GEOLOGY AND ORE DEPOSITS OF THE ELKHORN MINING DISTRICT, JEFFERSON COUNTY, MONTANA." Little can be added to Weed's report with respect to the broad geologic features of the district, however, much has been learned about the replacement bodies in the footwall territory since he last visited the property.

The excellent monograph, which consists of 150 pages containing maps, photographs, sketches, etc. is the source of much of the information in the following pages. Unless otherwise noted all quotations are from this report.

"The district lies on the border of the great Boulder granite area, and includes a part of that area and also the borders of an area of folded limestones, shales, etc. . . . The folding of the strata is clearly older than the extrusion of the igneous rocks which break up through them. . . . The Elkhorn mining district includes a wide variety of rock formations and, small as it is, within its borders is found evidence showing the nature of a long series of profound disturbances which have materially modified the geology of this part of the State." p. 419.

"The sedimentary rocks embrace a part of the Algonkian series known as the Belt terrane, and the Cambrian and other Paleozoic formations recognized in the Belt Range are undoubtedly

represented here. . . . The igneous rocks are of several kinds, generally coarse grained, but of very widely differeing appearance. The rocks are mostly of common types and present no difficulty in classification. They are of different age and represent successive events occurring in the Tertiary or post-Tertiary history of the region. The oldest rocks are gabbros and diorites, the youngest are aplitic granites. . . . Volcanic activity of great power and probably long duration is represented by the andesitic rocks. . . . These volcanic rocks were at a later period broken through and probably somewhat metamorphosed by intrusions of diorite-porphyry, which broke off parts of the earlier gabbro mass and chilled against the andesitic rocks. The granite is even later, as is clearly shown is several places by including fragments of earlier igneous rocks. The aplite-granite is still later and is the most recent of the igneous rocks". pp. 420-21.

IGNEOUS ROCKS:

"The igneous rocks cover about half of the area of the Elkhorn district and. . .they underlie the sedimentary rocks in some areas where the latter are seen on the surface. Their diverse characters, their relations, and their effect upon the sedimentary rocks and upon one another make them the leading feature of the geology of the district. The ore deposits are probably derived from the igneous intrusions, but definite proof of this connection can not be traced. The igneous rocks are all younger than the sedimentary ones. . . . The most abundant rock type is one of granite habit and forms a part of the granite area extending for many miles north, west, and south of Elkhorn." p. 422.

Granite (Quartz-Monzonite)

"Under the name "granite" are included those coarsely granular rocks, intruded and consolidated at considerable depths below the earth's surface, which have a normal granitic structure and consist of quartz, orthoclase, soda-lime feldspars, hornblende, and biotite. Augite, titanite, and magnetite are present as accessory constitutents. The Elkhorn granite is exactly like the granite at Butte in which the copper and silver veins occur." p. 423.

"This great mass of granite, to which the name "Boulder batholith" has been applied by the writer, is somewhat sharply defined, and with its aplitic forms is the youngest member of the igneous series at Elkhorn. . . . Within the Elkhorn district the granite forms the western flanks of Elkhorn Peak and the rough country west and northwest of the town of Elkhorn." p. 423.

Diorite-Gabbro Group

"These rocks form a series in which gabbro and diorite form the end members, with rocks of intermediate character between. . .the smaller intrusions near the town are of intermediate character, while the geological evidence indicates that they are all parts of one great mass underlying the altered sedimentary rock seen on the surface." p. 426.

Andesitic Rocks

"The andesitic rocks embrace a wide variety of types of both intrusive and extrusive origin. . . . Collectively they represent the products of a single period of vigorous volcanic activity." p. 429. While present in large amounts within the district these rocks have no bearing upon the mineral deposits and therefore are not of immediate interest.

SEDIMENTARY ROCKS:

Weed states that the sedimentary rocks vary in age from probable Algonkian to Cretaceous. The Algonkian beds are part of the Belt terrane. The Cambrian rocks are of the Middle Cambrian.

Cemetery Limestone

"This limestone, named from its occurrence at the Elkhorn cemetery, consists of 650 feet of beds, all of which are true limestones. . . . The uppermost 100 feet of the Cemetery limestone includes the thin- and thick-bedded white or light-gray limestones, showing a crystalline, granular texture. This bed varies to a straw-yellow dolomitic marble, which constitutes the footwall of the Elkhorn mine." p. 437.

Elkhorn Hornstone

"The Elkhorn hornstone is seldom seen in good surface exposures, but its location has been determined by numerous prospect pits made to trace out the bedding plane between it and the underlying limestone, the horizon on which the ore bodies of the Elkhorn mine occur. The rock is well exposed in a hanging-wall crosscut of the Elkhorn mine, consisting of a series of thin-bedded strata, varying in composition from nearly pure, extremely dense, and fine-grained quartzites to calcareous and argillaceous shales. The rocks are indurated and metamorphosed and in the mine are really hornstones. The thickness is estimated at 40 feet, though in the mine a crosscut 120 feet long is driven through these and closely similiar calcareous rocks which dip east at 40 degrees." p. 437.

Keene Limestone

This formation lies on top of the Elkhorn hornstone and Weed estimates it to be about 500 feet thick, he places it in the Upper Cambrian and lower Devonian. The Keene mine, which lies about 1,000 feet north of the Elkhorn mine, was worked a number of years ago for gold ore. Weed was unable to make a detailed examination, but he expressed the belief that the deposit is formed along impervious stratum with the Keene limestone as the footwall.

Structure

"The sedimentary beds all lie at steep angles and have a prevailingly northward dip. . . . The block of sediments at Elkhorn forms the eastern limb of an anticlinal fold, the western limb and crest of the fold having formerly existed in the area now occupied by the granite. . . . While the original structure of the sediments resulting from orogenic movements which preceded igneous intrusion was that of a simple arch, the folding of the rocks developed many lesser crumplings of the beds, and these creasings and crinkles, with accompanying slips and small faults, and crushing of the rocks of the big fold, were naturally most marked in the beds which formed the core of the arch." pp. 443-44.

Description of Hanging-Wall Deposit

"The ore deposit does not constitute a true vein, though commonly spoke of as a vein or lode. The ore occurs in two principal shoots lying on the under side of folds -- i.e., in the saddle of the folds -- and conforming to the dip of the stratified beds in which they occur. These ore bodies are found along a bedding plane between indurated shale (hornstone) and dolomitic marble. Although there has been some slipping and movement along this plane, the contact is not mineralized, nor does it show any vein quartz or other lode material except in the steeply pitching arches underneath which the ore bodies occur; the ore deposits consist of more or less irregular bodies of rudely lenticular cross section lying against the hanging-wall hornstone, and as isolated masses forming so-called "chamber" deposits in the underlying dolomite. The hanging-wall bodies consist of quartz carrying ore minerals and are practically continuous from the top to the bottom of the mine." pp. 470-71.

Referring again to the folds as briefly noted under structure above, Weed says: "The ore deposit occurs in two of these lesser flexures, which coalesce near the surface and form one relatively broad arch. These arches pitch steeply to the north. The gabbro-diorite intrusion breaks through the limestones and shales, and has shattered them, sending out forks and tongues of diorite and

allied rocks into these irregular breaks. Such intrusions are seen on the surface to the northwest and southeast of the mine, and are encountered in an exploratory drift underground, and, though they have no direct connection with the ore bodies and do not make ore where they occur, it is believed that the main gabbro mass is the source from which the metallic contents of the deposits have been derived." p. 472.

The Ores

"The ores of the mine are classed a milling ore and smelting ore. The first kind are quartzose and come from the hanging-wall bodies almost entirely and embrace only those ores that can be treated in the mill. . . . The smelting ore consists of galena, together with quartz, some zinc blende, and a lesser amount of pyrite. In the upper part of the mine these minerals were oxidized, and as a consequence the mine yielded large amounts of carbonate ore, which was sent to the smelter when it carried 20% of lead. In the deeper levels and in the lower part of all the foot-wall ore bodies only sulphide ore occur, and these, when brought to the surface, contain much white limestone and were therefore cobbed by hand and sent to the smelter. . .. No average value can be given for the two kinds of ore for the entire mine. In 1897, 13,526 tons of ore were milled, which showed an average silver content of 36.3 ounces and gold 0.0031 ounce per ton. The roasted ore has for the last three years averaged about 39 ounces of silver per ton. The shipping ore sent to the smelters averaged, during 1897, 135.4 ounces of silver and 0.152 ounce of gold per ton, with 12½% of lead. At the average selling price this gave a value of $67.78 per ton. . . . The ratio of gold to silver in the ores is a very constant and approximates 1,000 ounces of silver to 1 ounce of gold." pp. 474-75.

DESCRIPTION OF FOOT-WALL ORE BODIES

"The lead chambers are isolated bodies connected by fissures or rusty stringers with quartz ore shoots, but of irregular shape and position, and often of large size. They are not cave deposits, and the term "chamber" applies only to the caverns, left after extraction of the ore, no original cavernous open spaces occurring." p. 471.

The foregoing quotation from Weed regarding the lead bodies, or replacement deposits, is based upon his examination of the series within 50 feet of the hanging-wall, or what is spoken of as the 40 foot "contact". Very little exploration work beyond this "contact" into the foot-wall was done by the operators prior to 1910. The English company, according to Weed, called this the footwall of their deposit, altho it was separated from the main hanging-wall bodies by 35 feet, or more, of dolomite,

As it has not been possible for me to examine the mine workings below the 450-foot level, due to water, a number of conferences have been held with Mr. Josiah Bowden, who was mine manager for Longmaid's during their operations from 1901 to 1912. In addition to much valuable information furnished by Mr. Bowden in our conversations he wrote to me on June 13, 1938 with particular reference to the foot-wall bodies. The following quotations are from this letter.

Bowden's Letters

"In working the mine our idea was to handle all of the loose ore in the mine, developing any possible ore bodies and sorting the ore so as to make two classes of ore. In carrying on this program in the mine we developed the fact that there was a series of ore bodies on contacts 40 feet, 80 feet and 160 feet from the hanging wall. Most of our foot-wall development was in the lower levels. One ore body developed on the hanging-wall at the 1,650-foot level extended through the different contacts, going down to almost the 2,250-foot level, until we were several hundred feet in the foot-wall, from the slate hanging-wall.

"Another large ore body developed was on the 1,550-foot level and the ore body continued from the 40-foot contact almost horizontally into the footwall, a distance of 300 feet. Both of these ore bodies were in virgin ground. I mention these two in particular as they were the largest bodies of ore that we developed in the mine, and both averaged around 100 ounces in silver. When the mine closed down we were working many places in the footwall on ~~and~~ the 40- and 80-foot contacts and had men working on the 450-foot level at the time the mine closed down.

"During our operation of the mine we developed the fact that ore bodies in the foot-wall were in line with ore bodies that had been developed on the hanging wall on the fold of the dolomite. I might say in this connection that most of the ore in the mine was developed on the fold on the south side of the shaft, and while there is a similiar fold on the north side of the shaft, the ore bodies were small and our work in the foot-wall did not develop much of consequence. Generally speaking, any ore found in the mine was high grade, and wherever a knife blade of ore can be found it pays to follow it up and develop it, for it often leads to another lense of ore."

In a letter from Mr. Bowden, dated August 3, 1938, he says in speaking of the foot-wall territory: "It seems to me that there are great possibilities to develop ore in the foot-wall of the Elkhorn mine, and the section from the 450-foot level down to the 1,050 level has not been developed to any

extent. Our work in the foot-wall was mostly in the lower part of the mine and ore bodies that we discovered were really due to work that we were doing along the hanging-wall and not to direct development.

"As I have told you in our conversations, no matter where you find ore, or how small the showing, it should be developed, for very often places showing but little ore will lead to large and valuable ore bodies.

"In operating the mine, we always have thought that development in the foot-wall should be done under the folds in the limestone as that is where the large ore bodies on the hanging-wall occur."

Under a section entitled "Foot-wall Dolomite" Weed says: "The dolomite or marble in which the ore occurs forms the uppermost member or stratum of the limestone series herein designated the Cemetery limestone. The foot-wall crosscuts show this rock to be of very uniform character. The bedding is rather massive, and in a crosscut driven for a distance of 200 feet horizontally a few obscure partings or stratification planes are seen. They are marked by films of argillaceous matter, and one of them, occurring at 35 feet beneath the slate hanging wall of the ore body, is very constant in character and is commonly called the foot wall of the ore body. The argillaceous material is part of the limestone, however, and shows no clay or slickensides or other evidence of movement. The rock is a crystalline dolomite of medium and even grain, usually white, but varying to a bluish-gray or yellow color. . . . The yellow rock is the oxidized form found near the ore bodies in the upper part of the mine. It commonly shows more iron and silica than the white dolomite, and the fracture planes are marked by dendritic films of manganese." p. 473.

In the above quotation Weed makes no mention, or suggestion, of any drifting along the "partings or stratification planes" that he noted in the 200-foot crosscut. This is strange as he must have noted some similiarities between these and the one at the 40-foot "contact". Ore had been mined on this contact from the bottom of the mine to the 550-foot level.

I recently confirmed Weed's statement regarding the partings or stratification planes, these are quite prominent in the 40-foot and 80-foot "contacts" as seen on the 450-foot level in the old mine and again on the 230- and 360-foot contacts as examined in the workings from the Sophia shaft. Where the parting planes occur in the massive and unbroken dolomite they vary from a thin tight seam to widths up to an inch or two, and are then filled with a soft, brown talc-like material. These can be easily traced in every case to a point where crushing of the dolomite

has occurred and the deposition of quartzose ore has taken place. From statements made by Mr. Bowden with reference to ~~to~~ the foot wall bodies in the lower levels, together with my own observations above the 450-foot level, it is quite apparent that the replacement bodies on the different "contacts" lie in line with the main folds, or saddles, in which the large bodies on the hanging wall were formed.

From another U.S.G.S. publication, i.e. Bulletin No. 527, written by Adolph Knopf and published in 1915 the following quotation is taken.

U.S.G. Survey # 527 by Adolph Knopf
Year 1915

REGARDING ELKHORN MINE

"The footwall bodies consist mainly of replacement masses of galena, spalerite, and pyrite in the dolomite beneath the hanging wall hornstone.

"At the time of Weed's examination, the ore deposit was supposed to have a definite footwall - a thin stratum of argillaceous limestone occurring about 35 to 50 feet from the hanging wall, as measured along crosscuts in the footwall country. This is now know as the "40 foot contact". It is particularly well shown on the 350 foot level south; where unsheared, it consists of a somewhat argillaceous stratum averaging 3 inches in thickness. It swells and constricts and has evidently been a locus of movement. The dolomite above and below this stratum seem to be alike.

"The new owners of the Elkhorn mine, who acquired the property in 1899 after it had been regarded as worked out, have explored the footwall country below the 40 foot contact and have discovered other ore bodies. They have found two other "Contacts", known as the 80 foot and 160 foot "Contacts".

"In other words, the thickness of the ore bearing zone has been found to be 160 feet instead of 40 feet (or 80 and 20 ft.) if measured normal to the dip of the stratification. The 80 foot "Contact" is apparently a stratification plane and is not particularly well marked. The dolomite shows no recognizable change above or below this plane. The 160 foot "Contact" is even more feebly marked than the 80 ft. Contact.

"The ore masses, which after extraction are represented by extremely irregular caverns and crooked pipes, are known as first, second or third contact bodies, according to the contact on which they were discovered. Many of them extend by exceedingly devious courses back to the hanging wall hornstone, or slate as it is known locally.

"Great ore masses have been found whose major dimensions cut across the bedding of the dolomite. In this respect the Elkhorn deposit departs strongly from the saddle reef type of ore body, with which Weed has identified it, but in the broader feature - the localization of the ore shoots beneath anticlinal arches - as clearly shown on Plate LVII of Weed's report - it is in striking accord with the saddle reef type."

In a more detailed description of the footwall bodies Weed says: "Besides the well-defined and continuous ore shoots of the mine. . .there were a number of detached ore bodies of highly argentiferous lead ore lying encased in the dolomite. As these ore bodies occurred in the foot-wall rock and were usually separated from the slate by a greater or less thickness of dolomite, they were not developed by the mine levels run along the slate bedding plane. In general they occur close to the main ore shoot, and with one exception are found above the 2-inch argillaceous band in the dolomite, which has been called the foot-wall of the ore deposit. . .these bodies occur beneath the main ore channels or alongside them; that they are found in the same fold or pitching arch as the ore shoots, and that insignigicant as the connecting feeder or stringer of ore sometimes appears to be, they really are part of the same general ore mass and owe their isolation to the presence of favorable physical conditions, such as crushing of the dolomite, or to those vagaries of solutions dissolving in the limestone which are apparent on the maps of underground caverns. The difference in mineralogic character is believed to be due to a selective reaction by the dolomite, whereby lead-silver ores are deposited when ore channels penetrate limestone, and is in accord with observation of ore deposits the world over.. . . The form of the ore bodies is very irregular; they commonly show rounded sides with projecting points and fingers, and such projections are more apt to mark the upward extension of the ore body along the dip than either its downward or its lateral limits. . . There seems to be a tendency for them to be limited by the so-called footwall, which is a thin seam of argillaceous limestone from ¼ to 2 inches in thickness, occurring at a distance of about 35 to 50 feet from the hanging wall." p. 485.

"The ore forming these lead chambers is not a solid mass of galena or its alteration products, but consists of a breccia of white or yellow dolomite fragments cemented by ore. Sometimes the upper part is a limestone breccia with the interspaces filled with blue quartz, in which case the quartz carries from 50 to 100 ounces of silver, though it may show no recognizable minerals. Such ore carries no lead, but when broken down is low grade and will run 15 ounces of silver per ton." p. 489.

Weed says on page 489 "No foot-wall bodies have ever been found in the mine above the 550-foot level." Since this was written the Longmaid's opened up good bodies on both the 40- and 80-foot

contacts from the 450-foot level. Within the past few years new work has shown definitely the presence of excellent ore at 230- and 360-feet from the main hanging wall, all above the 450-foot level. That this ore extends to the surface is quite apparent, as cropping have been found on the 80-foot contact and also the 360 ~~300~~-foot contact. It is now very evident that Weed and none of the operators prior to the Longmaid's realized the real possibilities of the footwall territory.

Speaking of the mode of formation of the "lead chambers" or footwall bodies, Weed says, page 490, ". . .and though positive proof that the ore is formed by the replacement of limestone is afforded by underground workings, by numerous specimens, and by thin sections of the ore seen under the microscope, part of the ore body appears to be due to the filling of the open spaces between the limestone fragments."

Weed's detailed description of a foot-wall ore body is worth repeating at this point. "Most of the foot-wall bodies were practically mined out at the time of the writer's visit, the ore that was left being found along the sides of the ore bodies or in small projecting prongs of the main chambers. A good opportunity for an examination of an ore body of this kind, was, however, afforded by the opening up and extraction of an ore body lying between the two main ore shoots. This ore body has been called the Wilson shoot, and lies in the dolomite between the south ore shoot and the main shaft. This body, unlike foot-wall bodies in general, is not directly behind or underneath the main ore shoot, but lies off to one side and at a greater distance from the slate contact than most of the foot-wall bodies. Its general characters, however, are similiar, though it contains a larger proportion of quartzose ore. The ore body begins as a spur passes off into the foot-wall dolomite as a pipe of chimney and opens out into a broad and high chamber, from which large amounts of ore were extracted. It forms a continuous, though irregular, ore body from a point below the 1,250-foot level to a short distance below the 1,650-foot level; its farther extension is uncertain, as the ore at that point was too base to mine, though it lies directly over the upper part of another ore body and probably connects with it by low-grade ore. Its location corresponds by to a decided bend in the strata, which develops into small cross faults throuwing the slate hanging wall in the 1,650 and lower levels. These faults are apparent in the slate, but are dissipated in the limestone in a series of parallel fractures or in a simple crushing of the rock. The connection with the main ore sheet shows porous and oxidized quartz, which changes in the limestone to oxidized lead ore consisting of cerrusite and other products of decomposition carrying high values in silver. This character of ore continues downward to the 1,400-foot level, the silver contents being very uniform except on the borders of the

deposit, where it becomes lower in grade. This decomposed ore contained nucleal masses of sulphides in the upper part and changes to a solid body of galena with blende and pyrite about 200 feet below the top. The sulphide ore continued downward, but decreased gradually in silver contents, corresponding to a decrease in amount of galena and a larger amount of zinc and pyrite, until finally, at a point 19 to 15 feet below the 1,650-foot level, the ore consisted largely of black-jack (blende) with iron pyrite, and carried from 10-to 15 ounces of silver per ton. The big ore chamber consisted mainly of shipping ore of the character just noted, the upper 6 feet, however, being rich oxide that was taken off for milling, and rich bunches and streaks of this ore were found along fracture planes extending into the limestone above the ore body. . . . In the north prong of the big chamber there was some oxidation, the dolomite being yellow with dendritic manganese markings and the quartz carrying some oxides. The rich oxide ore, which, as just noted, was taken off for milling, lay against the roof of the ore body and rested upon the shipping ore of the foot-wall side. The quartz was brown and waterly looking, and apparently carried no values, though it assayed 75 ounces in silver and formed a very good milling ore. Underneath the altered lead ores there was usually more or less sulphide ore, which averaged over 200 ounces in silver per ton. The pyritic ore, into which the ore shoot passed in depth, varied greatly in value. This no doubt depended somewhat upon the proportion of galena which it contained, but also consisted in a variation in the silver contents of the pyrite itself. The size of these foot-wall workings are often somewhat larger than that of the actual ore body, since strings of rich galena extend out into the limestone, particularly where the ore body wedges out at the sides and ends. . . . Commonly the yellow color of the dolomite is an indication of the proximity of the ore bodies, as it is due to oxidation following down the occurrence of the richest galena. . . . In general it may be stated that in all the ore bodies the proportion of pyrite increases in the lower part, and in some cases the low values of this pyrite prevented a thorough exploration of the ore body, so that its actual limits and lower extensions are not definitely known. However, fairly thorough prospecting on the 2300 south levels has demonstrated that the ore bodies have pinched out at that depth and that no large masses of payable ore occur. Considerable space has been devoted to a description of the foot-wall bodies, as it is believed that they are merely parts of the main ore shoots and show in the structure evidence of the manner of formation of the deposit. In the lead chamber the limestone has been replaced mainly by galena; in the main shoots, by quartz carrying tetrahedrite." pp. 490-91-92.

STRUCTURAL RELATIONS OF THE ORE SHOOTS

"An examination of the mine map shows a very interesting connection between the occurrence of the ore shoots and the presence

of flexures in the strata. With rare exceptions the mine levels are driven along the slate-limestone contact. The map therefore shows horizontal sections of the contact palnes, and the curves in the levels correspond to flexures in the rocks. It is apparent from the mine map that the strata are bent by two flexures whose arc is longest in the deeper levels. The flexures are farthest apart in the deep levels and approach each other in the upper levels, until they form practically one fold. The diagram, which is made from the mine map, shows that the ore occurs on the under side of steeply pitching arches, that is, underneath flexures in the hanging-wall slate. This may be regarded as definite proof that the ore-bearing solutions came from below and followed up channels formed by the crushed limestone and confined by the impervious hanging wall slate. This proof is the more interesting because of the gradual impoverishment of the ore shoots in depth and their pinching out in the deeper workings. The material for the ore shoots must have come through fissures now filled with low-grade or barren quartz, such as the small shoot of the 2,300 level. The ore of the hanging-wall bodies was in part a breccia and in part a solid ore. It is certain, however, from the occurrence of the ore shoots that ore deposition was practically controlled by the rock flexures, and the ore bodies are thickest where undulations in the slate occur, as shown in the vertical cross sections. In a lesser degree the minor fractures also effect ore deposition. . . . The Elkhorn ore bodies are saddle deposits formed in pitching arches beneath a bed of impervious slate and in a dolomite marble." pp. 492-93.

"In the disturbed strata of the Elkhorn district the folding has been accompanied by movement or slipping along the bedding planes, and this movement has produced brecciation and minor faulting along the axes of the lesser folds. The impervious slate acts as a cover that confined the circulating waters to the pipes of crushed rock in the saddle of the arches. Similiar contact deposits between slate and limestone are relatively common in the Rocky Mountains, and may be ascribed to the impervious and insoluble nature of the slates and perhaps to the fact that precipitation was induced by the retardation of the current along the confining wall. As already stated, it is only when the slate is brecciated that ore deposition has taken place in this rock, the deposits generally being confined to the dolomite." . . . In its brecciated character the deposit is analogous to the silver-lead deposits of Eureka, Nevada. Interstices between the fragments of crushed limestone would admit of a relatively free passage of surrounding waters, and would furnish space for the precipitation of quartz and the ore minerals, while the readily soluble dolomite fragments would be replaced by vein material. The irregular forms of such ore bodies are to be explained by the occurrence of crushed masses of rock any by the dissolving action of the mineralizing solutions." p. 494.

In a brief summary Weed has the following to say: "The Elkhorn deposit is noteworth for several reasons:

First: It occurs in plicated sedimentary rocks metamorphosed by a succession of igneous intrusions.

Second: It occurs in the crushed rock found in the saddle of minor folds, and follows the bedding plane of an overlying altered shale (hornstone). The crushed rock formed the primary ore channel for uprising silicious waters.

Third: The deposits are not the result of the filling of pre-existing caves in the limestone, but are mainly due to gradual replacement of dolomite by the substances brought in by ore-bearing solutions. The ore is confined almost entirely to the more readily soluble dolomite, when found in the hornstone being only a cementing material for fragments of that rock.

Fourth: The ore is believed to be derived from below, because it occurs on the underside of an impervious stratum, bent in pitching anticlinal folds.

Fifth: That the ore decreases in amount and richness in depth is no objection to the theory proposed, since it is now well known that in the Black Hills the barren, or but slightly mineralized, "verticals" (mere cracks traversing the rock) are the feeding channels for important ore bodies that occur in readily replaceable rocks, particularly at bedding-plane contacts withadjacent impermeable strata." p. 495.

Under "Alteration of Country Rock" the same authority is quoted further: "The dolomite is not the result of the dolomitization of a limestone by solutions ascending through the ore channels, since it maintains its character remote from the ore. . . . The dolomite does not show alteration from the ore-depositing solutions. This is lacking because the action was oneof replacement of dolomite by silica and sulphides. In this sense the rock is altered, for near the ore bodies it is shattered or cracked and the fractures are filled by silica. These silica films are due primarily to a penetration of the solution along the fractures, but they are more properly replacement deposits, since their sections studied under the microscope show that the dolomite is attached along cleavage lines, etching and deposition of silica going on simultaneously. This is, of course, merely a phase of the process of ore deposition, for the quartz films often carry sulphides, and if the dolomite be dissolved away by dilute acid a skeleton is left, composed of silica and metallic sulphides, which constitutes a cellular mass pseudomorphic after the dissolved fragments. Where oxidation of the sulphides has produced acid waters this same action has taken place in nature. Where substitution has gone still further, and the original solutions have

replaced a large proportion of the limestone, the original brecciated character is lost, and a mass of quartz, or ore, carrying included fragements of limestone is all that is left to indicate that the process was one of replacement." pp. 495-96.

Under "Origin by Replacement" Weed deals further with the method of formation of the ore bodies, as follows:

"That the ores are deposited from aqueous solutions there can be no doubt; their general occurrence, mineralogic character, and a study under the miscrope of thin sections all confirm this conclusion, and as such origin is now generally accepted for most ore deposits no further comment need be made on this subject. That the ores were deposited by ascending waters is proved, as hasalready been stated, by their occurrence under pitching arches. That the ores are deposited by replacement ofcountry rock, and only to a minor degree by the filling of the interspaces between limestone fragments, is proved by the evidence afforded by a study of the ore deposits, by the ores themselves as seen in hand specimens, and by thin sections examined under the microscope. By replacement is meant what is technically called metasomatism; that is, interchange of substance. . . . The positive evidence of metasomatism is very striking and complete at Elkhorn. In the foot-wall ore bodies especially, the structures show that masses of crushed dolomite resulted from folding, and the open spaces between the fragments, if such existed, would, if filled by ore, produce the ore breccia now seen. A careful study of all the cavities left by the extra-action of ore showed that no pre-existing caves served as loci for deposition. Moreover, the ore bodies as mined never showed open cavities above the ore." p. 496.

Source of Minerals

"The metallic contents of the Elkhorn deposits are believed to have come from the igneous rocks lying beneath the limestones. That the ores are the result of uprising siliceous waters is established by the facts already set forth. That these waters were hot is extremely probable, since there is abundant geological evidence that the successive igneous intrusions heated the entire district and that fumarolic activity prevailed, as is shown by the occurrence of axinite, tourmalines, and other minerals in the rocks. As already stated, the ore deposit has been formed since the gabbro intrusion and the accompaning metamorphism of the sediments. . . . No definite evidence has been obtained proving that the Elkhorn rocks are especially rich in silver and lead, yet the presence of metallic sulphides and the geological facts all point to the gabbro as the source of metallic contents. Ore deposition probably took place after the intrusion of the granite batholith. The profound changes resulting from the presence of this enormous mass of rock, which obliterated the former rocks over an immense area and produced a great heating about the borders of the intrusion, all indicate conditions favoring a shattering of the gabbro and a leaching of deep-seated portions of the mass by uprising waters following the granite intrusion. . . . It is true that there is a certain amount

of evidence proving a differentiation of the granite about its borders, and that these basic differentiation products may have been leached by the circulating hot water, but it seems reasonable to suppose that the gabbro, a more basic rock, afforded some favorable physical conditions for the leaching and extraction of its precious metal content. . . . The occurrence of this deposit on the border of the granite batholith is analogous to that of many of the great ore deposits of Montana. The Granite Mountain mine, The Drumlummon, the mines at Winston, and the Whitlatch Union lode, near Helena, are all familiar examples of rich ore deposits formed in veins traversing similiar contact rocks." pp. 501-02-03.

Secondary Enrichment

Weed, after studying this phase of the subject concluded that there had been little, if any, reprecipitation of the economic metals at lower levels; the absence of any large amounts of iron sulphide minerals, (which do act as precipitants for minerals carried in descending solutions), the fact that the mine waters were not acid and do not carry ferric sulphate, together with the unbroken condition of the ore bodies which were not freely penetrated by descending water, leads him to the statement that "it is evident that favorable conditions for secondary enrichment did not generally exist." p. 504.

AGE OF THE ORE DEPOSIT

"The geological evidence which has been presented in the foregoing pages proves that the rock metamorphism of the strate containing the ore deposit is mainly the result of the intrusion of the granite batholith, as it follows from this that the ore deposit is younger and has not suffered metamorphism. It is believed that the deposit was formed shortly after and is a sequal to the granitic intrusion, and hence is of late Eocene or early Miocene age, the rhyolite intrusions and the outbursts which took place at neighboring localities in middle and late Miocene time were, it is true, followed by ore deposition at some places, but there is reason to believe that the Elkhorn deposits were not the result of this period of dynamic activity, but that, like those of Butte, they preceded the rhyolitic intrusions." p. 504.

Paragenesis

"A study of the ores from the Elkhorn mine shows that the primary minerals were deposited at the same time. There is, it is true, oftentimes a distinct coating of pyrite about isolated grains of galena, but in the massive ore the minerals interlock

and show no evidence of difference in age. . . . As to the association of the minerals, it has been observed that where the ore contains tetrahedrite it commonly holds a light pale-brown zinc blende, and that pyrite is either absent or is present in insignificant amounts." p. 469.

HISTORY

According to patent records its original location was made on the Holter claim January 2, 1875. The early history of the mine is best told by quoting from Weed. He says: "In 1881 the mine was developed to a depth of 300 feet, and the nature of the ore made it evident that a new mill would have to be erected and choloridization adopted. . . . IN 1883 the property passed into the possession of the Elkhorn Mining Company, (organized by A. M. Holter), a new hoist was erected, and a 10-stamp chloridizing mill was put up, with a capacity of about 11 tons a day. The ore was stamped fine, roasted, and amalgamated in combination pans without grinding. The result was a saving of 90 percent of the values and a bullion product aggregating $188,375 insilver and $2,320 in gold for the first ten months after installment. . . . The old Elkhorn Company subsequently increased its battery to 20 and then to 25 stamps and worked the mine down to the 800-foot level, where lean ore was encountered, and some doubt was expresses as to whether the property was not worked out. In 1888 the Montana corporation sold out to a new company organized in London, which took the name and property of the old corporation, remodeled the mill, and instituted a policy of vigorous development, . . . In 1896 the ore in sight was nearly exhausted, and preparations were made to abandon the mine, but Mr. Walter S. Folley, who at that time became general manager of the property, by careful exploration work disclosed new ore bodies, and continued to work the property until December 1899." pp. 411-12

In 1887 the Northern Pacific Railroad built a line from Boulder, the County Seat, to Elkhorn. "A triweekly train service was established, making it possible to ship the silver-lead ores which were discovered in great abundance in the deep workings of the Elkhorn mine, and which were also found to a limited extent in other properties in the district." p. 413.

Relative to the subsequent operations of the Longmaid's I quote from a letter to me from Mr. Josiah Bowden, who was manager for the last operators, this letter is dated June 13, 1938. "I was associated with the Longmaids from 1894 until Mr. J. Henry Longmaid took the management of the Esterbrook Pen Works at Camden, New Jersey in 1918. During this period we operated the Elkhorn mine and I had full charge of operations.

"The property was purchased in 1899 from the English Company and shortly after we commenced remodeling the mill, spending $100,000 in installing Bruckner furnaces and complete chloridizing plant, intending to treat all the ores at the mine. Shortly after this silver dropped in value to less than 50¢ per ounce and although the mine had been unwatered to the 1,100-foot level it was decided best to completely close the mine.

"This was in 1902 and the property remained idle until 1906. Arrangements had been made through the American Smelting & Refining Co. at East Helena, and the Northern Pacific Railroad to completely reestablish the branch of the Northern Pacific Railroad to Elkhorn, and having decided to treat only the low grade ore at the mine, the mill was entirely remodeled, crushers, stamps, tables and vanners being installed, so the the low grade ore (less than 10 ounces) could be concentrated and the higher grade shipped to the smelter. The mill averaged slightly less than 10 ounces of which we saved about 60%, making a concentrate average in value 100 ounces in silver and 5 to 6% lead which was shipped to the smelter."

By June 1910 the Longmaid's had cleaned up all available ore in the old mine workings and according to statements made to me by Mr. Bowden, were prepared to close down. He, Mr. Bowden, decided to look into the footwall possibilities before stopping, as a result of which the smelter records show that they operated steadily for an additional 27 months, all of the ore coming from the foot-wall bodies mentioned in Mr. Bowden's letters.

In this connection I quote again from Mr. Bowden's last letter: "When we purchased the Hecla mine, it looked to us like a proposition similiar to the Elkhorn, and we expected it to develop in somewhat the same way and therefore did not hesitate about leaving the Elkhorn and starting a new operation, for the possibilities certainly looked good.

"Our investment in the Elkhorn was originally a large one, about $350,000, and after we had been able to complete the return of our investment with a nice profit, we did not feel like undertaking further development of the mine, using our profits for this purpose. No doubt this was one of the factors which kept us from continuing in our development."

(The Longmaids spent $80,000 in pumping out the old mine; $100,000 for installation of new Bruckner roasting furnaces and pan-amalgamators (which were very soon discarded for gravity equipment), a large mill for leaching the old tailings was also erected, at a cost of probably not less than $50,000. This was operated for a very brief period.)

"During the period we operated the mill we produced about 4,000,000 ounces of silver and the company paid out in dividends

between $300,000 and $400,000, besides paying good salaries to the ones in charge."

In 1912 the present owners purchased the property from the Longmaids. Except for some minor leasing work nothing was done in the mine until 1929 when a Butte operator named Goodman organized a company for the purpose of exploring the foot-wall territory. He sank the Sophia shaft for 115 feet and did all the work on the65- and 110-foot levels as shown on the maps. This work stopped without warning in the fall of 1929 when a market operator in Chicago was cleaned out by the stock market crash, this broker being the one that had been financing the project. Since that time nothing has been done in the mine, although several attempts have been made by those connected with the last operation to secure a lease, however, the terms and conditions submitted were not satisfactory to the owners.

When Elkhorn Metals, Inc. first entered the camp in the winter of 1935 the owners suggest that some working agreement on the mine could probably be worked out. The terms and conditions than asked by the owners were not agreeable to the Directors of Elkhorn Metals, Inc. and it was not until April of 1938 that the owners and Elkhorn Metals, Inc. were able to agree on the terms of a lease.

PRODUCTION:

The following table, taken from Weed's report, shows the production of silver, gold and lead. The first two from 1882 to 1900 and the latter from 1890 to 1900. From 1890 to 1900 the original table shows the recovery of gold and silver in both Mill Bullion and Smelting Ore, these have been added to get the total production for each year.

Year	Ounces Silver	Ounces Gold	Pounds Lead
1882	4,285	Not reported	Not reported
1883	Not reported	Not reported	Not reported
1884	376,750	122.0	Not reported
1885	437,660	70.5	Not reported
1886	552,100	Not reported	Not reported
1887	Not reported	Not reported	Not reported
1888	953,510	320.0	Not reported
1889	389,535	234.0	Not reported
1890	521,144	371.0	187,214
1891	616,994	892.0	619,054
1892	908,303	1058.0	794,306
1893	760,809	710.0	548,382
1894	752,705	613.0	448,311
1895	551,789	439.0	136,554
1896	577,508	425.0	149,367
1897	586,832	529.0	179,341
1898	590,872	474.0	532,429
1899	558,280	399.0	357,827
1900	20,362	13.0	Not reported
	9,159,438	6,669.5	3,952,784

An analysis of production figures from 1890 to 1900 shows that in the smelting ore the ratio of lead to silver was 1.89 pounds to 1 ounce. In the 17 years reported the average yearly yield for silver was 538,790 ounces. In the 15 years reported the average yearly yield for gold was 444 ounces, and in the ten years reported the average yearly yield for lead was 395,278 pounds.

During the course of this examination Mr. Bowden made available to the writer the complete records of all smelter shipments for the Longmaid operation, i.e., from 1901 to and including 1912. Actual smelter settlement sheets were bound in book form and the complete record is covered in 12 such volumes. In the following tabulation the essential items have been taken from these records. Values as shown are those received from the smelter after all deductions have been made, in the case of the gross values the net proceeds are added to the total cost for freight and treatment for the period reported on.

Dates	Dry Tons	Smelting Ore Net Proceeds	Smelting Ore Average Fgt.&Trt.	Gross Value	Avrg. Price Silver	Relative Silver Content Ounces	Months Covered
9/01-11/02	10,673	$86,044	$9.10/ton	$183,178	53.4¢	32.0/ton	14
9/06-1/08	14,669	$228,302	8.50	$352,986	67.7¢	35.5/ton	16
1/08-9/08	9,510	$183,937	8.74	$267,054	53.8¢	52.0/ton	8
9/08-2/09	6,177	$101,031	7.65	$148,285	50.6¢	47.4/ton	5½
2/09-9/09	8,233	$149,986	6.68	$204,982	51.5¢	35.3/ton	6½
9/09-1/10	5,486	$ 88,718	6.59	$124,870	51.5¢	31.4/ton	4½
1/10-6/10	6,008	$100,603	6.31	$138,513	52.8¢	31.7/ton	4
	60,756	$938,621		$1,419,868	56.1¢	37.9/ton	58.5

The following table represents new ore mined in the foot-wall at the lower levels as described in the foregoing pages.

Dates	Dry Tons	Smelting Ore Net Proceeds	Smelting Ore Average Fgt.&Trt.	Gross Value	Avrg. Price Silver	Relative Silver Content Ounces	Months Covered
6/10-10/10	6,270	$101,946	$7.00/ton	$145,836	53.4¢	43.4/ton	4½
10/10-3/11	9,307	$141,077	7.05/ton	$206,751	54.0¢	41.1/ton	5½
3/11-8/11	7,913	$ 98,279	6.70/ton	$151,296	53.0¢	36.1/ton	5
8/11-1/12	6,240	$ 77,311	6.44/ton	$117,496	53.7¢	35.0/ton	4½
1/12-9/12	6,047	$ 86,243	6.10/ton	$123,129	58.6¢	34.9/ton	7-3/4
	36,777	$504,856		$744,508	54.5¢	38.3/ton	27.0

Totals for Smelting ore for the above period is as follows:

Dates	Dry Ton	Net Proceeds	Gross Value	Months Covered
9/01-9/12	96,533	$1,443,477	$2,164,376	85½

CONCENTRATE

Except for the time from September 1901 to November 1902 the Longmaid's operated their gravity concentration mill throughout the period. The following tabulation covers the shipments of concentrate and was taken from the same records as those for the smelting ore.

Dates	Dry Tons	Net Proceeds	Average Fgt.&Trt.	Gross Value	Avrg. Price Silver	Relative Silver Content Ounces	Months Covered
9/06-1/08	1,497	$50,884	$ 8.49/ton	$63,459	67.7¢	63.0/ton	16
1/08-9/08	1,555	41,840	$11.00	58,945	53.6¢	71.4/ton	8
9/08-2/09	1,181	49,950	12.25	64,417	50.6¢	107.0/ton	5½
2/09-9/09	1,115	60,648	10.88	72,779	51.5¢	105.0/ton	6½
9/09-1/10	576	26,574	11.79	33,366	51.5¢	89.7/ton	4½
1/10-6/10	575	29,321	11.10	35,703	52.8¢	96.4/ton	4
	6,499	$259,217		$328,669	54.6¢	84.3/ton	44.5

The following represents the second-grade ore, taken from the foot-wall and milled, during the last 27 months of operation.

Dates	Dry Tons	Net Proceeds	Average Fgt.&Trt.	Gross Value	Avrg. Price Silver	Relative Silver Content Ounces	Months Covered
6/10-10/10	642	$32,680	$ 9.50/ton	$38,779	53.4¢	95.4/ton	4½
10/10-3/11	777	37,388	10.20/ton	45,310	54.0¢	107.2/ton	5½
3/11-8/11	662	29,673	11.28/ton	37,151	53.0¢	105.7/ton	5
8/11-1/12	468	20,194	11.40/ton	25,529	53.7¢	101.1/ton	4½
1/12-9/12	572	27,195	12.35/ton	34,258	58.6¢	102.0/ton	7-3/4
	3,121	$147,127		$181,027	54.5¢	102.1/ton	27

Totals for concentrate for the above period is as follows:

Dates	Dry Tons	Net Proceeds	Gross Value	Months Covered
9/6-9/12	9,620	$406,344	$508,696	71.5

From September 1901 to September 1912, an actual operating period of 85½ months, the records show that $1,849,821 was received

from the smelter for crude ore and concentrate. The gross value at the smelter, arrived at by adding the cost of freight and treatment to the net proceeds, amounted to $2,674,072.

Mr. Bowden has stated that the average ratio of concentration in the mill was 16 tons of ore into 1 ton of concentrate. The 9620 tons of concentrate was made for 153,920 tons of ore, which when added to the crude ore shipments of 96,533 tons give a total of 250,483 tons of ore handled.

For the entire period of 85½ months the average monthly tonnage of smelting ore was 1129 or 37.6 tons per day. For the milling period of 71.5 months the average monthly tonnage was 2153, or 71.7 tons milled per day. This is a total of 3282 tons per month, or 110 tons per day average tonnage handled.

Of particular interest to the present operation is the period from June 1910 to September 1912 when the Longmaid's mined and milled ore from the foot-wall area.

During that time they shipped as smelting ore 35,777 tons and during the same period shipped 3,121 tons of concentrate. At a concentration ratio of 16 to 1 the total amount of mill feed must have been 50,000 tons. This gives a total of 85,777 tons of ore handled; the gross proceeds were $925,535, this divided by 85,777 gives a gross value per ton of $10.80. Allowing 85% of this for silver content gives $9.20 as the gross silver value. This divided by 54½¢ (the average silver price for the period) gives 16.85 ounces of silver per ton as received in the crude ore shipments and in the mill. As between 4 and 5 ounces per ton was lost in the mill tails, the original ore as mined must have been close to 19½ ounces of silver per ton.

The following table shows the gross and net returns on the shipments made from September 1901 to September 1912, by monthly averages. The gross proceeds from this being the value of the ore at the smelter before deducting freight and treatment charges, the net proceeds being the same values less the cost of freight and treatment.

Dates	Gross Proceeds	Net Proceeds	
9/01-11/02	$13,100 per mo.	$ 6,150 per mo.	(all smelting ore
9/06-1/08	$26,000	$17,400	
1/08-9/08	$40,750	$28,220	
9/08-3/09	$38,670	$27,450	(This all from old mine
3/09-9/09	$42,700	$32,500	(workings)
9/09-1/10	$35,200	$25,600	
1/10-6/10	$43,600	$32,400	
6/10-10/10	$41,000	$29,900	
10/10-3/11	$45,800	$32,500	
3/11-8/11	$37,800	$25,600	(This all from
8/11-1/12	$33,700	$22,900	(foot-wall workings.
1/12-9/12	$20,150	$14,650	

For the period from 9/1901 to 6/1910 the average gross return was $31,655 per month and the net was $21,865 per month. From 6/1910 to 9/1912 the average gross return was $34,300 per month and the net was $24,100 per month.

When we take the total net smelter proceeds for smelting ore for the entire period and divide by the total tonnage of smelting ore shipped, the average net value per ton is $15.00. In like manner of the total net smelter proceeds for the concentrate shipments is divided by the calculated tonnage of 153,952, that went to make up the concentrate tonnage, we have a net recovered value of $2.64 per ton of original mill feed.

The following quotation is taken from U.S.G.S. Bulletin No. 842 published in 1933 under the title, "Metalliferous Deposits of Greater Helena Mining Region, Montana." "The approximate total value of metallic products of the Elkhorn district from 1875 to 1899, calculated from figures given by Weed, is $9,317,000. For the period 1905 to 1928 the production as given in the annual volumes of Mineral Resources for each year except 1908 and 1925 amounts to $3,682,000. The production of the missing years may be roughly estimated at $565,000, which together with the amounts mentioned above and a reasonable allowance for the period 1900-1904 makes a total of $14,000,000. About $1,500,000 of that amount was gold; the remainder was the value of more than 14,000,000 ounces of silver, 11,000,000 pounds of lead, and 1,000,000 pounds or more of copper. A little zinc was produced in 1926. All the production reported came from lodes." p. 299.

It is pretty definitely known that mines other than the Elkhorn in this district have not produced anything in excess of $2,000,000. Even allowing for a liberal amount the above figure of $14,000,000 is considerably in excess of anything that I am able to account for from such records as are available. It appears evident, however, that the total production of the Elkhorn mine has been something over $10,000,000.

It is realized, of course, that all of the foregoing data on production has little to do with the future life of the deposit. However, in addition to showing that the production has been of substantial magnitude, the breaking down of the figures has shown clearly that the grade of the ore has been most consistent. This latter statement, considered in connection with the ore taken from the foot-wall territory, becomes of primary interest to the present operators. There are excellent reasons to believe that the same grade and character of ore will be found in the untouched foot-wall bodies as that taken out in the last 27 months of the Longmaid operation.

RECENT EXAMINATION

Late in April of this year the writer went to Elkhorn, had the water pumped down to the 450-foot level and proceeded to make a careful transit survey of all underground workings. Upon completion of this a fairly comprehensive preliminary sampling job was done. On the maps accompanying this report the points sampled together with the assay returns are shown.

As mentioned elsewhere in these pages, I was able to examine, study and sample the various "contacts" parallel to the main hanging-wall. This work in conjunction with descriptions by Mr. Bowden of the foot-wall country below the 1080-foot level convinces me that between the 1080- and 450-foot levels there is an excellent chance for finding large and profitable bodies of ore. Nothing is known about the "contacts" at 230- and 360-feet from the hanging-wall below the 450-foot level.

Herewith complete details regarding the samples taken. Metal prices used in computing values for the assay are the same as those used by the smelter in making settlement for shipments, viz: Gold at 31.81 per ounce, silver at 61½¢ per ounce and lead at 4.9¢ less 1.5¢ or 3.4¢ per pound.

Samples and Assays

No.	Location	Width	($31.81) Ozs. Gold	(61½¢) Ozs. Silver	(3.4¢) % Lead	Value Per Ton
1.	65' level	4.5'	0.02	13.0	1.6	$ 9.72
2.	65' "	23.0'	0.02	9.1	1.6	7.32
3.	65' "	3.0'	0.01	5.6	0.1	3.84
4.	110' "	6.0	0.01	3.2	Trace	2.29
5.	110' "	9.5'	Trace	0.15	Trace	0.10
6.	110' "	11.5'	0.02	10.5	Trace	6.66
7.	110' "	19.5'	0.006	3.5	Trace	2.31
8.	Surface	8.0'	0.006	3.4	Trace	2.25
9.	Air shaft	4.75'	0.04	8.0	0.2	6.33
10.	" "	5.0'	0.10	63.2	2.65	43.78
11.	" "	9.0'	0.035	7.8	0.25	6.08
12.	450' level	4.5'	0.06	23.8	1.0	17.20
13.	80' contact	5.0'	Trace	2.0	0.1	1.30
14.	" "	4.5'	Trace	0.3	Trace	0.18
15.	Sta. 27	4.5'	0.04	29.7	1.1	20.27
16.	Sta. 29	9.0'	0.005	1.7	0.2	1.34
17.	Sta. 31	7.0'	0.005	1.0	0.25	2.30
18.	Sta. 31	3.0'	Trace	0.55	0.1	0.41
19.	Stope Sta. 21	2.5'	Trace	1.0	0.25	0.78
20.	" " 21	2.0'	0.04	75.6	9.1	53.95
21.	" " 21	2.5'	Trace	1.0	Trace	0.61

Samples and Assays (Cont'd)

No.	Location	Width	($31.81) Ozs. Gold	(61½¢) Ozs. Silver	(3.4¢) % Lead	Value Per Ton
22.	Stope Sta. 43	6.0'	0.005	3.0	0.1	2.07
23.	" " 45	2.7'	0.01	28.5	0.5	18.16
24.	" " 47	3.2'	Trace	1.5	0.2	1.06
25.	" " 47	1.3'	0.19	34.6	13.1	34.87
26.	" " 49	6.0'	0.10	29.1	2.9	23.06
27.	" " 51	4.5'	0.05	18.4	2.7	14.75
28.	" " 52	2.6'	0.01	14.4	0.2	9.31
29.	" " 55	1.5'	0.05	21.2	0.8	15.18
30.	" 306' level	1.0'	0.20	1.4	0.3	7.44
35.	110' level Sta 105	2.5'	0.015	13.3	0.25	8.83
36.	Air shaft	3.0'	0.02	20.1	0.3	13.21
37.	Sta 105-110'	4.0'	0.01	11.1	0.3	7.36
40.	" " "	2.5'	0.02	19.5	0.3	12.85
41.	Surface	4.0'	0.025	10.8	0.2	7.57

In the following analysis of the sampling work all values are weighted by multiplying the total value of the sample by the width sampled, and the sum divided by the total number of feet represented in the various samples.

Samples # 1-2-3 represent a total of 30.5 feet of sampling width, or an average of 10.2 feet per sample with a weighted average of $7.32.

Samples 6 & 7 represent 31.0 feet, or an average of 15.5 feet per sample and a weighted average of $3.92 per ton.

Samples 9-10-11-12 & 36 represent a total of 26.25 feet of sampling width, an average of 5.25 feet per sample and a weighted average value of $16.02 per ton.

Samples 19-21-22-23-24-25-26 & 27 represent 28.7 feet of total sampling width or an average of 3.6 feet per sample, the weighted average value per ton is $11.10.

Samples 28 & 29 represent 4.0 feet total or an average of 2.0 feet per sample, the weighted average value per ton is $11.52.

Samples 35-37 & 40 represent a total of 9.0 feet, an average of 3.0 feet per sample with a weighted average value of $9.33 per ton.

The average weighted value for the 26 samples represented in the foregoing is $8.91 per ton and the average sample width is 5.75 feet.

A further breaking down of assay results together with sample widths shows that the average weighted gold assay for the 26 samples is 0.0257 ounces per ton, the silver is 12.3 ounces per ton and the lead 0.84%. Using the same metal prices as above we find that the gold is worth $0.816 per ton, the silver $7.55 per ton and the lead $0.572 per ton. Of the total of $8.91 per ton the gold is 9.1%, the silver 84.5% and the lead 6.4%.

In order to accomplish more systematic sampling of the stope backs, particularly in the stopes at the 80-foot contact on the 450-foot level, it will be necessary to rig up ladders, or staging, upon which to work. The average dip of the foot-wall of these bodies is 40 degrees and the wall is too slick to work upon.

Samples 4 & 5 were taken at transit station 105 before any work was done to open up the real ore showing.

Sample 8, taken at an open cut near the Sofia does not represent any particular body or ore and was not included.

Samples 13 & 14, taken in the drift near transit stations 22 and 25, were obviously low grade and merely confirmed work done by the former operators.

Sample 18, taken in face near transit station 31 was quite evidently out of the mineralized zone, but was taken for check purposes.

Sample 20 was from a small pillar left in the stope. This was taken to get some notion of the grade of ore that had been extracted in this stope.

Sample 30, taken in a foot-wall stope near the main shaft, represents a small iron oxide seam, Mr. Bowden had advised that during their operation they had from time to time mined material similiar to this for the gold content. It has no bearing on the main silver bodies.

Sample 41 was taken in the road half way between the assay office and the main shaft; it is believed to be the outcrop of the 80-foot contact.

In January 1936 Mr. Walker, one of the property owners, made a shipment to Washoe of 20 tons of ore lying at the collar of the Sofia shaft. This was made without any sorting and represented the ore as extracted from the workings at the 65- and 110-foot levels from this shaft. The smelter settlement sheet showed 26.3 ounces of silver and 0.03 ounces of gold per ton. No payment made for lead at Washoe.

On March 18, 1938 a small shipment of 3.3 tons was made to East Helena by two men in Elkhorn that spent a few days in the workings from the Sofia shaft, they had no equipment and had to hoist by hand. The lot assayed $2.15 ounces of silver, 0.05 ounces of gold and 4.2% lead. Both of these small shipments represent ore taken from the contact 360-feet from the main hanging wall, and are included to show the grade of the material at this point.

PHYSICAL CONDITIONS:

The ground above the 450-foot level is accessible through three different shafts, viz: the Main shaft 2300' deep (which is caved for a short distance above the 300-level), the Air shaft and the Sofia shaft. The first two are inclines, (35 to 40 degrees), and the Sofia is vertical. This latter shaft is 115 feet deep, with levels at 65- and 110 feet from the collar. It is completely timbered and lagged and in excellent condition for immediate use.

Underground workings in the footwall stand without timber. During the summer season the water flows into the mine from the snow fields around the high peaks to the north, and is considerable. However, this flow decreases in the fall and during the winter and spring months is very small. This condition will present no serious problem once a station pump is installed.

Electric power is at the collar of both the Air shaft and the Sofia shaft.

Buildings ample for all purposes are present on the property. A bunk-house capable of housing 25-30 men is available. A completely equipped cook-house is ready for immediate use. A compressor and hoist house together with a tool house and blacksmith shop provides all necessary housing for sometime.

A road, about 3/4 miles in length connects the mine with the flotation mill; this is all down grade.

A completely equipped, modern, flotation mill is ready for immediate use. This mill is less than two years old and has been used for 14 months by Elkhorn Metals, Inc. in treatment of the Elkhorn tailings.

ORE TREATMENT:

Former operators have shipped very large tonnages of crude, or smelting ore. The original treatment of salt roasting, followed by amalgamation with mercury, did very good work on the oxidized, or quartz, ores, but became too expensive and inefficient when the ore contained any great amount of the sulphides of lead and zinc. Such ore was shipped direct to the smelter.

As shown elsewhere the Longmaids shipped some 35,000 tons of crude ore and but 100 tons of concentrate, from the foot-wall bodies. While they had discarded the amalgamation process and replaced it with tables and vanners, the recovery was not high, about 60% according to Mr. Bowden. The combined cost of freight and treatment on smelting ore averaged about $7.00 per ton. Their practice was to sort all ore hoisted, shipping direct the first class which averaged around 35 ounces in silver per ton, and milling the second class, which assayed about 10 ounces. As shown before the average grade of the ore hoisted was 19.5 ounces of silver per ton.

Preliminary tests on this ore show that from 75 to 80% of the values can be recovered by straight flotation. With an average grade of 19.5 ounces and not more than 75% recovery the recovered silver value per ton of ore is $9.00. The gold recovered would be worth 61¢ per ton and the lead 43¢ per ton. The gross recovered value would be $10.04 per ton. The ratio of concentration is 20 to 1; the cost for freight and treatment on concentrate has been $10.00 per ton for the past two years. On this basis the cost against the original mill feed would be 50¢ per ton for freight and treatment, leaving $9.54 per ton as smelter net before deduction for royalty. At 7½% the royalty payment per ton would be 71½¢, leaving a net for the operator of $8.82 per ton. From this all mining and milling costs would have to be taken. Tests made show that cyanidation of the flotation tails increases the recovery 12 to 16%.

While actual costs figures for the Longmaid operation are not available we do know that the total net proceeds were $1,849,821. From statements made by Mr. Bowden it is evident that for the entire period they took out something between $700,000 and $750,000 in operating profit. Assume the lower figure, this taken from $1,849,821 leaves $1,149,821 to cover the cost of mining and milling, all freight and treatment charges had been deducted at the smelter. As shown previously some 250,000 tons of ore was handled, therefore the cost per ton must have been close to $4.60 for the entire operation. A very considerable part of the ore handled in the first five years of their operation consisted of loose ore in the old stopes, the only cost of extraction being tramming and hoisting.

The records show that the net smelter proceeds for the last 27 months of operation by the Longmaids were $651,983, if it is assumed that a proportionate share of the $700,000 net profits were made during this last period, the amount would be $246,000. This deducted from $651,983 leaves $405,983 to cover the cost of mining and milling some 35,000 tons of ore. This means a cost of $4.78.

All work done by the Longmaids was with hand steel and steam power for pumps and hoist. With electric power for a compressor, a hoist and the pumps, the cost for mining and development should not be in excess of $4.00 per ton, this would include at least $1.00 for development.

On a 100-ton per day basis the milling cost would not exceed $1.25 per ton. The total cost, including administration and overhead, should not be in excess of $5.50 per ton milled. On shipments of high-grade ore the milling cost would be higher. Deducting the $5.50 from the above net smelter figure of $8.82 leaves $3.32 per ton net operating profit. Such a condition would result in a net operating profit of approximately $10,000 per month. This latter figure agrees with the calculated figure on the Longmaid operation. Their costs may have been below the above estimate for current conditions, but present milling practice will make a much better saving and present silver prices will give a larger return.

RECOMMENDATIONS:

This property can be opened up and actual mining operations resumed within a relatively short period of time and with a comparatively small amount of money.

By extending the present north crosscut from the Sofia shaft for a distance of 110 feet a connection will be made with the workings on the 80-foot contact at, or slightly over, the 450-foot level. It will then be possible to start stoping operations in the backs of the present stopes and take this ore out through the Sofia shaft.

There are excellent reasons for believing that the extension of this north crosscut will cut the 160-foot ~~level~~ contact, and this contact was the source of considerable ore below the 1050-level. on this Level

The results of some work done this year at transit station 105 in this north crosscut, considered in conjunction with a cropping near the Sofia shaft, it appears that there is another contact at 230 feet from the main hanging wall. The small amount of work done with hand steel exposed at least 3 feet of ore carrying very good silver values. As this has just been broken into it is impossible at this time to predict what the body may consist of. Immediately after installation of hoisting equipment work can be pushed at this point, with an excellent chance that good ore will be available for mining.

Present evidence shows conclusively the presence of four distinct replacement zones, or contacts, in the footwall territory above the 450 level. If, as is believed, the 160-foot contact will be cut in the crosscut there will be five replacement zones between the main hanging wall and the Sofia shaft. The depth of

the ore, measured on the dip, from the surface to the 110-foot level of the Sofia shaft, is 150 feet. In this distance there can easily be a very substantial tonnage of ore.

To start mining operations through the Sofia shaft there should be a compressor, with the necessary air pipe, receivers, etc. A small hoist, preferably a directly connected electric unit to be installed at the collar of the Sofia. A skip, or cage, several machine drills with accessory equipment and a miscellaneous assortment of small tools will be sufficient with which to start immediate operations. From investigations that I have made it appears that the purchase and installation of the necessary equipment will not exceed $3000.

While the footwall territory is being mined through the Sofia shaft, the main shaft can be re-timbered where necessary and put in shape for use as the outlet for the footwall ores below 450 level. This shaft, except near the surface, is in excellent condition and will prove to be of great value for operations at the lower levels.

Under this heading attention should be called to suggestions made by Weed many years ago, and about which nothing has been done. On page 509 of his report he says: "From the daily press comes recent information that the Elkhorn Company's property has been sold and will be reopened. (1899). If this be true it is to be hoped that some prospecting will be done to see if the main slate-dolomite bedding plane (or contact) does not form another saddle to the north. If the extension of the 300-foot level showed such a bend, as a result of another pitching arch of the strata, another ore body can be confidently looked for. Moreover, the only hanging-wall crosscuts have been driven in the intervals between the arches carrying the ore. The 1050 hanging-wall crosscut passed through at 60 feet from the level, a blue limestone whose contact was marked by ore. If ore was found here -- in an unfavorable locality -- there is reason to believe that ore bodies will be found in the saddle above the big ore shoots. In the well-known "saddle reefs" of Australia, which are deposits formed in pitching anticlines, ore bodies are found in successive saddles one above another. The vertical sections commonly given in test-books and the illustrations in descriptive reports do not disclose the close analogy to Elk horn which the descriptive text shows to exist. It is certain that at Elkhorn there were at least three impervious strata -- the Elkhorn shale, the contact out at 60 feet above it, and the shale belt of the Keene mine. These three contact are all marked by a little ore, and the contacts should be carefully searched where pitching arches would afford favorable conditions for ore shoots."

In a brief description fo the Keene mine, Weed says on page 505: "The Keene mine, which lies about 1000 feet north of

the Elkhorn, was worked in a desultory way for about twenty years. It is said to be developed to a 150-foot shaft and by tunnels running several hundred feet into the hillside and having drifts on the vein. The ore is an oxidized ferruginous material said to carry good values in gold. It occurs along the bedding plane between an underlying limestone (the Keene limestone) and an overlying argillaceous bed. While the observations made were not detailed enough to show the actual structural relations, it is believed that this deposit is formed along an impervious stratum and that the horizon may be expected to yield workable ore bodies where the contact forms a pitching anticlinal fold, permitting saddle deposits."

During the years when the Elkhorn mine was not being operated by the Longmaids, due to the low price for silver, they did some small amount of work in the Keene, and shipped a total of 80 tons of ore to the smelter. The average gold content was 1.09 ounces per ton, 6.0 ounces of silver and a small amount of lead. It is my belief that this property warrants some further development, and that such work can be best done from a lower level in the Elkhorn mine. A properly directed crosscut into the hanging-wall will cut the 60-foot contact and also cut the Keene contact; some drifting on these to get under the folds may result in the finding of commercial bodies of ore.

United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VIRGINIA 22092

August 12, 1977

Memorandum

To: Branch of Financial Reports

From: Chief, Office of Minerals Exploration

Subject: Recording of realized loss under OME contract

Write off of loss on this OME contract is authorized:

Contract	Docket	Operator	Write-off
2244	6587	Development Operating Corp.	$67,263.88

Harold Kirkemo

Harold Kirkemo

Copy to:
Region I

United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VIRGINIA 22092

August 12, 1977

Mr. Anker B. Henningsen
President
Development Operating Corporation
P.O. Box 1265
Pebble Beach, California 93953

Re: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Dear Mr. Henningsen:

By the terms of OME Contract 2244, as amended, and the Certification of Discovery or Development dated November 18, 1968, all minerals mined or produced from August 4, 1967, to August 4, 1977, were subject to the Government's royalty as stated in said contract.

As the period during which production was subject to royalty has now expired, the Government according to its present records retains no claim or lien against the property subject to the contract or any production therefrom. We, therefore, are closing our books and records on this contract.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo, Chief
Office of Minerals Exploration

Copy to:
Region I

United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VIRGINIA 22092

August 12, 1977

Mr. Charles S. Youlden and
Mrs. Martha Ann Youlden
1159 West Steel Street
Butte, Montana 59701

Re: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Dear Mr. and Mrs. Youlden:

Enclosed is a self-explanatory letter dated August 12, 1977, to Mr. Anker B. Henningsen. This relates to the Lien and Subordination Agreements signed by you on March 13, 1967.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo, Chief
Office of Minerals Exploration

Enclosure

Copy to:
Region I

United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VIRGINIA 22092

August 12, 1977

Mrs. Laura I. Walker
904 West Platinum
Butte, Montana 59701

Re: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Dear Mrs. Walker:

Enclosed is a self-explanatory letter dated August 12, 1977, to Mr. Anker B. Henningsen. This relates to the Lien and Subordination Agreements signed by you on March 13, 1967.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo, Chief
Office of Minerals Exploration

Enclosure

Copy to:
Region I

Recd 8/2/77

United States Department of the Interior

GEOLOGICAL SURVEY
Box 25046
Denver Federal Center STOP 905
Denver, Colorado 80225

IN REPLY REFER TO:

July 29, 1977

MEMORANDUM

TO : Chief, Office of Mineral Exploration

FROM : Field Officer, Region I

SUBJECT: Annual Royalty Inspection
OME-6587 (Silver)
Development Operating Corporation
Elkhorn Mine
Jefferson County, Montana
Contract 2244

I visited the Elkhorn mine on Thursday, July 21, 1977, to learn if there had been any production since I was last there on June 9, 1976. Everything near the shaft collar appeared to be in the same position as when I was there in 1976 and I assume that there has been no production.

The accompanying pictures are evidence of this.

The period during which a royalty is due to OME from production at the mine expires on August 4, 1977. It is quite obvious that no royalty will be due to the Government and I recommend that the books be closed on this docket.

Willard P. Puffett

Willard P. Puffett

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

United States Department of the Interior

GEOLOGICAL SURVEY
Denver Federal Center
Denver, Colorado 80225

IN REPLY REFER TO: P. O. Box 25046 - Building 53 - Mail Stop 953

June 17, 1976

Memorandum

To: Chief, Office of Minerals Exploration

From: Field Officer, Region I

Subject: Annual Royalty Inspection
OME-6587 (Silver)
Development Operating Corporation
Elkhorn Mine
Jefferson County, Montana
Contract 2244

I visited the Elkhorn community on Wednesday, June 9, 1976, to learn if there had been any activity at the Elkhorn Mine since my last visit there in October, 1975. The mine was deserted and the mine cars were arranged near the shaft collar identical to the way they were last year.

In talking to a resident of the community I learned that Mr. Robert A. Tally, Treasurer of Development Operating Company, had suffered a stroke about two years ago which left his right or left side paralyzed. Later, Mr. Tally fell and broke his left leg. Apparently his mind has not been adversely affected by these misfortunes as he can still carry on a telephone conversation.

No need to send MME 63 in view of this information
MR. 8/4/76

Since returning to the office, I have telephoned Mr. Anker B. Henningsen, to learn if there are current plans to resume operations at the mine. The man in the community of Elkhorn seemed to think there were plans to change ownership of the property. Mr. Henningsen told me that he was trying to lease the mine but was going to be extremely careful about the qualifications of anyone who wanted the lease.

I learned of the following new addresses for officers of the Development Operating Corp.:

President: Mr. Anker B. Henningsen
P. O. Box 1265
Pebble Beach, California 93953

Telephone: 408-625-0975

Vice-President: Mr. Robert A. Henningsen
18715 NW Shadow Lane
Beaverton, Oregon 97005

Telephone: 503-645-7340

Mr. Robert Henningsen has suffered two severe heart attacks recently and was unable to confer with me on the telephone.

The OME royalty period for production from the mine extends to August 4, 1977. There are no unpaid royalties due to the Government from mine production. Mr. Anker Henningsen assured me that we would be advised if there were any changes in ownership of the property.

Willard P. Puffett

Willard P. Puffett

United States Department of the Interior
GEOLOGICAL SURVEY
Denver Federal Center
Denver, Colorado 80225

IN REPLY REFER TO: P. O. Box 25046 - Building 53 - Mail Stop 953

October 29, 1975

Memorandum

To: Chief, Office of Minerals Exploration

From: Field Officer, Region I

Subject: Royalty Inspection
OME-6587 (Silver)
Development Operating Corp.
Elkorn Mine
Jefferson County, Montana
Contract 2244

I visited the Elkhorn mine on Wednesday, October 22, 1975, to learn if there has been recent production. The mine appeared deserted and there was no evidence of any underground activity since my last inspection.

We have received $40.08 in royalties from a single shipment of crude ore to the ASARCO smelter in East Helena, Montana, on December 15, 1969. The period for which the Government is entitled to royalty from production at the mine extends until August 4, 1977.

Willard P. Puffett

Willard P. Puffett

United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VIRGINIA 22092

IN REPLY REFER TO: Office of Minerals Exploration

August 7, 1975

Re: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Development Operating Corporation
Attention: Mr. Robert E. Tally,
Treasurer
1721 East Mountain Street
Pasadena, California 91104

Gentlemen:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo, Chief
Office of Minerals Exploration

Copy to R. I

OFFICIAL COPY
O. M. E.
RECEIVED
AUG 14 1975

INITIALS	CODE
HK	

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT OR PROJECT UNDER ROYALTY AGREEMENT

1. Since January 16, 1975, has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☒

2. Since January 16, 1975, has there been any production from the land subject to the contract? Yes ☐ No ☒

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser (*name and address*)	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity (*tons*)	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since workings (*see* , has any production been transported through *of contract*)? Yes ☐ No ☒

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name M. C. Tally	*Title* Texas
Address 1121 E. Mountain St. Pasadena, Calif 91104	*Date* 8-10-75

United States Department of the Interior

GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

OFFICIAL COPY
O. M. E.
RECEIVED
JAN 23 1975

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IN REPLY REFER TO: Office of Minerals Exploration **December 3, 1974**

Re: **OME-6587 (Silver)**
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Development Operating Corp.
Attention: Mr. Robert E. Tally, Treasurer
Engineer
1721 East Mountain Street
Pasadena, California 91104

Gentlemen:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo, Chief
Office of Minerals Exploration

Copy sent to R.I

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT
OR PROJECT UNDER ROYALTY AGREEMENT

1. Since August 7, 1973, has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☑

2. Since August 7, 1973, has there been any production from the land subject to the contract? Yes ☐ No ☑

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser (*name and address*)	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location. None

Type	Quantity (*tons*)	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since workings (*see* , has any production been transported through *of contract*)? Yes ☐ No ☑

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name	*Title*
Development Operating Corp	Robt. Tally-Treas.
Address	*Date*
1721-E Mountain St. Pasadena, Calif. 91104	1-16-75

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

May 14, 1974

Memorandum

To: Chief, Office of Minerals Exploration

From: Field Officer, Region I

Subject: Annual Royalty report
OME-6587 (silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

The mine appeared deserted when I visited Elkhorn on Friday, May 10, 1974. I did talk with a temporary resident of Elkhorn who told me that there had been no recent activity at the mine and certainly there has been no production since my last visit in 1973.

The period during which the Government receives a royalty on production from the Elkhorn mine extends until August 4, 1977. There are no unpaid royalties due to the Government from past production at the mine.

Willard P. Puffett

Willard P. Puffett

United States Department of the Interior

GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

IN REPLY REFER TO: Office of Minerals Exploration

August 3, 1973

AIRMAIL

Development Operating Corp.
Attention: Mr. Robert E. Tally,
Engineer
1721 East Mountain Street
Pasadena, California 91103

Re: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Gentlemen:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of
Minerals Exploration

Copy to Region I 8-13-73

AUG 13 1973
INITIALS CODE
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GW

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT OR PROJECT UNDER ROYALTY AGREEMENT

1. Since September 16, 1972, has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☒

2. Since September 16, 1972, has there been any production from the land subject to the contract? Yes ☐ No ☒

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser *(name and address)*	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity *(tons)*	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since workings *(see* , has any production been transported through *of contract)*? Yes ☐ No ☒

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name Robert C. Talley	*Title* Mining Engineer
Address 1721 E Mountain St Pasadena, CA 91104	*Date* Aug. 7, 1973

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

OFFICE OF MINERALS EXPLORATION
656 U. S. Court House
Spokane, Wash., 99201

June 25, 1973

OFFICIAL COPY
JUN 28 1973
Case 120 MN
HK 120

MEMORANDUM

To: Chief, Office of Minerals Exploration

From: Field Officer, Region I

Subject: Annual Royalty Inspection
OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

I visited the Elkhorn mine on Wednesday afternoon, June 20, 1973. The mine is inactive and has been allowed to fill with water. Mr. Morris, former mine foreman, who lives in Elkhorn told me that Montana Power Company was going to remove the transformers from the property but the mine owners objected. Perhaps the owners plan more work in the near future.

The Government's lien on future mine production extends until August 4, 1977.

Willard P. Puffett

Willard P. Puffett

Folder 90

United States Department of the Interior

GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

IN REPLY REFER TO: Office of Minerals Exploration

SEP 13 1972

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Re: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

AIRMAIL

Development Operating Corp.
Attention: Mr. Robert E. Tally, Engineer
1721 East Mountain Street
Pasadena, California 91103

copy to R-I

Gentlemen:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of Minerals Exploration

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT OR PROJECT UNDER ROYALTY AGREEMENT

1. Since **August 17, 1971**, has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☑

2. Since **August 17, 1971**, has there been any production from the land subject to the contract? Yes ☐ No ☑

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser *(name and address)*	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity *(tons)*	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since Aug 17, 71, has any production been transported through workings *(see of contract)*? Yes ☐ No ☑

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name	*Title*
Robt. C. Tally	Engr Mgr
Address	*Date*
1751 - E. Mountain St. Pasadena Ca. 91104	9-16-72

8/4

United States Department of the Interior

GEOLOGICAL SURVEY

OFFICE OF MINERALS EXPLORATION
656 U. S. Court House
Spokane, Wash., 99201

September 19, 1972

OFFICIAL COPY
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SEP 22 1972

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	220

MEMORANDUM

To: Chief, Office of Minerals Exploration

From: Field Officer, Region I

Subject: Annual Royalty Inspection
OME-6587 (silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

I visited the Elkhorn mine on Tuesday, Sept. 12, 1972. Mr. Morris, formerly the mine foreman, who lives in one of the houses at the old townsite of Elkhorn, told me that pumping was discontinued during the past year and the mine is now filled with water. Mr. Morris knew of no plans whereby the mine would be dewatered and more development work done. He is sort of a caretaker and watchman for many of the privately owned buildings and apparently gets some income from this activity. Obviously there has been no production from the Elkhorn mine during the past year.

The Government's lien on future mine production extends until Aug. 4, 1977.

Willard P. Puffett

Willard P. Puffett

United States Department of the Interior

GEOLOGICAL SURVEY

OFFICE OF MINERALS EXPLORATION
656 U. S. Court House
Spokane, Wash., 99201

September 24, 1971

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HK | 120
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MEMORANDUM

To: Chief, Office of Minerals Exploration

From: Field Officer, Region I

Subject: Annual Royalty Inspection
OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

The pumps were being operated when I visited the Elkhorn mine on Wednesday, Sept. 15, 1971, but no one was near the shaft collar. There were no indications of any recent ore production. The desk clerk at the Diamond S. Ranchotel, near Boulder, Mont., told me that Mr. Bob Tally, Engineer for Development Operating Corp. had not been there since July 1971.

Mr. Tally told me today, in a telephone conversation, that money became scarce last spring about the time he planned on submitting an application for OME assistance in new exploration. Perhaps they will cease operating the pumps and let the mine flood. The pumps had held the water at the 1,150 level.

Since the OME work has ceased, the Development Operating Corp. has continued underground exploration. Thirty-three diamond drill holes from the 550 and 1,050 level had developed about 95 thousand tons of ore. Beneficiation tests were conducted at the Montana School of Mines. It now appears that development and further exploration will have to await better market conditions.

The Government's lien on the mine production extends until Aug. 4, 1977.

Willard P. Puffett

Willard P. Puffett

cc: Director

United States Department of the Interior

GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

IN REPLY REFER TO: Office of Minerals Exploration

August 4, 1971

COPY
AUG 20 1971

INITIALS	CODE
	130
HK	~~120~~

Development Operating Corp.
Attention: Mr. Robert E. Tally,
Engineer
~~P. O. Box 14~~
~~Boulder, Montana 59632~~
1721-E, Mountain St.
Pasadena, Ca. 91104

Re: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Gentlemen:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of
Minerals Exploration

Copy to R-I

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT OR PROJECT UNDER ROYALTY AGREEMENT

1. Since September 5, 1970, has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☑

2. Since September 5, 1970, has there been any production from the land subject to the contract? Yes ☐ No ☑

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser *(name and address)*	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity *(tons)*	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since workings *(see of contract)*, has any production been transported through Yes ☐ No ☑

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name Robert C. Tally	*Title* Mgr
Address 1721 E. Mountain St. Pasadena, Ca. 91104	*Date* 8-17-71

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

OFFICE OF MINERALS EXPLORATION
656 U. S. Court House
W. 920 Riverside Ave.
Spokane, Wash. 99201

October 21, 1970

Memorandum

To : Chief, OME

From : Field Officer, Region I

Subject: Final Summary Report
OME -6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

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Final Summary Report

INTRODUCTION

The report summarizes an OME project to explore for silver-bearing ore bodies in the footwall dolomite of formerly productive ore zones at the Elkhorn mine, Elkhorn, Montana. The contract, dated August 4, 1967, for a total of $90,000.00 of which the Government would contribute 75 percent or $67,600.00, was amended once. Work, started in August 1967 and completed in July 1968, consisted of rehabilitating the shaft and part of the 550 level, crosscutting and drifting 1499 feet on the 550 level, and raising 131 feet. Total accepted cost was $89,685 of which the Government contributed $67,264. Three small ore bodies were found totalling 3,400 tons which contain 0.033 ounces gold per ton, 38.28 ounces silver per ton, 2.01 percent lead and 5.724 percent zinc. The Government issued a Certification of Possible Production on November 18, 1968, according to which the Government will be entitled to royalty on all production from the mine between August 4, 1967, and August 4, 1977, or until the sum of $67,263.88 is fully repaid with interest at the rate of 7 percent per annum, whichever occurs first. Exploration has continued since the contract with drifting and crosscutting on the 1050 level. A shipment of 92.967 tons in December 1969 yielded $801.65 net smelter returns from which the Government was paid $40.08 royalties. There has been no other ore shipment; the mine was idle in August 1970.

OPERATOR

Development Operating Company
P. O. Box 14 or Suite 6-10
Boulder, Montana 59632 First National Bank Building
Butte, Montana 59701

Officers include:

President: Mr. Anker B. Henningsen
2282 Arbutus Road
Victoria, B. C., Canada

Vice-President: Mr. Robert A. Henningsen
2627 S. E. 82nd Avenue
Portland, Oregon 97266

Secretary: Howard A. Johnson
First National Bank Building
Butte, Montana 59701

General Manager: Mr. Robert E. Tally
1721 East Mountain Street
Pasadena, California 91104

PROPERTY

The property subject to the contract consists of five patented lode mining claims, three patented millsite claims, two unpatented millsite claims, and two unpatented lode mining claims in secs. 11 and 14, T. 6 N., R. 3 W., Elkhorn (unorganized) mining district and townsite, Jefferson County Montana (Figure 1- Claim, index, partial underground, and OME drift and crosscut maps, Elkhorn mine, secs. 11 and 14, T. 6 N., R. 3 W., Elkhorn mining district, Jefferson County, Montana).

The patented lode mining claims are as follows:

Name	Patent No.	U. S. Survey No.
A. M. Holter	15347	1374
Hardin	18553	2523-A
Silver Star	19766	2689-A
James R. Keene	28704	1890
Sophia	23222	3882

The patented millsite claims are as follows:

Name	Patent No.	U. S. Survey No.
Hardin Millsite	18553	2523-B
Silver Star Millsite	19766	2689-B
Elkhorn Millsite	20448	2516

The unpatented millsite and lode mining claims are recorded in the office of the Jefferson County Clerk and Recorder, Boulder, Montana, as follows:

Name	Book	Page
Silver Dollar No. 1 Millsite	53	7
Silver Dollar No. 2 Millsite	53	8
Elkhorn Fraction No. 1 (included in James R. Keene)		
Elkhorn Fraction No. 2 (included in Hardin)		

The Operator was the owner of the unpatented claims and was in possession of the patented land under the terms of a Lease executed April 20, 1966, by Laura I. Walker, Charles S. Youlden and Martha Ann Youlden, and Anker B. Henningsen, the owners.

The mine is on south-facing slopes north and northwest of the old near-deserted town of Elkhorn; altitude of the main shaft is 6610 feet. Access is via 12 miles of unsurfaced road that branches from paved State Highway 281 about 7 miles southeast of Boulder, Montana. The mine was developed from a main shaft inclined 30-50° from which 23 levels were driven at slope intervals of about 100 feet, another shorter air shaft, and the vertical Sophia shaft from which levels were driven at 65 and 110 feet.

HISTORY AND PRODUCTION

The claims originally were located in January 1875 and by 1881 the mine had been developed to a depth of 300 feet. In 1883, Elkhorn Mining Company erected a mill and by 1888 had developed the mine to a depth of 800 feet. An English syndicate acquired and operated the mine from 1888 to 1899. Longmaid purchased the mine in 1899 and operated it until 1912, although it was idle from 1902-1906. The Sophia shaft was sunk in 1929 and the 65- and 110-foot levels were driven. Operations ceased as a result of the stock market crash that year. Leasing by Elkhorn Mining Company resulted in small production from 1945 to 1951. Mentor Exploration Co. Limited of Toronto, Canada, leased the property in 1954 and drilled 34 core holes totalling 7,000 feet from the 110 and 550 level and from the Sophia workings. The Development Operating Corporation leased the property in April 1966.

Production between 1875 and 1899 was 8,902,000 ounces of silver, 8,500 ounces of gold, and 4,000,000 pounds of lead (Weed, 1901, p. 415). Production between 1902 and 1912 was 4,749,541 ounces of silver, 7,870 ounces of gold, and 3,463 tons of lead (Klepper, Weeks, Ruppel, 1957, p. 67). Weighted averages of 7,000 tons from leasing operations between 1945 and 1951, were 0.0178 ounces gold per ton, 11.10 ounces silver per ton, 12.15 percent lead, 2.55 percent zinc, and 0.14 percent

copper. Calculated metal content is 77,700 ounces silver, 124.6 ounces gold, 850.5 tons of lead, 178 tons of zinc, and a small amount of copper (from Operator's application report). Total silver production through 1951 is at least 13,809,241 ounces.

GEOLOGY

The Pilgrim Dolomite of Cambrian age (Klepper, Weeks, and Ruppel, 1957, p. 10 and 67) is the host rock for the ore at the Elkhorn mine and is overlain by siliceous, argillaceous, slaty rocks of the Red Lion Formation of Upper Cambrian age. The main ore zone is at the contact between the two formations and the two largest ore shoots in the mine were localized beneath anticlinal arches in the contact. The stratified host rocks strike a few degrees west of north and dip 30-50° E.; thus the ore shoots plunge easterly at low angles. Other known ore horizons are in the dolomite along bedding planes(?) 40, 80, 160, and 360 feet below the top of the Pilgrim Dolomite. A near-vertical pipe of ore was outlined by work in the Sophia shaft and this ore has been intersected on both the 550 and 1050 level of the Elkhorn mine (fig. 1). The Sophia ore does not appear to conform to the bedding attitudes as does the main ore zone or the smaller ore bodies along the 40, 80, 160, and 360 contacts.

The ore is predominately lead-silver and the production records reflect this, however, zinc and copper are present; probably the copper is present in tetrahedrite. Apparently some of the high silver values are due to the presence of silver halides for galena and/or tetrahedrite are not conspicuous in some samples that have assayed high in silver.

Weed (1901, p. 477-492) very adequately described the ore shoots in the mine. Quartzose ore along the slate-dolomite contact, referred to as hanging-wall ore, is low in base metals and was milled. The "lead chambers" or footwall ore bodies are separated from the hanging wall ore bodies by a few feet of dolomite; ore from these could not be milled in the early days of the mine as it consisted of silver-bearing galena and sphalerite.

The quartzose "hanging-wall" ore bodies were oxidized down to the 1,350-foot level, and even on the 2,300-foot level there were stains around galena grains and green copper carbonate around tetrahedrite.

The "footwall" ore bodies, lying generally within 40 feet of the slate-dolomite contact consisted mainly of highly argentiferous galena. They were completely enclosed in dolomite, but some could be traced to the siliceous hanging-wall ore bodies by narrow stringers. Outlines are very irregular, but there was a tendency for the footwall ore bodies to be limited by a thin argillaceous limestone 1/4 to 2 inches thick that is 35 to 50 feet from the hanging wall. In some places the upper part of these ore bodies

is a limestone breccia cemented with blue quartz containing 50 to 100 ounces silver per ton. Some were continuous over long distances parallel to the hanging wall contact, one being continuous from the 1250-foot level to at least the 1650-foot level; the general outline indicates a pipe-like shape.

Drilling by Mentor Exploration Company, Limited, found mineralized zones deeper in the dolomite than the so-called "footwall" ore bodies. There were probably the so-called 40, 80, 160, 230, 360, and 480 foot contacts indicated in reports from earlier operators and in the work done from the Sophia shaft. Apparently these deeper zones are narrow and elongated parallel to the bedding in the dolomite; however, the mine developments from the Sophia shaft indicate a near-vertical ore body of irregular dimensions.

PURPOSE OF PROJECT

The purpose of the project was to explore by crosscutting, drifting, and raising on the 550-foot level of the Elkhorn mine for silver-bearing ore bodies in and along three or more silicified fracture zones ("contacts") which are about parallel with and as much as 480 feet in the footwall of the Elkhorn vein in Pilgrim Dolomite of Cambrian age.

CONTRACT

The contract, No. 2244, dated August 4, 1967, required that work start on or before August 5, 1967, and be completed within 18 months. Description of the work is as follows:

> "The initial work shall consist of rehabilitating the Elkhorn main shaft and the 550-level south drift to operating condition.
>
> "After the initial work is completed, a crosscut shall be driven approximately due west from a point in the 550-foot level south drift approximately 500 feet south of the main shaft. It is anticipated that mineral showings will be intersected by the crosscut at the 230-, 360-, and 480-foot 'contacts'. It is estimated that 460 feet of crosscutting will be required to intersect the 480-foot 'contact'.
>
> "Drifts shall be driven northerly and/or southerly on the best showings in the crosscut. It is estimated that 1,040 feet of drifting will be required to explore the mineral showings.
>
> "Raises may be driven to explore or further delineate ore bodies found by crosscutting or drifting. It is estimated that 100 feet of raising may be required. . ."

Estimated Costs of the Work

Fixed Unit Costs

Constructing headframe, including installation of complete hoisting equipment	$500.00	
Constructing compressor house, including installation of compressed air facilities	250.00	
Rehabilitating main shaft	7,850.00	
Rehabilitating 550-level drift	5,500.00	
Crosscutting and drifting, including timbering, 1,500 feet at $45/ft.	67,500.00	
Raising, including timbering, 100 feet at $47/ft.	4,700.00	
Assaying,		
Gold and silver, 200 samples at $3.50/sample	700.00	
Lead, 140 samples at $2.50/sample	350.00	
Zinc, 140 samples at $2.50/sample	350.00	
Office expense, 12 months at $40/month	480.00	
Incidental allowance for engineering for each foot of crosscutting, drifting, and raising completed, 1,600 feet at $1.14/ft (rounded)	1,820.00	
Total estimated fixed unit costs		$90,000.00
Government participation at 75 percent		67,500.00

The contract was amended once, on September 15, 1967, as follows:

1. Permitted use of 12-pound rails rather than 16-pound rails as stipulated originally.

2. Revised the first paragraph under Description of the Work, to read as follows:

> "The initial work shall consist of rehabilitating the Elkhorn main shaft and the 550-foot level south drift. If, at some future time during the life of the contract, it becomes necessary to the project, with prior approval of the Government confirmed in writing, the Operator may construct a head frame and compressor house at the collar of the Elkhorn main shaft and install all appurtenant equipment."

PROJECT WORK

Work started August 4, 1967, and by the end of September the shaft and 550-level drift south had been rehabilitated and the west crosscut (WXC-figure 1) had been driven 55 feet. The west crosscut was completed in December, after which the 360 drift was driven to the southwest and south. Ore was intersected in January and drifting, crosscutting, and a short raise explored extensions of this ore in the No. 2, No. 3, No. 6, No. 5, No. 4, and No. 4a headings (fig. 1). A short raise in the No. 2 heading failed to find extensions of ore, and a raise in No. 4 drift holed through to the old workings near the bottom of the Sophia shaft. The 160 drift was driven in May and June 1968. Ore was hit in the No. 9 crosscut and followed in the No. 10 drift and the No. 9 raise. The project work was completed in the latter part of July 1968.

Completed units of work and allowable costs are as follows:

Unit	Allowable Cost	
Rehabilitating main shaft	$ 7,850	
Rehabilitating 550-level drift	5,500	
Crosscutting and drifting, including timbering 1,499 ft. at $45/ft.	67,455	
Raising, including timbering, 131 feet at $47/ft.	6,157	
Assaying	385	
Office expense	480	
Incidental allowance for engineering for each foot of crosscutting, drifting, and raising 1630 ft. at $1.14/ft.	1,858	
Total allowable cost of project		$89,685
Government participation at 75 percent		67,264

The Government retains no equity in any material or supplies at the property.

REPORTS

The Operator submitted a satisfactory final report on September 25, 1968.

The Government issued a Report of Review in January 1969.

There have been no Royalty Reviews.

PROJECT RESULTS

The crosscut to the west (WXC) failed to find ore along 40, 80, 160, or 360 contacts. The 40-foot contact is a talcy zone 1-2 inches thick. The 80-foot contact is represented by a tight silicified breccia zone about 3 feet thick that strikes N-S and dips 36° E., the footwall of which is marked by 1-2 inches of thin beds moderately stained by iron oxide. Fine-grained, dark mineral, unidentifiable under a hand lens, is between some of the breccia fragments. Samples of the material assayed 0.38 and 0.10 ounces silver per ton. The 160-foot contact is a tight breccia zone about a foot thick that strikes N. 5° E. and dips 27° E. Unidentified dark hard minerals in seams 1/16-inch thick lace the zone.

The ore exposed in the crosscuts and drifts near the south end of 360 drift is vuggy dolomite containing oxidized lead, zinc, and silver minerals. Galena is conspicuous but staining suggests presence of tetrahedrite. Assay data indicate local rich zones, as some samples assayed more than 150 ounces silver per ton, and as much as 23 percent lead. This ore zone is obviously a downward extension of the ore developed in the Sophia shaft, and perhaps is part of a pipe-like deposit.

A zone of broken rock with fractures filled with incoherent sandy material parallels the southwest margin of the ore zone; attempts to crosscut through the zone were unsuccessful. Ore minerals are not visible in the shear zone but the Operator reported a sample from near the face of No. 4 crosscut assayed 3.8 ounces silver per ton. The trend of this zone of broken rock projects to the face of the WXC where a vuggy water-filled zone was intersected. Perhaps the zone is part of a major fault along which pipe-like replacement ore deposits formed.

The ore intersected in the No. 9 crosscut and followed in the No. 10 drift and No. 9 raise, is replacement along a bedding plane(?) that strikes nearly due north and dips 30-35° E. Assay data from channel samples cut across the face of successive headings during the drift advance indicate rich ore. Channel samples cut across the ore-bearing zone in the drift and raise indicate 27-73 ounces silver per ton across widths of 6-28 inches. This ore is probably typical of ore to be expected along the "contacts" in the footwall of the main Elkhorn ore-bearing zone. A large cavern in the face of the No. 10 drift and near the sill of the No. 10 drift suggest that much solution has taken place along the zone, and it can be speculated whether the dissolving solutions have removed ore as well as country rock.

Ore reserves calculated by OME personnel in August 1968 were for two small ore bodies in the No. 4 and No. 4a drifts, and in the No. 10 drift and No. 9 raise as follows:

Reserve Block (location)	Tons (12 cu ft/ton)	Au oz/ton	Ag oz/ton	Lead %	Zn %
160 drift	233	0.08	23.96	0.96	0.7
No. 4 drift	2,500	0.022	26.32	4.34	6.68
No. 4a drift	667	0.056	88.0	8.6	3.9

The Operator, in his final report, calculated values for four ore bodies, three of which are exposed in the No. 4 and No. 4a drifts. The composite of the three contain 20.59 ounces silver per ton and are calculated to contain 365 tons per lineal foot of height or depth. The fourth ore body, in the No. 10 drift, is narrow but rich, and is calculated to have a weighted average of 50.22 ounces of silver per ton. However, the Operator did not assign a tonnage to this ore body.

Work after the completion of the contract has found extensions of the 160 ore body on the 1050 level, and reportedly has intersected the Sophia ore on the 1050 level. The 160 ore on the 1050 level is very rich but narrow; assays have indicated as much as 2,637 ounces silver per ton in a sample cut across a face 5 feet wide. This ore is not sulphide rich and probably the silver is in the form of chlorides.

The work was well supervised and the Operator submitted satisfactory monthly progress reports.

CERTIFICATION

The Government issued a Certification of Possible Production on November 18, 1968, according to which royalties shall be paid to the Government as provided in the contract on all production from the property from August 4, 1967, to August 4, 1977, or until the sum of $67,263.88 is fully repaid with interest at the rate of 7 percent per annum, whichever occurs first.

PRODUCTION AND ROYALTIES

One shipment of 92.967 tons of crude ore was shipped to the smelter at East Helena, Montana, on December 15, 1969. Assay settlement was trace of gold, 18.2 ounces silver per ton, 0.8 percent lead, 0.05 percent copper, 3.9 percent zinc, and 0.43 percent arsenic. Net smelter returns were $801.65 from which the Government received $40.08 royalties. There is no unsold ore stockpiled at the mine and there are no royalties due to the Government.

SUMMARY

The exploration work was successful in finding two ore mineralized zones, one about 220 and the other about 360 feet horizontally into the footwall from the main slate-dolomite contact.

The ore zone at 220 feet is replacement along a bedding plane and consists of rich silver ore 0.5-2.3 feet thick that strikes nearly due N. and dips 30-40° E. Deeper extensions of this ore zone have been found in new work on the 1050 level. The ore zone at 360 feet is below ore formerly known in the Sophia shaft and is in oxidized and vuggy dolomite; the ore zone is as much as 7 feet wide and locally is very rich in silver and lead. Reportedly the downward extension of this ore has been found in new workings on the 1050 level.

A structural feature found by the exploration work is a near-vertical broad zone of sheared rock that strikes N. 15° W. and is aligned parallel to and near the ore bodies found in the 360-foot zone.

Very careful mining on a small scale might profitably extract ore from the zones explored on the 550 level. Insufficient ore has been found to justify the erection of a mill on the property. The cost of maintaining pumps in the mine will be an important factor in expectable profit from mining the known ore.

Further Government participation in exploring for additional ore bodies in the footwall of the main ore-bearing zone does not seem to be justified. The new ore found, though rich, is of small quantity and it is questionable if much of the ore can be profitably mined. However, the largest known ore bodies known on the property were found along and near to the contact between the Pilgrim Dolomite and overlying Red Lion slate. Additional exploration along this contact might have greater justification than exploring the many "contacts" in the footwall that are some distance horizontally from the dolomite-slate contact.

REFERENCES CITED

Klepper, M. R., Weeks, R. A., and Ruppel, E. T., 1957, Geology of the southern Elkhorn Mountains, Jefferson and Broadwater Counties, Montana: U. S. Geol. Survey Prof. Paper 292, 82 p.

Weed, W. H., 1901, Geology and ore deposits of the Elkhorn mining district, Jefferson County, Montana: U. S. Geol. Survey 22d Ann. Rept., pt. 2, p. 399-550.

Willard P. Puffett

Willard P. Puffett

Enclosure: Figure 1- Claim, index, partial underground, and OME drift and crosscut maps, Elkhorn mine, secs. 11 and 14, T. 6 N., R. 3 W., Elkhorn mining district, Jefferson County, Montana.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

OFFICE OF MINERALS EXPLORATION
656 U. S. Court House
W. 920 Riverside Ave.
Spokane, Wash. 99201

September 3, 1970

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Memorandum

To : Chief, OME

From : Field Officer, Region I

Subject: Royalty inspection
OME 6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

I visited the Elkhorn mine on Friday afternoon, August 28, 1970. Only the mine foreman was at the property; Mr. Robert E. Tally, Mine Superintendent, no longer lives near Boulder, Montana, and reportedly has been gone from there for about two months.

The Mine Foreman told me that the pumps were holding the water at the 1150 level. Work done during the last year was on the 1050 level and included drifting on the 165' structure and cross-cutting to the 360' structure. Some underground drilling had intersected the downward projection of the pipe-like ore body that had been explored by OME work on the 550 level. The foreman was optimistic that mining would resume in the near future and that the mine would be dewatered to the 1650 level. Presumeably Mr. Tally will return to manage the work.

In January we received a royalty payment on ore that had been shipped in December 1969. The Government's lien on future production extends until August 4, 1977.

Willard P. Puffett

Willard P. Puffett

United States Department of the Interior

GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

IN REPLY REFER TO: Office of Minerals Exploration

August 24, 1970

Development Operating Corp.
Attention: Mr. Robert E. Tally,
Engineer
P. O. Box 14
Boulder, Montana 59632

Re: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

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Gentlemen:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of
Minerals Exploration

copy to R-I

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT OR PROJECT UNDER ROYALTY AGREEMENT

1. Since August 23, 1969, has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☑

other than royalty in the amount of $40.08 paid on Smelter Lot No. 1320, Mine Lot No. 1,

2. Since August 23, 1969, has there been any production from the land subject to the contract? Yes ☑ No ☐

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser (*name and address*)	Quantity	Value
A.S.&R. - Helena MT.	96.4T	$801.05 ~~$800.05~~

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity (*tons*)	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since workings (*see* , has any production been transported through *of contract*)? Yes ☐ No ☑

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name	*Title*
Development Operating Corp.	Eng'r.
Address	*Date*
Box 14, Boulder, MT	9-5-70

J: Copies of Smelter returns forwarded your Spokane office along with Royalty check 1-22-70
D.C.T.

OFFICE OF MINERALS EXPLORATION
U. S. GEOLOGICAL SURVEY

TO: Chief, Branch of Budget and Finance

FROM: Willard P. Puffett
Field Officer, Region I

- ABSTRACT OF REMITTANCES

Date	Amount	Bank, City and State	Name of Remitter	Docket & Contract Numbers	Purpose
1/22/70	$40.03	First National Bank Butte, Montana	Development Operating Corp. Boulder, Montana	OME-6587 Contract 2244	Royalty

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REMARKS: (List smelter or mill lot numbers covered by royalties)

Smelter Lot No. 1320 Mine Lot No. 1

January 26, 1970
Date Prepared

Willard P. Puffett
Person Preparing Abstract

1/28/70
Date Received

Lorraine E. Eckstein
Person Receiving Remittance

12 35

AMERICAN SMELTING & REFINING CO.
EAST HELENA, MONTANA 59635

EAST HELENA, MONTANA

30133

Form No. 1

Shipper: DEVELOPMENT OPERATING CORP.
Mine: ELKHORN
Class: CRUDE Shipping Point: ELKHORN, MONTANA
Smelter Lot. No. 1320 Mine Lot No: 1
TRUCK 13.4 192480

Assays	Gold Oz. Per Ton	Silver Oz. Per Ton	Wet Lead %	Copper %	Zinc %	Arsenic %	Antimory %	Bismuth %
A. S. & R. Co.	Tr.	18.2	0.8	0.05	3.9	0.43	0.24	
Shipper								
Umpire								
Settlement	Tr.	18.2	0.8	0.05	3.9	0.43	0.24	

Assay Deduction	Percent Pay	METAL	Pay Quotation	Quotation Deduction
		~~Gold~~		
1.0	100	Silver	1.739	.01
		~~Lead~~		
		~~Copper~~		

H_2O	Wet Weight	Dry Weight	Dry Tons	Wet Tons
34.00	192,480	185,935	92,967	96,240
192,480	185,935	92967		96,240

Date of Arrival: DECEMBER 15, 1969

Settlement Assay		Total Content	Assay Ded.		Percent Pay		Pay Content	Pay Quotation	Quot. Ded.	Net to Shipper
	Gold									
1,820.00	Silver	1,692.01	100.00		100.00		1,599.05	1,739.00	10.00	2,764.76
80.00	Lead	1,487.49					.00			
5.00	Copper	92.97					.00			
390.00	Zinc	7,251.49					.00			

Base Charge $15.00
Labor .94
$15.94

Dry Tons X Total Contracts Deductions $15.94	ST 6	92,967.84 S	15.94	2,764.76 S
Sampling				1,481.91 ◇
Lbs. of Pb (Pay Content)				
Lbs. of Cu. (Pay Content)				
Tons of Pb & Cu X Bullion Frt. Act.	PR			
Tons of Pb & Cu X Bullion Frt. Cont.				
Sub-Total				
Wet tons X Frt. Rate	ST 5			1,282.85 S
Sub-Total				
Advances				
Hauling @ $5.00 Frank Marks	ST 5	96,240.00 S	5.00	481.20 ◇
Umpires				
Net Proceeds				801.65 *

MME Form 7
(2/63)

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Date	Surname	Code
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SEP 12 1969

AIRMAIL

Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632

Attention: Mr. Robert E. Tally, Engineer

Re: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Gentlemen:

Thank you for your letter dated August 23, 1969, regarding recent developments at the Elkhorn mine, and requesting reconsideration of your application for additional OME assistance.

We are pleased to learn that you have been able to undertake some of the work proposed in your application, and that results to date have been very encouraging.

Mr. Willard P. Puffett, OME Field Officer, Region I, informed us that he visited the mine on August 13, 1969, and that he explained to you the funding situation for OME this year. There has been no change in this situation since his visit with you. Although appropriations have not been made for the current year, we understand that funds will be much less than were available for the fiscal year that ended June 30, and we are authorized to operate only at the level of the expected reduced funds. As proposed contracts already drafted and awaiting execution will require more funds than are available at present, action on pending applications is postponed. When we can again process new applications, first priority will be given to those offering the best opportunities for making significant discoveries.

We regret that we cannot reconsider your application at this time, and we are unable to estimate when we may be of possible assistance to you. When circumstances permit, we will again review your application within the limitations stated above.

Sincerely yours,

Harold Kirkemo (gla)

Harold Kirkemo
Chief, Office of
Minerals Exploration

cc: Director's Reading File
Mineral Resources
OME docket
OME Region I
OME Reading File
Mr. Emerick
Mr. Kirkemo

HKirkemo/gla 9-11-69

Development Operating Corp.
Elkhorn Mine
P. O. Box 14
Boulder, Montana 59632
August 23, 1969

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Mr. Harold Kerkemo, Chief
Office of Minerals Exploration
U. S. Geological Survey
Washington, D.C. 20242

Re: OME 6587 (Silver)
Contract 2244

Dear Mr. Kerkemo:

Refering to the second phase of the above contract and the last paragraph in Mr. Frank E. Johnson's denial letter to us, dated January 23, 1969 it was stated that you might review any significant favorable information.

Since the close of the above contract we have dewatered the mine down below the 1150' Level, rehabing the shaft with placement of track, pipe, and electrical cables. The pump station is on the 1150' Station from which point we pump intermittently each day, to control the mine water level.

We rehabed the 1050' Level to Station 800' S., complete with track, pipes, and electric power cable.

The following plant and equipment was purchased and installed and is now in use: Head frame, 365 c.f.m. electric compressor, electric hoist, 150 hp. electric pump 600 g.p.m. complete with 6" pipe, electric gear, etc.

We then followed a x-cut exploration program as outlined in our application from Station 760 S, driving S 70 W. As of date we are at Station 387'. At Station 165' we hit some good ore diving 20' to south and 2.0' to north, total 22.0', with assays shown on the enclosed progress assay.

We did not encounter any ore at the 360' Structure although it is slightly mineralized for about 15.0', less than 1.0 oz/Ton.

Miners in this area are difficult to find and we are experiencing many problems in these lines, along with the bigger operators, resulting in higher costs than normal.

We plan on following our original targets in so far as our finances permit and are interested in OME participation, if available. Your Willard P. Puffett, Spokane, recently visited our underground operation and can bring you up to date as to our findings.

The ore encountered at the 160' Structure is currently not being worked because we do not have available storage space underground for two products, ore and waste. We propose to build a skip pocket underground, an ore bin in the head frame and ship to the smelter as long as profitable.

Your earnest cooperation is requested at this time.

Sincerely yours,

Robert E. Tally

Robert E. Tally, Engineer

Encl- 1 copies
copy - Spokane office O.M.E.

Development Operating Corp. Boulder Mont.

Index 15 - Page 9

		Oz/T Au	Oz/T Ag	% Cu	% Pb	% Zn	
245	Face at 10.0' So. Drift	0.090	153.2	+.5	22.5	3.15	So. Drift @ Station 165.
246	" 150' ✓	0.080	460.9	+.5	26.0	13.2	for West Cross Cut 760'
247	" 200' ✓	0.080	275.1	+.5	10.1	9.3	

Charges $24.50

Jones & Lanson

Frank J. Jones

Development Operating Corp.
Boulder - Mont.

Signed _____ July 9, 1969.

Field no.	Lab no.	Description	Oz. per ton Au	Oz. per ton Ag	% Cu	% Pb	% Zn	% STA	%	%	%	%	%
241			0.080	19.5		6.15	13.2	165	Face	@	165.0	-	W. X-Cut
242			0.020	66.1		10.9	20.1	✓	Face	@	5.0		S. Drift
243			0.005	2.9		0.5	1.15	170'	✓	✓	170'		W. X-Cut
244			0.100	2,637.0		44.6	4.0	✓	✓	✓	2.0		N-Drift
		Charges	$30.00										
			24.50										
			54.50	CK No 606			Jones & Lawson						
				7-26-69.			Frank P. Jones						

UNITED STATES
DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY
U.S. Court House, Rm. 656
West 920 Riverside Avenue
Spokane, Washington 99201
August 19, 1969

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Memorandum

To: Chief, Office of Minerals Exploration

From: Field Officer, OME, Region I

Subject: Royalty Inspection
*OME-6587 (Silver)
Elkhorn Mine
Jefferson County, Montana
Contract 2244

I visited the Elkhorn mine on Wednesday, August 13, 1969, to learn if there has been recent production. On the previous evening I contacted Mr. Bob Tally, Mine Superintendent, at the Diamond S Motel near Boulder, Montana, to learn of recent developments. Mr. Tally showed me maps and assay data of the work that had been done at the mine since the OME contract work ended in August 1968.

The new work done at the mine is very similar to that for which an application for OME assistance had been made in November 22, 1968. The shaft has been dewatered to the 1150 level and a permanent pumping station has been installed there. The 1050 level has been rehabilitated south of the shaft and a crosscut has been driven to intersect the downward projection of ore that had been discovered in the OME work on the 550 level.

The crosscut was started at a station that is 760 feet south of the shaft on the 1050 level and bears S. 70° W. The face of the crosscut was about 360 feet from the main 1050 level drift on August 13, 1969.

A well-mineralized zone, the 160-foot structure referred to in the application, was cut at 165 feet in the crosscut. This apparently is the downdip extension of the ore exposed in the no. 10 drift on on the 550 level (see map with final inspection report of August 26, 1968, and Operator's final report). The structure was drifted on for 20 feet on the 1050 level. In this drift the "vein" dips from 38°-55° and is composed of two mineralized segments with a "horse" of lower grade material between. Channel samples cut across the face as the drift was advanced were assayed and indicate very high-grade ore. One

*Development Operating Corp.

sample assayed 0.1 ounce gold, 2,637.0 ounces silver, 44.6 percent lead, and 4.0 percent zinc. Other samples assayed from 2.9 to 460.9 ounces silver per ton. The drifting was halted on this vein so that the main effort would be to advance the crosscut to intersect the downdip extension of the 360-foot structure and the Sophia ore body.

There was a narrow mineralized zone in the face of the crosscut on August 13, 1969. Both Mr. Tally and Mr. Morris, Mine Foreman, thought that this feature represents the 360-foot structure.

Mr. Tally plans to write for reconsideration of his application that was denied in a letter from Mr. Frank E. Johnson, dated January 23, 1969. Mr. Tally referred to the final paragraph in the letter where it is stated that, if significant favorable information is available, a new application would be considered.

It is interesting to know that the Operator has been able to continue his exploration at the mine without OME financial assistance, even though he did sign the statement stating that, without OME assistance, he would not be able to do so. To date, the work has been very successful and the structures in the footwall area of the main contact appear to be better mineralized on the 1050 level than they were on the 550 level. Mr. Tally said that funds have been found to do the work, but OME assistance would be a great help in further exploration on the 1050 level. He mentioned that they will plan to drift on the promising ore on the 160-foot structure and would like OME assistance to do this. As of August 13, there were 13 men employed at the mine--the superintendent, the foreman, a night watchman, and 5 miners on each of 2 shifts.

The current financial situation of OME was explained to Mr. Tally in an effort to caution him not to be too optimistic about OME funding. The work that has been done has been very successful and quite possibly OME assistance in further work on the 1050 level can be justified if funds are available.

There has been no shipments of ore from the property since the OME work was completed.

Willard P. Puffett

Willard P. Puffett

Distribution:
OME(Orig.&1)
Docket

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
3/14/69	(on leave)	120
	Kulvek	120
		220

MAR 14 1969

MEMORANDUM

To: Chief, Branch of Budget and Finance

From: Acting, Chief, Office of Minerals Exploration

Subject: OME-6587 (Silver)
Development Operating Corporation
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Enclosed is a copy of the Field Officer's letter of March 10, 1969, forwarding to the Operator a copy of the Report of Cost Review on the subject contract. A copy of the report also is enclosed.

William L. Emerick (gla)

W. L. Emerick
For: Harold Kirkemo

Enclosures

cc: Director's Reading File
Economic Geology File
OME Docket
OME Reading File
Region I
Mr. Emerick

BSL/Long 3/14/69

U.S. Court House, Rm. 656
West 920 Riverside Avenue
Spokane, Washington 99201
March 10, 1969

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O. M. E.
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MAR 12 1969
MINERALS OFFICE
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Mr. Robert E. Tally, Manager
Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632

Re: OME-6537 (Silver)
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Dear Mr. Tally:

Enclosed is the Operator's copy of a Report of Review issued in January 1969 on project costs under the subject contract.

Sincerely,

Mary L. Smelser for
D. R. MacLaren
Field Officer, OME
Region I

Enclosure

MLSmelser:mls

cc: OME(2)
Voucher File

Director's Reading File

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
3/6/69	Emerick	120
		220
		120M

MAR 6 1969

Memorandum

To: Field Officer, Region I

From: Acting Chief, Office of Minerals Exploration

Subject: OME-6587 (Silver)
Development Operating Corporation
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Enclosed are the Field Office's and Operator's copies of a Report of Review issued in January 1969 on the subject contract.

If you concur in the facts as stated in this report, one copy should be sent to the Operator with any comments you may care to make, and the other copy retained for your files. As evidence of your concurrence, two copies of your letter transmitting the Operator's copy of the report should be furnished this office. If for any reason you do not concur, both copies of the report should be returned to this office with appropriate comments.

William L. Emerick (glo)

W. L. Emerick
For: Harold Kirkemo

Enclosures

cc: Director's Reading File
Economic Geology File
OME docket
OME Reading File
Mr. Kirkemo
130

GLAult/a 3-6-69

The $200 withheld waiting for operators final report has been paid to operator, we didnot receive a notice of this payment - Advice from Auditor, via of Ann Gabor. Operators final report received and $200. paid

CC 3/3/69

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
1/17/69	Emerick	120
1/21/69	Kirkemo	120
"	Johnson	110
1/22	Kilgore	220
1/22	Kepp	
1/23	Cole	110
		220

JAN 23 1969

Development Operating Corporation
P. O. Box 14
Boulder, Montana 59632

Re: OME-6587 (Silver)
Development Operating Corporation
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Gentlemen:

Your application for financial assistance for exploration in Phase II of Contract 2244 at the Elkhorn Mine, and other information available to us in Washington concerning the above captioned property have been reviewed.

Careful study of all the information available indicates to us that there is not sufficient evidence to justify Government participation in the proposed exploration for projections of ore shoots from the 550 level to the 1050 level in the Elkhorn Mine. We regret to advise you therefore, under the circumstances, that your application for exploration assistance in Phase II is denied without prejudice to the property.

If, at any time in the future, significant additional favorable information is available, we shall be pleased to consider a new application.

Sincerely yours,

FRANK E. JOHNSON

Frank E. Johnson
Chief, Office of
Minerals Exploration

cc: Director's Reading File
Economic Geology File
OME docket
OME Reading File
OME Region I
Mr. Emerick
Mr. Kirkemo
130

ELEmerick/gla 1-17-69

MME Form 7
(2/63)

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Date	Surname	Code
1/17/69	Emerick	120
1/21/69	Kirkpatrick	120
"	Johnson	110
		220

January 17, 1969

Memorandum

To: The File

From: William L. Emerick, Office of Minerals Exploration

Subject: OME-6587 (Silver)
Development Operating Corporation
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Justification for Denial of Application

The Operator, under Phase I* of the contract, found three small ore bodies on the 550 level of the Elkhorn Mine after 1,499 feet of crosscutting and drifting, 131 feet of raising, and the rehabilitation of much of an inclined shaft and about 500 feet of drift at a total cost of $90,000. The Operator has now applied for funds from OME for Phase II* work involving rehabilitation of the Elkhorn shaft between the 550 and 1050 levels, rehabilitation of 1400 feet of drift on the 1050 level, 2000 feet of drifts, crosscuts, and raises, and the drilling of 1000 feet of long holes. The total cost of Phase II* work is estimated at $144,000, or $108,000 from OME funds at 75 percent. This means the Operator proposes spending nearly $30,000 for rehabilitation and $42,000 for drifting before either of two projected small ore zones from the 550 level are reached on the 1050 level.

The Field Officer, Region I, believes that the Operator should do more exploration on the 550 level before work is directed to the 1050 level because of the uncertainties regarding the projected position and size of the ore bodies and the possibilities of old stopes or large caverns between the 550 and 1050 levels. If the caverns do represent the upper parts of old stopes, then some of the ore to be explored has been mined already. No drilling from the 550 level has been proposed by the Operator, although in his proposal it is stated drilling would cost less. If the ore bodies are of adequate size to be mined, then they should be large enough to be found with a few well-directed drill holes. Instead, the Operator proposes to spend large sums of money for rehabilitation of old workings and drifting to find ore that is possibly not there. This work could also be

*Operator's terminology

construed as one way to prepare old workings for mining or as development. The proposed drifting, crosscutting and raising, without prior knowledge of the existence of ore, is more in the nature of prospecting. The Field Officer recommends denial of the proposal.

I concur in the recommendation.

William L. Emerick

William L. Emerick

cc: Director's Reading File
Economic Geology File
OME Docket
OME Reading File
Mr. Emerick
Mr. Kirkemo

WLEmerick/gla 1-17-69

ADDENDUM: The final payment voucher submitted for payment by the Operator at the conclusion of what the Operator terms Phase I indicates that a total of $89,685.20 was spent. At 75 percent the Government participation amounts to $67,263.90, of which $200.00 has been withheld pending receipt of Operator's final report and report of review. The estimated total cost of the work (Phase I) under the contract terms was $90,000, to which the Government would contribute 75 percent of $67,500.

The Operator's Phase II work would require the allotment of new funds. As stated in the first paragraph of this denial the Operator's estimated cost of the proposed work totals $144,000, which at 75 percent would make the Government's participation $108.000.

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
U.S. Court House, Rm. 656
West 920 Riverside Avenue
Spokane, Washington 99201
January 7, 1969

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AIR MAIL

Memorandum

To: Chief, Office of Minerals Exploration

From: Willard P. Puffett, Geologist, OME, Region I

Subject: Request for funds for additional exploration
OME-6587 (Silver)
Development Operating Corporation
Elkhorn Mine
Jefferson County, Montana
Contract 2244

INTRODUCTION

The Development Operating Corporation carried out an exploration project for silver ore at the Elkhorn mine that was successful in finding three small ore bodies on the 550 level. To find this ore required 1,499 feet of crosscutting and drifting, 131 feet of raise, and the rehabilitation of much of an inclined shaft and of about 500 feet of drift on the 550 level. The Corporation has now applied for funds to explore the downward extension of the ore found on the 550 level. To accomplish this, they propose to rehabilitate the Elkhorn shaft between the 550 and 1050 levels, rehabilitate 1,400 feet of drift on the 1050 level, drive 2,000 feet of drifts, crosscuts, and raises, and drill 1,000 feet of long holes. Total cost $194,000

Attached as addendum to this report is a summary compiled by MacLaren, who was not able to complete the report because of illness. The conclusions and recommendations have been discussed with MacLaren by telephone and during a short visit to the office.

SUMMARY OF PROPOSED EXPLORATION

The applicant's map accompanying the request for additional funds shows the outline, in red, of the proposed crosscuts and drifts on the 1050 level. On this map the applicant indicates that the ore bodies found below the Sophia shaft plunge nearly vertical. An indicated drift, trending N. 41° W. is presumably to explore the ore

found in the No. 10 drift on the 550 level. The planned drifts on the 1050 level suggest that the applicant thinks the ore zones will be rather restricted in length.

APPRAISAL OF THE APPLICANT'S PROPOSAL

The applicant proposes spending nearly $30,000 for rehabilitation plus about $42,000 for drifting before either of the two projected ore zones are reached on the 1050 level. There are no provisions for diamond drilling from the 550 level to test if ore zones of adequate dimensions exist in the area where exploration is proposed.

The applicant suggests that possibly ore will not be found on the 1050 level. The last sentence in paragraph 2 on page 2 of his discussion of the proposal states: "If this vein is not encountered on the 1050 level, it may be well to return to the 550 level and follow it from the cavern." This, to me, indicates that more exploration on the 550 level should be completed before work is directed toward finding ore on the 1050 level.

The applicant states in the last paragraph on page 2 of his discussion: "Where ore is massive enough a diamond drill hole could give us the same information at less cost." However, the applicant does not propose any diamond drilling.

The location of the proposed drift along the 160-foot structure on the 1050 level needs more explanation. The 1050 level is about 300 feet lower than the 550 level. The ore zone in the No. 10 drift on the 550 level strikes about due north and dips 30°-40° E. If this zone is projected downward to the 1050 level, it will be found 420 feet east of the No. 10 drift or about 30-50 feet west of the existing drift on the 1050 level. However, the applicant's map shows that the expected position of the ore zone is about 280 feet WSW from the drift on the 1050 level and about 360 feet SE from exposures in the No. 10 drift. The applicant gives no information to explain why he thinks the ore body will project to the location of the proposed drift.

The applicant mentions the caverns cut by the No. 10 drift on the 550 level. One of these caverns is quite large, but only the top of the other cavern was cut and its dimensions are unknown. Possibly these caverns might represent the upper parts of old stopes. The lack of maps showing old workings in the footwall of the main ore zone is a disadvantage. Possibly, some of the ore to be explored has been mined or possibly large caverns exist in the central part of the ore zones.

I think that more exploration is required from the 550 level because of the uncertainties about the projected position of the ore and the possibilities of old stopes or large caverns between the 550 level and the 1050 level. The applicant has not proposed drilling to test the projected position of ore on the 1050 level but is willing to spend a large sum on rehabilitation and drifting in the hope of finding ore. Possibly, his proposed work will be successful in finding a significant ore body, but more probably the ore bodies, if found, will be similar in size to those found on the 550 level.

Exploration that would include diamond drilling from the 550 level might have some merit inasmuch as this level is open and no large sum for rehabilitation is required. Sinking on the ore in the No. 4 drift might be feasible to search for its downward extension; ore found could eventually be removed through the old mine workings that connect to the Sophia shaft.

I think the applicant's proposal for additional exploration is not well conceived. Too much is being allowed for rehabilitation of old workings and drifting to find ore that possibly is not there. Obviously, the applicant wants to rehabilitate the old workings so that if ore is found it can be mined and removed through the Elkhorn shaft. Hence, in this respect, much of the rehabilitation work is preparation for mining and is more in the nature of development. The proposed drifting, crosscutting, and raising, without prior knowledge of existence of ore, is more in the nature of prospecting than exploration.

If the applicant will modify his proposal to include diamond drilling downward from the 550 level before planning deeper work, his proposal will have more merit. His cost analyses seem complete and reasonable. Work done under Stage I of the contract was satisfactory and competently supervised. There is a fair possibility of finding a significant amount of new ore between the 550 and 1050 levels if the old reports can be relied on. If the ore bodies are of adequate dimensions to be mined, they should be large enough to be found with a few well-directed diamond drill holes. Without prior drilling, the exploration proposed is too much in the nature of prospecting.

CONCLUSIONS AND RECOMMENDATIONS

There is a possibility that the ore found on the 550 level represents the upper part of much larger ore bodies that exist between the 1050 and 550 levels of the Elkhorn mine. Systematic exploration that would include diamond drilling downward from the 550 level is justified to explore for these ore bodies. Large sums should not be allocated for rehabilitation of old workings below the 550 level until prior evidence of ore below the 550 level is obtained.

It is recommended that the applicant's proposal be denied. More favorable consideration can be given a proposal that includes diamond drilling as suggested in other parts of this report. There has been no discussion with the applicant regarding modification of his proposed exploration.

Willard P. Puffett

Willard P. Puffett

Distribution:

OME	Docket
USGS(SRO)	Puffett

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
U.S. Court House, Rm. 656
West 920 Riverside Avenue
Spokane, Washington 99201
January 7, 1969

AIR MAIL

Memorandum

To: Chief, Office of Minerals Exploration

From: Field Officer, Region I

Subject: Addendum
Request for additional funds
OME-6587 (Silver)
Development Operating Corporation
Elkhorn Mine
Jefferson County, Montana
Contract 2244

In the cited application it is proposed to rehabilitate the Elkhorn shaft to the 1050 level; to rehabilitate the 1050 level; to crosscut and drift a total of 2,000 feet (only 1,500 feet accounted for in the first two paragraphs on page 3); to drill 1,000 feet of long holes. The proposed targets are the downward extensions of ore bodies found on the 550 level. The estimated cost of this proposal is $144,000 of which the Government's share would be $108,000.

As nearly as can be determined the last few tens of feet of shaft and about 250 feet of drift rehabilitation will be done within the vertical boundaries of the St. Patrick or the Relief claims, neither of which are controlled by the Operator. (See the claim map accompanying the original application, our letter of April 26, 1967, to Tally and his replies of May 1 and May 6, 1967.)

In preparing our examination report dated May 11, 1967, in which exploration from the 550 level drift was recommended, we had the advantage of entering the 450 level and passing through old workings to the Sophia 110 level. During this traverse, sulfide minerals were seen at the so-called 80, 230, and 360 "contacts." Also, logs and samples from diamond drill holes indicated the presence of ore-grade material at 10 intercepts.

The only available map of the workings below the 550 level is the one prepared by Weed (1901, p. 478). Although work by later

operators resulted in finding ore bodies in the footwall area below the 550 level, precise data are largely lacking. However, some evidence of large, irregular footwall ore bodies below the 1050 level is presented in each of two reports that accompanied the original application; one made by Rowland King in 1937, the other made by W. H. Swayne in 1945. King, on pages 10-12, quotes portions of letters he received from Josiah Bowden, mine manager during Longmaid's operations from 1901 to 1912, and presents some details he acquired during several conferences with Bowden. Swayne repeats parts of these data from King's report. The salient features are:

1. Parts of the 40-foot "contact" have been mined from the surface to the 2300 level.

2. On the 1550 level one stope was mined for 300 feet horizontally beyond the 40-foot "contact."

3. An ore body developed on the 1650 level extended downward through the different "contacts" almost to the 2250 level.

4. Many of the footwall deposits mined below the 1050 level were pipelike or tabular with their long axes at right angles to the bedding and the hanging wall; others were vertical. Unfortunately, none have been mapped.

5. The most favorable areas for footwall ore bodies are directly beneath or in line with the old hanging wall stopes.

6. The footwall between the 450 and 1050 levels "has not been developed to any extent" (King, 1937, bottom of p. 10).

The ore bodies discovered on the 550 level appear to be far smaller than expected but, as Puffett points out in his final inspection report, possibly further development will show them to be significantly larger. There are three possibilities:

1. They are as small as they appear to be,

2. They represent "roots" of the Sophia ore body, or

3. They represent "pinnacles" of one or more ore bodies below the 550 level.

In any case, although at least one ore body was apparently continuous for nearly 600 feet vertically, it appears that a 500-foot projection (inclined) of these shoots from the 550 level to the 1050 level is extremely optimistic.

D. R. MacLaren

D. R. MacLaren

Distribution:
OME Docket
USGS(SRO) MacLaren

MME FORM 6 REFERENCE SLIP
REV. 2-59 OFFICE OF MINERALS EXPLORATION

TO: Chief, OME

	DATE	INITIALS
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Re: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

FROM: Willard P. Puffett
Geologist

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O. M. E.
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FOR: Check items for action desired

____ Action ____ Reply for signature of
____ Approval ____ Investigate
____ Comment ____ Recommendations
____ Conference ____ Rewrite
____ Instructions X Your information

REMARKS:
Comments are being prepared and will be forwarded upon completion when Mr. MacLaren returns.

INT.-DUP. SEC., WASH., D.C. M56300-62

Develpoment Operating Corp.
P. O. Box 14
Boulder, Montana 59632
November 22, 1968

Attention, Mr. D. R. MacLaren, Field Officer
Office of Minerals Exploration
Department of the Interior
U. S. Geological Survey
U. S. Court House, Room 656
West 920 Riverside Ave.
Spokane, Washington 99201

Re: OME 6587, Silver
Contract 2244 - Phase I
Elkhorn Mine
Jefferson County, Montana

Gentlemen:

Attached hereto please find our Application for Financial Assistance for the exploration of Phase II of the Elkhorn Mine.

Phase I has been completed with certification of ore on the 550' Level. Phase II has to do with projecting the ore there encountered down to the 1050' Level. This requires pumping of water from the 550' Level to the 1050' Level and holding it there, rehab of 500' of 8 x 10' shaft sloping at approximately 34 degrees with installation of track, pipe, electric gear, etc. About 1400' of 1050' Level Drift requires rehab with installation of track, pipe, and electric gear. We then propose to X-cut over to the projection of the ore encountered on the 550' Level to the 1050' Level, an estimated total of up to 1000' of X-cut and 500' of drifting both ways on the ore, once encountered. If a good massive ore body is found it is then proposed to raise on it up to 500'.

The estimated total cost of this project is $144,000 and it is estimated to take 20 months to complete.

Since we have to pump to hold the water and in order to hold our crew together we are now, pumping and rehabing the main shaft and as of date are at an elevation of 700'.

Appreciating our joint venture on Phase I of our exploration program, we look forward to consideration of Phase II.

Yours very truly,

Robert E. Tally

Robert E. Tally, Mgr.

RECEIVED
Registered
DEC 10 1968
SPOKANE, WASH.

RET/frm

Introduction: This application for Exploration Assistance on Phase II of the Elkhorn Silver Mine was covered in the original application. Our OME Contract covered the first phase only. Having completed some 1600' of X-cut, drift, and raise work along with about 500' of main shaft rehab and 500' of the 550' Level rehab we are now in a better position to estimate the required work from actual costs. This has to do with dewatering from the 550' Level to the 1050' Level and holding the water at this elevation. The pumps will dewater from the main Elkhorn Shaft, rehabing some 500' of shaft, following the drawdown, cleaning the wreckage of 54 years of being underwater, timbering where necessary, installing pipe, track, electric cables, signal system, lighting, etc. The rehab of the 1050' Level Station and some 1400' of the main haulage drift, installing track, pipe and timbering where necessary, follows. From that point, we propose to X-cut to the projection of the ore encountered on the 550' Level to the 1050' Level, namely about 700' of drifting for the 360' Structure and about 300' of drift both ways along the ore encountered. For the 160' Structure we propose about 300' of X-cut and up to 200' of drift both ways along the ore encountered. This would be supplemented with up to 500' of raise through the orebody, depending upon actual findings. We are now pumping on down and as of 11-22-68 are at Station 700' in the main shaft, complete with pipe and track, on a month to month basis financially so as to make the most of our time and hold our crew together. We are aware of the fact that any and all work preformed before the signing of a contract cannot be a part of that contract. The operating corporation will not be able at this time to complete the exploration program without government assistance.

The status of lease, ownership, etc. is unchanged from the date of the first contract. Taxes and all bills are paid up to date and there are no liens against the property or the corporation. Outside financing from two local banks has been refused. Applicants share of the financing will be advanced as required by A.B. Henningsen just as it was in Phase I. All pertinent preliminary information and data has been supplied OME in our original application. The monthly narrative and progress reports on Phase I are on file with OME so this information will not be duplicated at this time unless specifically requested. Engineering and management will continue under Robert E. Tally.

The proposed work consists of :

1. Dewatering down below the 1050' Level.
2. Rehab of the 8 x 10' main shaft.
3. Intermittent pumping to hold the water level below the 1050' Level.
4. Rehab of about 1400' of the 1050' Level Drift.
5. Driving of approximately 2000' of X-cut, drift, and raise work as outlined on accompanying plan map and further detailed in the cost estimates.
6. Up to 1000' long hole drilling.

We have every reason to expect that the ore found on the 550' Level

will be encountered on the 1050' Level. The contact deposit mined by the original Elkhorn Mining Company up to 1912 went down to the 2300' Level and was still in good ore at the time of work stoppage in 1912. Longmaide had purchased the Montana Hecla property and figured to have another Elkhorn, mining with lower costs from the grass roots on down. He went broke and subsequently tried to repurchase the Elkhorn from Henningsen who acquired the property in 1914 and was refused. Incidently, old timers who worked in the mine tell me that no footwall ore was ever mined on the 1050' Level. If the 360' Structure ore encountered on the 550' Level continues on down to the 1050' Level and up to the surface, as to grade and quanity, it will make an operating property, at the current price of silver. Qualified persons predict an upward price of silver, with supply and demand determining its actual value.

The narrow vein of ore encountered on the 160' Structure on the 550' Level is most interesting and is the type of narrow mineralized vein refered to by Bowden in the King Report, stating that in the scope of their experience, should be followed up as it leads to a good orebody. We were curtailed in following this vein any further on the 550' Level, breaking into a good sized water cavern, about 20' below the drift floor and over 10' above it in places and extending some 23' across, filling up with water, overflowing into the drift. The water is now down to about 7' in the doghole, where first encountered, with no visible connection to where we broke through at 70'. Some water remains in the N.E. corner of this later cavern. The 6" vein continues on from the drift along the back of the cavern for a couple of feet, along the same strike as in the drift, where it assayed 38.4 oz. Ag./T. The ore completely disappears for about 20', having been obliterated by the making of the cavern and then appears again in the far wall of the cavern, at which point it can be picked up and followed again. The dip of the ore averages about 41 degrees S.E. If this vein is not encountered on the 1050' Level it may be well to return to the 550' Level and follow it from the cavern.

There is also a very good possibility of the other structures making ore with depth and our X-cut on the 1050' Level could very will prove out.

We are in a better position on Phase II of our exploration program as we now have a definite target - the projection of the ore to the 1050' Level.

Once ore is encountered it is proposed to use about 1000' of long hole drilling, 35-40' in length to supplement drift work in determining lateral extension and limits of orebodies at lower costs.

We are also of the opinion that a raise from any good sized ore encountered would be pertinent. Where the ore is massive enough a diamond drill hole could give us the same information at less cost. This also could apply to a diamond drill hole from the surface to the 550' Level, although Mentor did not have much success with their diamond drill program.

The proposed 2000' of exploration work consists of 700' of X-cut to the projection of the 360' Structure and when encountered follow the orebody both ways for approximately 300'. No definite dips and strikes are available on this deposit and it very well could be a series of lenticular pipe-like deposits.

We will take a very good look at the projection on the 160' Structure projected to the 1050' Level and it very well may be that this could intercept the main drift, if it extends far enough. In the event that this is not the case and I very much doubt that it will, or the early miners would have encountered it and followed it, we propose to drive to the actual projection from Station 1000' up to 300' and if ore is encountered drive both ways for another 200' or a total of 500'.

In our cost estimates we have used actual costs and time from the Phase I work. However, labor has gone up since the strike at Anaconda and commodities in proportion so that I have taken the liberty of using a 10% contingency factor on total costs. No allowance has been made for excess timbering, bad ground, etc. which can be a very pertinent factor, so this is not out of line. The amount of water to be pumped depends upon old stope volumns and is a guesstimate at best, but we have based all these items upon actual experience here at the Elkhorn.

Cost Estimates of total job are:

I.	Rehab of Main Shaft and Station		$ 18895.00
II.	Rehab of 1050' Level		10592.00
III.	2000' Exploration Work		93260.00
IV.	Long Hole Drilling		1000.00
V.	Engineering Costs		3000.00
VI.	Office Expense		2800.00
VII.	Assaying		1440.00
		Sub Total	130987.00
	Contingency		13013.00
		Total	$144000.00

Recap of proposed exploration work follows:

Objective	X-Cut	Drifting	Raise	Location
360' Station	700'	300'	-	From Station 760'
160' Station	300'	200'	-	From Station 1000'
-	-	-	500'	In ore
Total	1000'	500'	500'	= 2000'

Cost estimates of work follow:

	Rehab Elkhorn Shaft		Rehab 1050' Level		Exploration	
	$/Ft.	500'	$/Ft.	1400'	$/Ft.	2000'
Labor	$26.67	$13335.00	$3.60	$5040.00	$30.43	$60860.00
Track & Acc.	3.32	1660.00	2.20	3080.00	2.20	4400.00
Pipe	1.00	500.00	1.00	1400.00	1.00	2000.00
Timber Stulls	.80	400.00	-	-	-	-
Equipment Use	2.00	1000.00	.23	312.00	2.34	4680.00
Maintenance	2.00	1000.00	.23	312.00	2.34	4680.00
Electric Power	2.00	1000.00	.33	448.00	3.65	7300.00
Explosives	-	-	-	-	4.67	9340.00
Total	$37.79	$18895.00	$7.57	$10592.00	$46.63	$93260.00

Time estimates of work are:

I.	Rehab Shaft	5.0 Months
II.	Rehab 1050' Level	2.5 "
III.	Exploration Work	12.0 "
	Total	19.5 Months

Details of Job

I. Rehab Elkhorn Shaft, 8 x 10'
Approximately 500' sloped distance at about 34 degrees slope from 550' Level to 1050' Level. This work will follow the water draw down of the pumps with an estimated 4.0'/24hr. day progress.

A. Labor

2 miners @ $25.00/day		$ 50.00
1 hoistman @ $23.00/day		23.00
½ foreman @ $31.80/day		15.90
	Sub Total	88.90
Fringe benefits @ 20%		17.78
	Total	$106.68/4.0'
		26.67/Ft.
		$13335.00/500'

B. Track and Accessories

Mud Sills across the floor each 5.0'
100 - 4x10" - 10' = 3333 F.B.M.

Track Sills 1000'/16'
63 - 4x10" - 16' = 3350 F.B.M.

6683 F.B.M.

Cost @ $100.00/M.F.B.M. $670.00

Wedges and Blocking 40.00

Sub Total $710.00/500'
1.42/Ft.

Rail 1000' 16# in 15' lengths, new.

Item	Unit	Amt.	Unit Cost	Total Cost
Rail	N.T.	$3.67	$310.00	$828.00
Splice Bars	Pr.	.67	1.10	74.00
Bolts	Ea.	2.67	39.00/CWT	11.00
Spikes	Ea.	4.00	23.50/CWT	9.00

Sub Total $952.00/500'
1.90/Ft.

Total $1660.00/500'
3.32/Ft.

C. Pipe
500' - 2" @ $0.60/Ft. $300.00
500' - 1" @ $0.30/Ft. 150.00

Values and Fittings 50.00

Total $500.00/500'
1.00/Ft.

D. Timber Stulls
10x10" - 8.0' each @ $100.00/M.F.B.M.
15' intervals on pipe side.
50' intervals on bell cord and electric wire side.

50 - 10x10" - 8.0' @ $100.00/M.F.B.M. $333.00

Base Boards, Head Boards, Wedges 67.00

Total $400.00/500'
.80/Ft.

E. Equipment Use

Item	Cost	Life	Cost/Yr.	Cost/Mo.	Use Cost
Hoist	$4000.00	5 yrs.	$800.00	$66.67	$400.00
Compressor	3500.00	5 yrs.	700.00	58.33	350.00
Slusher	750.00	5 yrs.	150.00	12.50	75.00
Mine Cars	250.00	5 yrs.	250.00	20.80	125.00
				Total	$975.00/500'
					2.00/Ft.

F. Maintenance
Same as Equipment Use $975.00/500'
2.00/Ft.

G. Electric Power
Power @ 1.5¢/kwhr

Item	H.P.	Hrs/Shift	kwhr/Shift	Cost
Compressor	75	4	280	$4.20
Hoist	50	4	93	2.80
			Sub Total	7.00
Demand Charge - 12%				1.00
			Total	$8.00/4.0'
				$1000.00/500'
				2.00/Ft.

II. Rehab 1050' Level
1400' @ 25.0'/Shift. Time is 56 days or 2.5 months.

A. Labor
3 miners @ $25.00/day x 1.12 =
$90.00/Shift/25' = $3.60/Ft.
1400' x $3.60 = $5040.00/1400'

B. Track and Accessories

Rail 1400' x $1.90 $2660.00

X-Ties @ 20'Centers
700 x $0.60 420.00

Total $3080.00/1400'
2.20/Ft.

C. Pipe
1400' x $1.00 $1400.00/1400'
1.00/Ft.

E. Equipment Use

Compressor 2.5 Mo. x $66.50 $166.00

Hoist 2.5 Mo. x $58.40 146.00

Total $312.00/1400'

F. Maintenance — Total — $312.00/1400'
0.23/Ft.

G. Electric Power
56 days x $8.00 — Total — $448.00/1400'
0.33/Ft.

III. Exploration Work
2000' of X-Cut, drifting, and raises. We work 5 days per week with an estimated advance of 4.0'/Shift, double shifting. 2000'/8'/day = 250 days/22 days - 12 months.

A. Labor
5 miners, 2 shifts or 2.5 miners/shift

2.5 miners x $25.00 x 1.2	$ 75.00/shift
1 hoistman x $23.00 x 1.2	27.60
½ foreman x $7.00/22 x 1.2	19.10
	$121.70/4.0'
	30.43/Ft.
2000' x $30.43 — Total	$60860.00/2000'

B. Track and Accessories

Rail @ $2.20/Ft. — Total — $4400.00/2000'

C. Pipe
2000' x $1.00/Ft. — Total — $2000.00/2000'

D. Equipment Use

Item	Cost	Life	Cost/Yr.	Cost/Mo.
Compressor	$3500.00	5 yrs.	$700.00	$58.33
Hoist	4000.00	5 yrs.	800.00	66.67
Mucker	2000.00	5 yrs.	400.00	33.33
Trammer	5250.00	5 yrs.	1050.00	87.50
Drills	2000.00	2 yrs.	1000.00	83.33
Fan	400.00	5 yrs.	80.00	6.67
Tugger	500.00	5 yrs.	100.00	8.33
Mine Cars	250.00	5 yrs.	50.00	4.15
Vent Tube	500.00	2 yrs.	250.00	20.83
Misc.	1000.00	2 yrs.	500.00	41.66
	$19400.00	-	$4930.00	$410.80/176'
				2.34/Ft.
			Total	$4680.00/2000'

E. Maintenance
Same as Equipment Use — Total — $4680.00/2000'

F. Electric Power

Item	H.P.	Hrs/Shift	kwhr/Shift	Cost
Compressor	75	8	560	$8.40
Hosit	50	5	233	3.50
Battery Chg	5	4	19	0.28
Fan	7.5	8	56	0.84
				$13.02/4.0'
				3.26/Ft.
2000' x $3.26 x 1.12			Total	$7300.00/2000'

G. Explosives
23 hole round, blast 20.

50# Prell @ $10.50 CWT	$ 5.25
60/180 Sticks/50# 40% gel @ $30/CWT	10.00
20 Igniter Connecters @ $21.25/M.	0.43
20 #6 caps @ $3.20/C	0.64
10' Spitter cord @ $15.10/M	0.15
150' Fire fuse @ $14.00/M	2.10
	$18.57/4.0'
	4.67/Ft.
Total	$9340.00/2000'

IV. Long Hole Drilling 1000'
This can be done with standard jack legs and 3 - 5' sectional steel with couplings and special bits, recovering the drill cuttings, drying and assaying where of interest. The length of hole possible with this equipment is 35-40' and it is estimated that a miner will effectively drill one hole per shift and that about 25 holes will be required.

A. Labor

1 miner @ $25.00 x 1.2 =	$30.00/day
B. Bits, steel, and equipment cost	5.00/day
	$35.00/day
25 x 40' x 1.00	1.00/Ft.
Total	$1000.00/1000'

V. Engineering Costs

$1.50/Ft. x 2000' $3000.00

VI. Office Expense

A. Rent	$ 50.00/Mo.
B. Equipment rental	25.00
C. Part time Secretary	25.00

D. Telephone		$ 25.00/Mo.
E. Supplies and Postage		15.00
	Sub Total	$140.00
$140.00 x 20 Mo.	Total	$2800.00

VII. Assaying
Au, Ag, and Pb @ $6.00 each

A. X-cut and Drifts	600'/5' = 120	$ 720.00
B. Raise	500'/5' = 100	600.00
C. Long Hole Drilling	100'/5' = 20	120.00
	Total	$1440.00

Operating Materials and Supply Cost, f.o.b. Mine site

Timber	$100.00/M.F.B.M.
Gasolene	0.294/gal.
Diesel Oil	0.175/gal.
Electric Power	0.015/kw-hr
Water from pumping, c/tanks	
Amfo Prell Explosives	10.50/CWT.
40% Gel. 1x8 Dynamite	30.00/CWT.
Fire Fuse	14.00/M'
#6 Blasting Caps	3.20/C
Spitter Cord Connectors	21.25/M
Spitter Cord	15.10/M'

Labor Rates

Miners	$ 25.00/8 hr. day
Hoistmen and Helpers	23.00/8 hr. day
Foreman	700.00/Mo.
Manager and Engineer	1500.00/Mo.
Secretarial Work	2.00/hr.
Fringe Benefits	20%Gross pay roll
Watchman - week-ends and holidays	140.00/Mo.

Crew - 2 shift/day, 5 days/wk on Exploration

5 Miners
2 Hoistman
1 Foreman
1 Manager and Engineer
1 Watchman

10 Men and part time Secretary

Additional Plant Since First Contract

Head Frame	$ 1000.00
Electrical Switch House	500.00
Compressor House	500.00
Shop - Rehab and Roof	500.00
Total	$ 2500.00

Additional Equipment

1	Cletrak Bulldozer	$ 2000.00
1	A - Frame Truck	300.00
1	Jeep	400.00
1	I-R 375 cfm 75HP. Compressor	3500.00
1	50HP Hoist and Cable	4000.00
1	600 g.p.m. 150HP Pump	3000.00
	Electric Cable and Switch Gear	4500.00
	500' - 6" diameter Pipe, Fittings, and Valves	1700.00
	Misc. Tools	500.00
	Total	$19900.00

All of the above are in first class operating condition as of this date.

MINERS
BANK OF MONTANA N.A.
BUTTE, MONTANA 59701

November 29, 1968

Mr. Robert E. Tally, Manager
Development Operating Corporation
P.O. Box 14
Boulder, Montana 59632

Dear Mr. Tally:

It was interesting to receive your letter of November 22, 1968 outlining what has taken place since 1966. We are glad for you that things have gone along satisfactorily and at least to the point where you think it worthwhile to invest additional money.

At the moment, we are not in a position to consider additional loans of this type. The demand for money has been extremely heavy in Butte and primarily because of The long Copper Industry Strike and of course we have felt it necessary to take care of these demands to the best of our ability. Unfortunately, the demand is not easing up and it is doubtful if it will in the next 90-to-120 days. We might also mention that the amount requested is beyond our legal lending limit and therefore it would be impossible for us to consider the amount mentioned.

We hope you are successful as certainly the mining industry is badly needed in Montana. We sincerely hope that you can find the necessary capital.

Sincerely yours,

President

Harold Pitts:kmf

1st FIRST NATIONAL Bank
Butte, Montana
Affiliated with NORTHWEST BANCORPORATION

December 2, 1968

Development Operating Corporation
P. O. Box 14
Boulder, Montana 59632

Attention Robert E. Tally, Manager

Dear Mr. Tally:

Thank you very much for your letter of November 22. We regret that at this time we do not have funds available for such a loan.

Kindest personal regards.

Yours very truly,

John J. Mitchell

John J. Mitchell
Executive Vice President

JJM/dg

Map "ELKHORN MINE, JEFFERSON COUNTY, MONTANA"
Received with application November 22, 1968
for exploration of Phase II - Docket OME-6587, Contract 2244

OFFICIAL FILE COPY

Date	Surname	Code
10/18/68	Kirkemo	120
10/30	Johnson	110
		220
11/1/68	Bliss King	140
Appd.	Sol. Office	120M
11/15	Kilpatrick	
11/18	Kerr	
		110
		220

NOV 18 1968

Mr. Charles S. Youlden and
Mrs. Martha Ann Youlden
1159 West Steel Street
Butte, Montana 59701

INTERIOR DEPT.
NOV 1 1968
SOLICITOR

Re: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Dear Mr. and Mrs. Youlden:

Enclosed is a copy of a self-explanatory letter of today to the Operator under the subject contract. This relates to the Lien and Subordination Agreements signed by you on March 13, 1967.

The Government's prior lien on the land and upon production therefrom, as specified in the letter to the Operator, will continue in existence for the length of time mentioned in the enclosed letter to the Operator. You are obligated during that period to commit no act and to assert no claim in conflict with the Government's rights under the agreement, and to give advance notice of the Government's rights to any transferee or lessee of any part of your interest in the land or the production therefrom.

Sincerely yours,

FRANK E. JOHNSON (glA)

Frank E. Johnson
Chief, Office of
Minerals Exploration

Enclosure

cc: Director's Reading File
Division File
Economic Geology File
Docket Copy
130(2) OME Reading File
Mr. Kirkemo OME Region I

Identical ltrs. to:
Mr. Anker B. Henningsen
2282 Arbutus Road
Victoria, B. C., Canada

Mrs. Laura I. Walker
904 West Platinum
Butte, Montana 59701

GLAult/bl 10/18/68

MME FORM 6 REFERENCE SLIP
REV. 2- OFFICE OF MINERALS EXPLORATION

TO:	DATE	INITIALS
1. Mr. Johnson, Chief, OME		
2. Mr. Kirkemo	10/30/68	HK
3. ~~Assoc. Sol.--MR, Room 6554 (Through Room 6042)~~		
4. Mrs. Long, Room 4459		
5.		

FROM: Chief, OME

RECEIVED
Nov. 1 1968
Division of Mineral Resources
Office of General Legal Services

FOR: Check items for action desired

____ Action	____ Reply for signature	
x Approval	____ Investigate	x Surname
____ Comment	____ Recommendations	____ Signature
____ Conference	____ Rewrite	____ File
____ Instructions	Your information	

REMARKS:

Two letters to be surnamed.

SOLICITOR
K-68-2007. 3192
1968

INTERIOR DEPT.

P. SEC., WASH., D.C. M56300-62

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

GEOLOGICAL SURVEY
U. S. Court House, Rm. 656
W. 920 Riverside Avenue
Spokane, Washington 99201
October 15, 1968

OFFICIAL COPY
O. M. E.
RECEIVED
OCT 17 1968

INITIALS	CODE
	130
	120
	~~110~~
	~~130~~
HK	120

Memorandum

To: Chief, Office of Minerals Exploration

From: Field Officer, Region I

Subject: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Work under the subject contract was completed during July 1968. A Termination Agreement is in order.

The number of units of work completed by the Operator and accepted by the Field Officer as conforming to contract specifications were:

Rehabilitating main shaft	1 job
Rehabilitating 550-foot level drift	1 "
Crosscutting and drifting including timbering	1,499 feet
Raising including timbering	131 " 1/
Assaying gold and silver	90 assays
lead	27 "
zinc	1 "
Office expenses	12 months
Incidental allowance	1,630 feet

1/ According to Contract Article 4, fixed unit costs and total contract costs appear to be the only maximums. On this basis 31 feet in excess of the 100 feet specified for raising has been accepted.

An acceptable Operator's final report was received October 1, 1968.

A Report of Review, in lieu of a final audit, is in order and requested. For this purpose the original copies of the final (July 1968) MME-60 and MME-61, together with supporting documentation were forwarded to you August 27, 1968.

D. R. MacLaren

D. R. MacLaren

MME Form 7
(2/[illegible])

OFFICIAL FILE COPY

Date	Surname	Code
10/3/68	Kirkemo	120
		120
		220
		120M

OCT 3 1968

Memorandum

To: Chief, Branch of Budget and Finance

From: Chief, Office of Minerals Exploration

Subject: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

An acceptable Operator's Final Report on the subject contract has been received.

The amount of $200.00 withheld from the Operator's final voucher, dated July 1968, may now be paid to the Operator.

FRANK E. JOHNSON/gla

Frank E. Johnson

cc: Director's Reading File
Economic Geology File
OME Docket
OME Reading File
Region I
Mr. Kirkemo

HKirkemo/bsl 10/3/68

Ok. Oct. 10, 1968
Pek. 92730

MME FORM
REV. 2-59

REFERENCE SLIP
OFFICE OF MINERALS EXPLORATION

	DATE	INITIALS
TO: Chief, OME	10/ 2/68	
1. Re: OME-6587 (Silver) Development Operating Corp.		
2. Elkhorn Mine		
3. Jefferson County, Montana		
Contract 2244		
4. D. R. MacLaren		
5.		
FROM: Fld. Officer, Reg. I		

COMM
O. M. E.
RECEIVED
OCT 9 1968

INITIALS	CODE
	PO
	Surname
	Signature
	File

FOR: Check items for action desired

____ Action	____ Reply for signature or		
____ Approval	____ Investigate		
____ Comment	____ Recommendations		
____ Conference	____ Rewrite		
____ Instructions	X Your information		

REMARKS: Attached is an addendum to Operator's final report forwarded to you with our Reference Slip on 9/25/68.

M56300-62

INT.-DUP. SEC., WASH., D.C.

Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632
9-29-68

Mr. D. R. MacLaren
Field Officer, OME
U. S. Geological Survey
U. S. Court House, Rm. 656
West 920 Riverside Ave.
Spokane, Washington 99201

Re: OME 6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract No. 2244
Final Report

Dear Mr. MacLaren:

In reviewing our final report, I discovered that I did not include unit costs as requested and so hasten to forward same to you.

Respectfully submitted,

Robert E. Tally

Robert E. Tally

RET/frm

OPR. FINAL
REPT. &
SUPPL.

OCT 1 19.8
U. S. G. S.
SPOKANE, WASH.

9-20-68

UNIT COSTS

I.	Rehab Shaft	400'	$10,000 or $25.00/Ft
II.	Rehab 550' Level	500'	6,300 or 13.00/Ft
III.	X-Cut, Drifts & Raise (1600')		72,000 or 45.00/Ft

Geologically, as shown on the map for the S.E. Drift, the general trend of the Orebodies 1, 2, and 3 lies almost parallel to the large water course which gives us a possible tie-in.

MME FORM 6
REV. 2-59

REFERENCE SLIP
OFFICE OF MINERALS EXPLORATION

	DATE	INITIALS
TO: Chief, OME	9/25/68	
1. Re: OME-6587 (Silver) Development Operating Corp.		
2. Elkhorn Mine Jefferson County, Montana		
3. Contract 2244		
4. D. R. MacLaren		
5.		
FROM: Fld. Officer, Reg. I		

FOR: Check items for action desired

X Action	___ Reply for signature of ___	___ Surname
___ Approval	___ Investigate	___ Signature
___ Comment	___ Recommendations	___ File
___ Conference	___ Rewrite	
___ Instructions	___ Your information	

REMARKS: Attached are two copies of an acceptable Operator's final report. Certification has been recommended in Interim (final) Inspection Report dated 8/26/68.

M56300-62

INT.-DUP. SEC., WASH., D.C.

Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632
9-20-68

OFFICIAL COPY
O. M. E.
RECEIVED
SEP 27 1968

INITIALS	CODE
gla	130
Bal	120
~~JM~~	~~110~~
HK	130

(emich)

Mr. D. R. MacLaren
Field Officer, OME
U. S. Geological Survey
U. S. Court House, Rm. 656
West 920 Riverside Ave.
Spokane, Washington 99201

Re: OME 6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract No. 2244
Final Report

Dear Mr. MacLaren:

Resume: Work commenced on August 4, 1967 on the above contract. We started x-cutting a 5 x 7' opening on the 550' Level, approximately 500' south of the Elkhorn Shaft and drove 530' in a westerly direction, in the footwall of the main contact orebody. The objective was to crosscut the structures believed to be 40', 80', 160', 230', 360', and 480' horizontally from the contact. Structures were encountered as expected but unfortunately they did not make ore at this elevation. The dolomite drilled very well with a round-in round-out basis per shift to the very end at which point we encountered a large water course, then making considerable water which has subsequently dried.

Our second step was to drive a south drift, designated as Working No. 2, from Station 350' of the West X-Cut, in a westerly direction along the 360' Structure. This proved barren of ore until Station 174' at which point we encountered galena in the drill cuttings and it appeared as an almost solid wall of galena in the face, after blasting the round. This has been designated as Orebody No. 1. This was explored in all directions and it formed a rectangular shaped pod of ore with an approximate length of 50' and a width of 30' and the height of the drift, 7.0' and has a weighted average of 15.01 oz. silver per ton. Later some 23' of raise was driven from Station 199' of No. 2 Working and proved barren of ore.

Continuing from Station 184' in No. 2 Working we encountered two lenticular shaped pods of ore with a directional trend of S 20 degrees E, the first separated from No. 1 Orebody by about 20' and termed No. 2 Orebody which in turn is separated from No. 3 Orebody by about 10' of waste.

No. 2 Orebody is approximately 60' in length and 22.5' in width and a minimum of 14' in height, having broken into the bottom of the Sophia Winze Stope at Station 62' on Working No. 4. Actually the Sophia Workings go up to grass roots, and are caved and hazardous of approach in many places and mined in such a way that it is almost impossible to obtain much, if any, geological data from them, to date. No. 2 Orebody has a weighted average of 28.203 oz./T of contained silver.

No. 3 Orebody has an approximate length of 55', a width of 25', and a weighted average of contained silver of 19.25 oz./T. The known height here is that of the drift, namely 7.0'.

The composites of these three orebodies is calculated to have a weighted average of 20.59 oz./T of silver and an area giving 365 T of ore per lineal foot of height or depth or both.

Considerable more information is required of this orebody, particularily as to height and depth and we propose to drill sectional drill holes in pertinent spots and directions, catching the drill cuttings and sampling for values, when encountered.

The third part of our initial exploration program was to drive a drift along the 160' Structure in a southerly direction from the West X-Cut. From Station 155' we drove for Diamond Drill Hole No. EU 17 of the Mentor Drill Program of 1955 which showed some ore. This No. 8 Working, following the 160' Structure proved barren and was terminated at 159'. We then returned to Station 65' and drove in a south-westerly direction hitting D.D.H. EU 17 right in the middle of the drift, known as No. 9 Working. Continuing on in the same direction we hit a small rich vein of silver ore, x-cutting it in a southerly direction for about 56'. It varies in thickness from a pin-point stripe to 12" and is judged to be about 7" average thickness. We encountered a rather large water cavern in No. 9 Working filled with water, terminating the drift work. We then drove 103' of raise from the contact at Station 45' which is in ore from the drift over its entire height and off sets, of which there were three.

No. 4 Orebody, that encountered on the 160' Structure, although narrow is rich, containing globs of native silver in places and should be explored further by drifting. It is too narrow to expect to follow it with drill holes, but could very well run into and make a real orebody, the type outlined in King's Report by J. Bowden. This orebody is visible in the face across the water cavern and once we start down with the pumping, it will be accesible for continued drifting. The weighted average of some 87' of raise work on samples taken across the width of the vein is 65.32 oz./T of silver, or a composite weighted average of 50.22 oz./T of silver for the combined drifting and raise work. Calculated reserved on anything this narrow doesn't mean much from an operational standpoint other than a very desirable place for further exploration. width?

The ore varies in character from the original galena face encountered in Working No. 2 to a highly siliceous combination of possibly tetrahedrite, argentite, oxides, bromides, iodides, etc. varying in color from galena grey, to red, yellow, and green. This suggests a complex ore recovery from sulfides to oxides unless a combination flotation and putting the tails into solution process, somewhat similiar to the Duvall Process in Arizona, is thoroughly tested.

Although good small orebodies were encountered in this program, it is not sufficient in quantity to warrant an operation until more information is known about it. This suggests the original request of a secondphase of the exploration program down to the 1050' Level, driving direct to the projection of these known orebodies. There is not only a reasonable expectancy of hitting these orebodies on the 1050" Level but there is a very good chance that the other structures will make ore on the lower level. It is characteristic of limestone type deposits that these upper prongs of orebodies come together with depth and that very well may be the case here. Should such prove to be the case, with ore extended from the 1050' Level to the surface, we would have a mine, the object of our exploration work.

Nothing much more has been learned regarding the geology of the deposit. Ore encountered varied from massive small deposits, usually showing galena on the contacts and then graduating into highly siliceous, high grade ore, associated alongside with the oxides, etc. Nothing has been gleaned regarding the arch structure theory as outlined by the Reed Report, but further work may well be more revealing.

Assay data, unit costs, weighted averages of the orebodies are attached herewith in accordance with your instructions.

Respectfully submitted,

Robt. E. Tally

Robert E. Tally

RET/frm

RECEIVED
SEP 25 1968
O. M. E.
SPOKANE, WASH.

Assay Data.

Date	No.	Location	Station		Working	oz/T Cu.	oz./T. Ag.	% Pb	% Zn.
11-6-67	930	W.X-Cut	51'		1	—	0.40		
✓	933	✓	57'		1	—	0.38		
✓	935	✓	59'		1	—	0.10		
✓	936	✓	88'		1	—	0.24		
1-8-68	938	✓	500'		1	0.001	0.60		
1-11-68	940	So. Drift	112'	360 E	2	0.001	0.40		
1-12-68	941	✓	35'	7.0' W	2	0.001	0.60		
1-21-68	944	✓	183		2	0.005	1.30	1.8	
1-22-68	947	✓	192		2	0.040	21.30	2.50	
1-24-68	949	✓	197	(Muck)	2	0.080	66.10	2.0	1.6
✓	951	✓	201		2	0.002	1.80		
✓	952	✓	205		2	0.003	0.80	0.15	
1-25	954	✓	210'		2	0.010	13.30	0.10	
1-26	955	✓	215		2	0.005	3.60	1.80	
1-29	957	✓	220		2	0.002	1.80		
1-30	960	✓	225		2	0.003	1.80		
1-31	961	✓	233		2	0.001	1.06	5.60	
✓	962	✓	184	4.5' W	3	0.050	16.30	0.10	
2-1	963	✓	✓	9.0 W	3	0.080	34.90	3.10	
2-2	964	✓	✓	13.0 W	3	0.005	7.00	0.75	
✓	965	✓	✓	17.0 W	3	0.010	7.00	0.70	
2-5	966	✓	✓	19.0 W	3	0.006	7.60	0.40	
✓	967	✓	✓	23.0 W	3	0.010	24.30	1.50	
2-6	968	✓	✓	26.0 W	3	0.015	30.80		
✓	969	✓	✓	31.0 W	3	0.002	2.10		
2-7	970	✓	✓	6.0 E	4	0.006	8.00	1.1	
2-8	971	✓	✓	11.0 E	4	0.010	23.70	2.1	
2-9	972	✓	✓	14.0 E	4	0.007	8.10	1.65	
2-12	973	✓	✓	18.0 E	4	0.020	23.40	4.0	
2-13	974	✓	✓	22.0 E	4	0.010	9.10	2.75	
2-14	975	✓	✓	27.0 E	4	0.015	16.60		
2-21	976	✓	✓	12.0' E	4 offset	0.001	1.20		
3-4	977	✓	✓	55.0 E	4	0.006	7.87		
3-5	978	✓	✓	67.0 E	4	0.006	7.30		
-6	979	✓	✓	72.0 E	4	0.012	12.50		
1	980	✓	✓	50.0' E	4	0.006	6.40	1.20	
7	981	✓	✓	80.0 E	4	0.024	26.65	5.50	

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Assay Data - Cont'd

'68 Date	No.	Location	Station		Working	oz/T Au.	oz/T Ag.	% Pb.	% Zn.
3-7-68	982	S.E. Drift	85'		4	0.050	100.0	1.20	
✓	983	✓	90'		✓	0.020	22.8		
3-8	984	✓	97'		✓	0.003	3.0		
3-11	985	✓	102		✓	0.015	17.0	0.85	
3-12	986	✓	106'		✓	0.020	13.5		
3-15	987	✓	126		✓	0.010	0.8		
✓	989	✓	133		✓	Tr.	0.2		
3-22	988	✓	7'	N.W.+110	6	0.005	0.4		
3-25	990	✓	12'	✓	6	0.001	1.0		
3-26	991	✓	17	✓	6	0.001	0.6		
3-27	992	✓	22	✓	6	0.0005	0.4		
4-16	993	✓	216'		4	0.002	0.45		
4-17	994	✓	113		4-a	0.045	28.0	10.30	
4-18	995	✓	118		✓	0.225	151.7	15.0	
4-19	996	✓	122		✓	0.005	4.4		
✓	997	✓	127		✓	0.125	88.4	4.55	
4-23	998	✓	150		✓	0.030	30.4		
4-24	999	✓	158		✓	0.005	5.0		
4-25	1000	✓	168		✓	0.012	13.6		
5-1-68	201	S. Drift	8'	160 ℄	8	0.001	1.10		
✓	202	S.E. Dr	193'	360 ℄	4-a	0.001	0.90		
5-3	203	S. Dr	13'	160' ℄	8	Tr.	0.20		
5-6	204	✓	28'	✓	✓	Tr.	0.20		
5-7	205	S.E. Drift	132	360' ℄	4-a	Tr	0.10		
✓	206	✓	137	✓	✓	Tr	0.30		
✓	207	✓	142	✓	✓	Tr.	0.10		
✓	208	S. Dr.	33	160' ℄	8	Tr.	0.10		
✓	209	S.E. Dr	162'	360' ℄	4-a	Tr.	0.10		
5-24	210	S. Dr.	10'	160' ℄	8	0.001	1.70		
✓	211	✓	20'	✓	✓	0.001	1.30		
✓	212	✓	30'	✓	✓	0.001	1.00		
✓	213	✓	40'	✓	✓	0.002	1.20		
✓	214	✓	50'	✓	✓	Tr.	0.30		
✓	215	✓	60'	✓	✓	0.0005	0.80		
✓	216	✓	65'	✓	✓	Tr.	0.20		
5-30	217	✓	37	✓	9	0.005	4.60		

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Assay Data - cont'd.

'68 Date	No.	Location	Station		Working	Oz/T Au.	Oz/T Ag	% Pb.	% Zn.
5-30-68	218	S.Dr.	42'	160'E	9	0.025	24.2		
✓	219	✓	158'	✓	8	0.0005	0.6		
✓	220	✓	7'	✓	10	0.055	66.8		
6-7	221	✓	10'	✓	✓	0.050	53.2		
✓	222	✓	14'	✓	✓	0.090	126.4		
✓	223	✓	5'	(back)	9	0.020	31.6		
✓	224	S.E.Dr.	203'	360'E	4-a	0.0005	0.65		
6-6	225	✓	213'	✓	✓	0.001	0.30		
6-11	226	S.Dr	33'	160'E	10	0.025	28.30		
6-12	227	✓	41'	✓	✓	0.010	9.60		
✓	228	✓	46'	✓	✓	0.040	38.40		
6-14	229	✓	12'	✓	9-Raise	0.025	24.50		
✓	230	✓	17'	✓	✓	0.150	168.90		
6-17	231	✓	22	✓	✓	0.050	56.10		
6-18	232	✓	30'	✓	✓	0.250	254.20		
6-20	233	✓	24'	✓	✓	0.005	7.60		
6-19	234	✓	38'	✓	✓	0.010	11.70		
6-20	235	✓	43'	✓	✓	0.020	33.60		
6-21	236	✓	47'	✓	✓	0.010	10.40		
✓	237	✓	57'	✓	✓	0.002	1.80		
6-26	238	✓	70'	✓	✓	0.0005	0.50		

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Weighted averages 9-10-68

1st Ore body N-5150 E 5025.

Date	No	Place	sta.	agloz	Interval	Prod.		
1-31-68	962	3.	4.5'	16.3	5.0	81.5		
2-1	963	✓	9.0	34.9	4.5	157.1		
2-2	964	✓	13.0	7.0	4.0	28.0		
2	965	✓	17.0	7.0	4.0	28.0		
5	966	✓	19.0	7.6	2.0	15.2		
✓	967	✓	23.0	24.3	4.0	97.2		
6	968	✓	26.0	30.8	3.0	92.4		
✓	969	✓	31.0	2.1	5.0	10.5		
7	970	4	6.0	8.0	6.0	48.0		
8	971	✓	11.0	23.7	5.0	118.5		
9	972	✓	14.0	8.1	4.0	32.4		
12	973	✓	18.0	23.4	4.0	93.6		
13	974	✓	22.0	9.1	4.0	36.4		
14	975	✓	27.0	16.6	3.0	49.8		
1-22	947	2	192	21.5	5.0	107.5		Pb=5.6%
1-24	949	✓	197	66.10	5.0	330.5		mick.
✓	951	✓	201	1.80	4.0	7.2		
✓	952	✓	204	0.80	3.0	2.4		
✓	954	✓	210	13.30	6.0	79.8		
✓	955	✓	215	3.60	5.0	18.0		
					95.5	143.40		15.01 oz ag #1

2nd Ore Body under Sophia. 5025 E 5000 N

3-1-68	986	4	50'	6.4	5.0	32.0		
4	977	✓	55'	7.8	5.0	39.0		
5	978	✓	67'	7.3	12.0	87.6		
6	979	✓	72'	12.5	5.0	62.5		
7	981	✓	80	26.5	8.0	212.0		5.5 Pb.
7	982	✓	85	100.0	5.0	500.0		
7	983	✓	90	22.8	5.0	114.0		
8	984	✓	97	3.0	7.0	21.0		
11	985	✓	102	17.0	5.0	85.0		
12	986	✓	106	13.5	4.0	54.0		
17	994	4 + a	113	28.0	7.0	196.0		10.3
18	995	✓	118	151.7	5.0	758.5		15.07 oz
19	996	✓	122	4.4	4.0	17.6		28.30 oz #2
					77.0	3,129.2		

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360 ₣ Weighted averages. 9-10-68

3rd Ore body S.E. Drift contin. of #3 60' interval #4-a.

Date	No	Place	Sta	Ag oz/t	Interval	Prod	Remarks
4-19-68	997						

3rd Ore Body Cont'd.

4-19-68	997	4-a	127'	88.4	5.0	442.0	
23	998	✓	133'	30.4	6.0	182.4	
24	999	✓	158	5.0	25.0 ?	125.0	
25	1000	✓	168	13.6	10.0	136.0	
					46.0	885.4	19.25 oz

Composite.

# No.	Interval	X	over
#1	95.5	1434.6	15.01
#2	77.0	2179.2	28.30
#3	46.0	885.4	19.25
T	218.5	4498.6	20.59

weighted over 360' ₣ Ore bodies.

LITHOGRAPHED IN U.S.A. – ADDISON-WESLEY PUBLISHING COMPANY, INC., READING, MASS. A-W Data Form 104

260' E — Weighted Averages — 9-10-68

3rd Orebody - S.E. Drift, continuation of #2 c/20' waste interval in working No 4-a

Date	No.	Place	Sta.	oz Ag/T	Interval	Product		Remarks
4-19-68	997	4-a	127	88.4	5.0	442.0		
4-23-68	998	✓	133'	30.4	6.0	182.4		
4-24-68	999	✓	158	5.0	25.0	125.0		
4-25-68	1000	✓	168	13.6	10.0	136.0		
					46.0	885.0		19.25 oz/T.

Composite

Orebody	Interval	Product	Over
#1	955	1434.0	15.01
#2	77.0	2179.2	28.30
#3	460.0	885.4	19.25
T	2185.0	4498.6	20.59

weighted over of 360' E orebodies.

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MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
9/3/68	Peterson	120
9/3/68	Kirkham	120
		110
9/3	cac	220
		120M

SEP 3 1968

Memorandum

To: Chief, Branch of Budget and Finance

From: Chief, Office of Minerals Exploration

Subject: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Enclosed are the original and two copies of the Operator's Monthly Voucher for period July 1968. Please withhold $200.00 from payment of this voucher pending receipt of an acceptable Operator's Final Report.

FRANK E. JOHNSON (glc)

Frank E. Johnson

Enclosures

cc: Director's Reading File
Economic Geology File
OME Docket
OME Reading File
Mr. Peterson (Smith)
Region I

BLong/1 9/3/68

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
GEOLOGICAL SURVEY
U. S. Court House, Rm. 656
W. 920 Riverside Avenue
Spokane, Washington 99201
August 26, 1968

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bel | 120 M
JR | 110
(Smith)

Memorandum

To: Field Officer, Region I

From: Willard P. Puffett, Geologist

Subject: Interim (final) Inspection
6587 OME-~~6857~~ (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

I made an interim inspection of the Elkhorn mine on Tuesday, August 13, 1968. Mr. Robert E. Tally, Manager, accompanied me on the inspection. Work under terms of the OME contract had been completed and no mining was being done on the 550 level. Pumps had been installed in the main Elkhorn shaft below the 550 level and the company plans to dewater the mine to inspect the 1050 level. An electric storm on the evening previous to my inspection had burned out one of the pump motors and a new motor was being installed. Mr. Tally said that the company plans to install a much larger pump in the hope that the dewatering could be accomplished within the next 2 or 3 months.

All the drifts, crosscuts, and raises that were driven under the terms of the OME contract were measured. In measuring these workings, the tape was strung down the center line of the workings for the length of the main workings and side measurements were made of short crosscuts, drifts, and slab rounds. It was not possible to measure the full length of drifts 2 and 5 (fig. 1) as loose sandy rock from broken zones in the face had partially filled these drifts. The total length of these workings were learned from Mr. Tally.

The following tabulation lists the work done under the contract. (See figure 1 for location of numbered drifts, etc.)

Designation of Opening				Length (feet)	
West crosscut (WXC)				531	
160 Drift	#8	160			
	#9	42			
	#10	56		258	
360 Drift	#2	221			
		7	(short crosscut 34 ft from WXC)		
	#3	36			
		5	slab round to left		
	#4	238			
		3	slab round to NW near jct. with 4a		
		2	slab round NE of #5		
	#4a	122			
	#5	48	est. 5 ft obscured by loose sandy rock		
	#6	21		710	
Total drifts and crosscuts					1,499
Raises	#2 raise	25	ft at plus 60°		
		3	ft vertical	28	
	#9 raise	28	ft at plus 58°		
		45	ft at plus 40°		
		8	ft slab round to left 41 ft above foot of raise		
		10	ft slab round to left 53 ft above foot of raise		
		12	ft incline to NE from about 45 ft above foot of raise	103	
Total raises					131
Total drifts, crosscuts, and raises					1,630

Five samples were taken of the ore exposed in the OME workings. Three samples were of the ore in the 160 drift and 2 samples were of the ore in the 360 drift. The assay values of these samples are shown on figure 1.

The Operator submitted assay data obtained by another private company with his July report. These assay data were from samples taken at systematic intervals across the mineralized portions. By evaluating these assay data and from an inspection of the underground workings, I have calculated ore reserves for three ore zones as shown on figure 1. The dimensions of the three ore zones, their tonnages (using a tonnage factor of 12 cubic feet per ton), and metal content are as follows:

Ore Zone	Dimensions (feet)	Tons (12 ft^3/ton)	Au Oz/ton	Ag Oz/ton	Lead %	Zinc %
No. 1 (160 drift)	1.12 x 50 x 50	233	0.08	23.96	0.96	0.7
No. 2 (360 drift)	15 x 40 x 50	2,500	0.022	26.32	4.34	6.68
No. 3 (360 drift)	10 x 20 x 40	667	0.056	88.0	8.6	3.9
		3400	0.033	38.28	2,014	5.724

The total value of these reserves, assuming all metals are paid for at current prices is about $394,000. The total value of the silver at $2.31 per ounce is about $297,000.

Ore Zone No. 1 is a thin zone elongate parallel to the bedding in the dolomite. The No. 9 raise followed it up dip for about 40 feet beyond which the rock is barren. The No. 10 drift terminates in a water-filled cavern and the sill of the drift cuts the top of another cavern (fig. 1). Therefore, no ore is projected to the south of No. 10 drift face and only a small amount is calculated to be down dip from the drift. Possibly, the zone can be extended to the north from the end of No. 9 drift, but no sign of ore was cut at the projection of the zone in the WXC. This zone is thin, but the assay values for silver are high and selective mining should recover some good ore.

Ore Zones No. 2 and 3 are different from Ore Zone No. 1 in that they do not appear to follow bedding, but possibly are more pipelike in shape. Ore Zone No. 2 is vuggy and oxidized; brecciated dolomite occurs adjacent to it in the No. 4 drift. Raise No. 2, driven to explore its upward extension, was out of ore a few feet above the level. Diamond drilling by a former operator found an ore intercept in DDH 4 that might be the downward extension of this zone. This intercept is to the east and down-dip 30°-40° about 50 feet from ore exposed on the 550 level. If the ore in DDH 4 is the extension of that in Ore Zone No. 2 on the 550 level, then possibly the general dip of the zone is about parallel to the bedding. This dip is not obvious on the 550 level.

Ore Zone No. 3, near the junction of 4 and 4a drifts, has very indefinite boundaries and its projected extensions are very limited. It was cut in DDH 32 15 to 20 feet above the 550 level (by a former operator) but not in DDH 2, although specks of galena were reported from near the bottom of the latter hole.

The ore reserves calculated and shown above indicate that the exploration was successful in finding three widely spaced small ore bodies. The total value of these ore bodies is much less than is necessary to repay, at 5 percent royalty, the Government's participation in the exploration work. Possibly, future work will find more ore and the completed work has indicated other areas on the 550 level that might contain ore.

The two ore zones in the 360 drift are aligned along a zone that trends about N. 25° W., subparallel to the broad zone of broken rock that might represent a shear zone. Possibly, the area between Ore Zone No. 2 and the end of the WXC might contain additional small pipelike bodies along this northwesterly alignment.

There is an indication of a convergence between the N. 25° W. trend mentioned above and the N. 5° W. trend of the main dolomite-slate contact along which the main ore bodies were found in the early days of mining in the Elkhorn mine. Possibly, the area of convergence between these two trends is an area worth exploring. The projected location of the convergence is about 8,000-10,000 feet south of the workings on the 550 level and this might be beyond the property boundaries of the present Operator. Too, this area of convergence might extend into rock of a different type or even an intrusive; thus a more complete surface map is necessary to assess the possibility of this area of exploration.

The significance of the broad broken zone in the Nos. 4, 5, and 2 drifts cannot be assessed now. No ore has been found in it. Possibly, it represents a fault zone which has offset ore-bearing zones. Too, it might only represent tension cracks of post-ore age that have been filled with incoherent sand that has seeped downward from the surface.

It is recommended that a discovery be certified. Although the ore bodies found are small, they are rich in silver. Exploration along extensions of them might be successful in doubling the somewhat limited reserves calculated in this report.

Willard P. Puffett

Willard P. Puffett

Enclosure
Distribution:
OME(Orig.&1)
USGS(SRO)
Docket
Puffett

FORM 6
2-59

REFERENCE SLIP

OFFICE OF MINERALS EXPLORATION

		DATE	INITIALS
1.	Chief, OME	8/19/68	
	Re: OME-6587 (Silver) Development Operating Corp.		
2.	Elkhorn Mine Jefferson County, Montana		
3.	Contract 2244		
4.	D.R. MacLaren		
5.	D. R. MacLaren		

FROM: Fld. Officer, Reg. I

FOR: Check items for action desired

___ Action	___ Reply for signature of ___	___ Surname
___ Approval	___ Investigate	___ Signature
___ Comment	___ Recommendations	___ File
___ Conference	___ Rewrite	
___ Instructions	X Your information	

REMARKS:

Submitted by above-captioned Operator for our information.

M56300-62

INT.-DUP. SEC., WASH., D.C.

NORANDA EXPLORATION, INC.
P. O. Box 7176
573 EAST SECOND ST. • RENO, NEVADA 89502
TEL. (702) 323-5033

August 9, 1968

OFFICIAL COPY
O. M. E.
RECEIVED
AUG 21 1968
MATERIALS CODE
~~420~~
Gal 120 MC
Mg 110
120 S
RA

Mr. Dave Walker
1114 Maryland Avenue
Butte, Montana

OME-6587

Dear Dave:

I am sorry that I haven't written you for the past several weeks. However, you know the old excuse of being too busy, which is really my excuse this time.

I am enclosing one colored copy and one uncolored copy of my geologic maps of the 240 and 480 areas, along with assay maps. As you note, silver ran extremely good, and I feel that these samples are representative of what you have.

The 240, of course, is too small; that is, too narrow in width to be of too much interest except that there is a possibility of doing some mining along it when the main ore body is being developed. The 480' contact area shows exactly what we anticipated. Note one sample in the south drift of 249.3 oz. This amazes me, as on my prior trip I got an assay of 143 oz. in the same area. Both these samples probably have been salted to some extent. However, in figuring reserves, I am sure you could use 100 oz.

As you see by the map, the 480 raise was in barren dolomite. If any more raising is planned in the 480 area, it should be placed I would think near station 136 and be driven vertical until either a foot or hanging wall is encountered, and then of course follow the dip of the ore.

At this time, we cannot make a move to lease or acquire the property because even though the ore is very high-grade, it is still small and <u>underground</u>. As you know, the philosophy of major mining companies these days is that underground ore presents a very high nature of risk. I hope you will be willing to let us stay in contact with you and when you arrive ~~into~~ at the 480' contact area from the 1050 level, we will be able to again map and sample. Of course, if you hit as much or more ore of the same tenor as you did on the 550, I am sure that Noranda would meet all your terms regarding an exploration contract, that being of course lease option, partnership, etc.

You know that I am sold on the Elkhorn property and think it is a very good one. Recapping the company viewpoint, we are still interested in the Elkhorn and if you encounter the same ore 500' deeper, I personally feel that Noranda will be very interested and will meet your requirements as to option. Of course if, in the meantime, there is another legitimate operator wishing to secure the Elkhorn, it would behoove you to give it to them.

Thank you for all you have done for us and the good time you showed us while we were in Montana. Hoping to see you on the 1050 this October or November, I am

Sincerely yours,

D. G. Reith

DGR:em
Encl.

P. S. I am returning most of your personal data on the Elkhorn, coupled with a few extra prints. I am retaining Weed and some of the hand-written notes, as they are being typed, and will return Weed and originals and copies of the typewritten information.

RECEIVED
AUG 19 1968
O. M. G.
SPOKANE, WASH.

GM- 100

INTER-OFFICE CORRESPONDENCE
NORANDA EXPLORATION, INC.
573 E. 2nd Street
Reno, Nevada 89502

TO: Dr. R. J. M. Miller, Chief Geologist, Toronto

July 31 1968

FROM: D. G. Reith, Reno

SUBJECT: Elkhorn Mine

During the early part of July I examined the Elkhorn Mine near Boulder, Montana. As the vendors of this property have done considerable underground work and have proven some ore, we still feel that the property may prove to be a good one for Noranda. They are going ahead and spending an additional $120,000 to rehabilitate the shaft to the 1050 foot level and drive under the ore that they encountered on the 550 foot level. It is likely that Noranda would be very interested in the property if they do encounter as much ore on the 1050 foot as they have on the 550 foot.

During 1955 Mentor Exploration and Development Company, 365 Bay Street, Toronto, did considerable diamond drilling on this property, with the agreement that if they gave the property up, they would furnish the owners copies of all the information they acquired. The owners have received all the drill hole logs; however, they have asked us to try to obtain the geophysical data which Mentor accumulated. If it is at all possible that our Toronto office could do this, it would be greatly appreciated by the owners of the property.

D. G. Reith

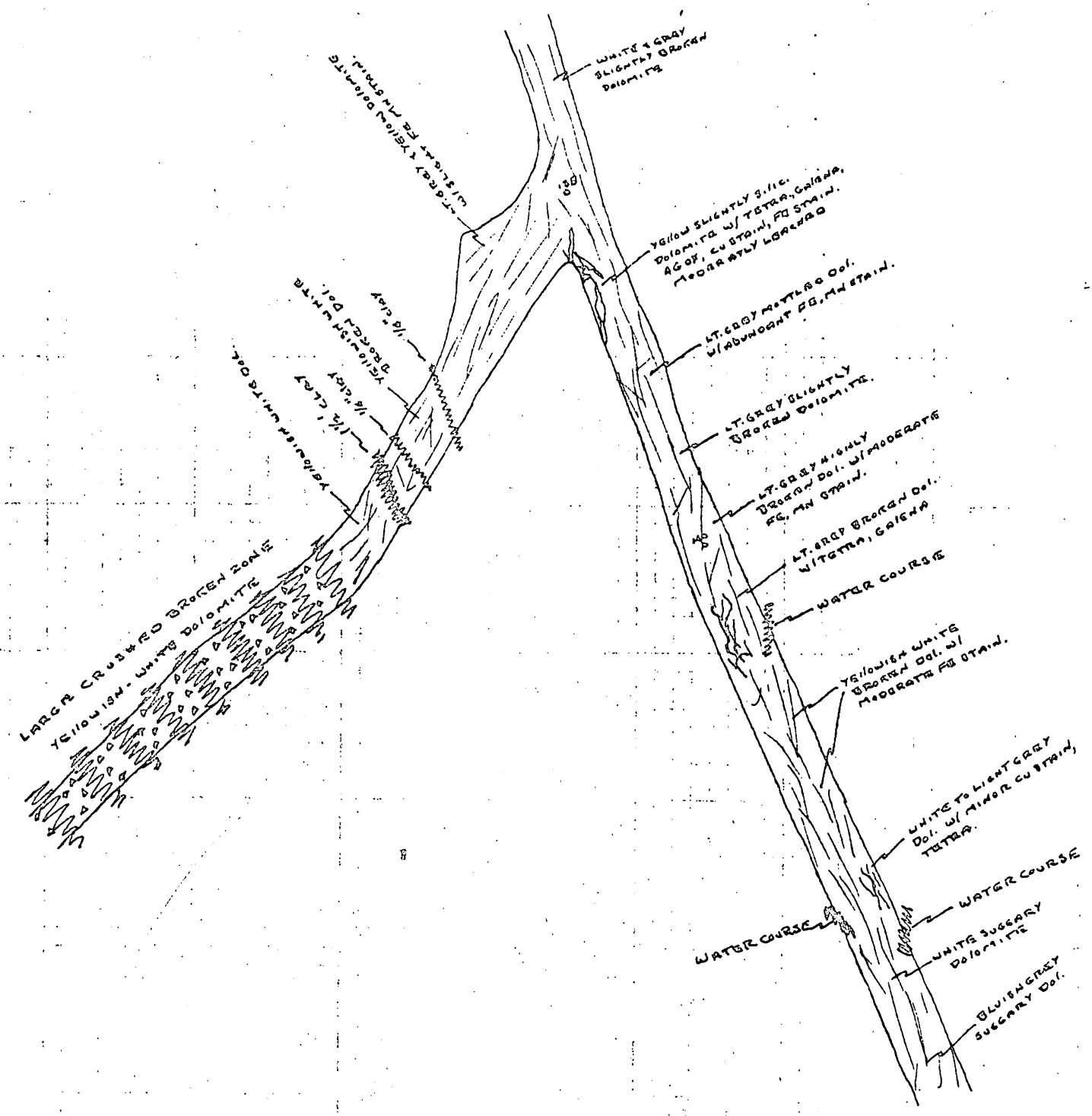
DGR:em

550 FOOT LEVEL
GEOLOGY OF THE 480 FT CONTACT AREA
ELKHORN MINE, JEFFERSON COUNTY
MONTANA

(GEOLOGY MAPPED OF BACK)

SHEET No. 2

SCALE: 1" = 20'
JULY 19, 1968
D. G. REITH

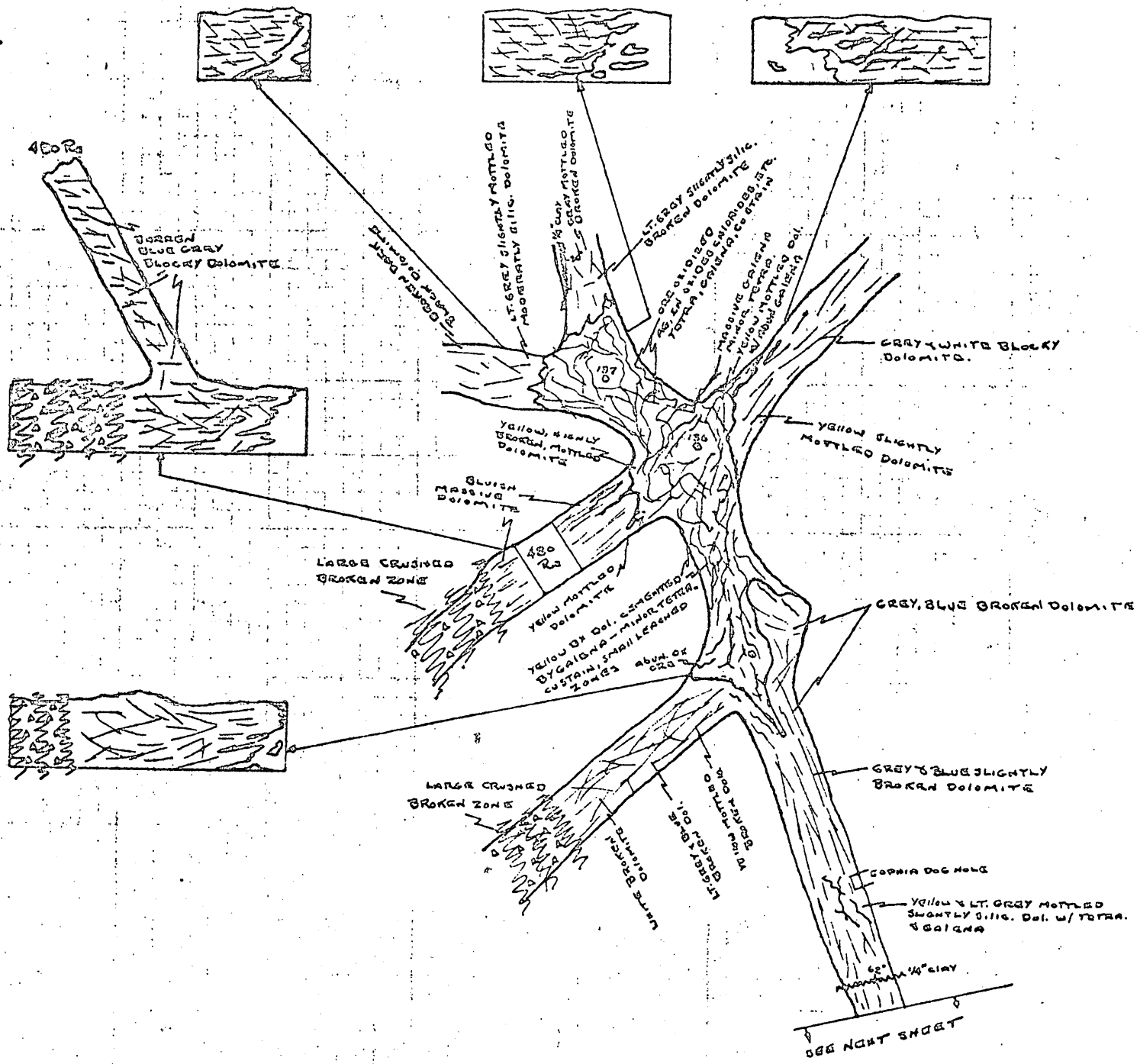


GEOLOGY OF THE 480 FT CONTACT AREA
550 FOOT LEVEL
ELKHORN MINE, JEFFERSON COUNTY,
MONTANA

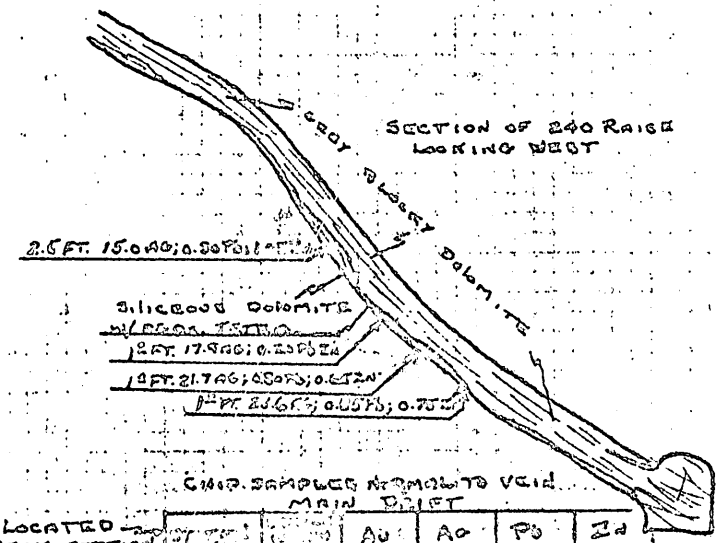
(GEOLOGY MAPPED OF BACK)

SHEET NO. 1

SCALE: 1" = 20'
JULY 19, 1968
D.G. RGITH



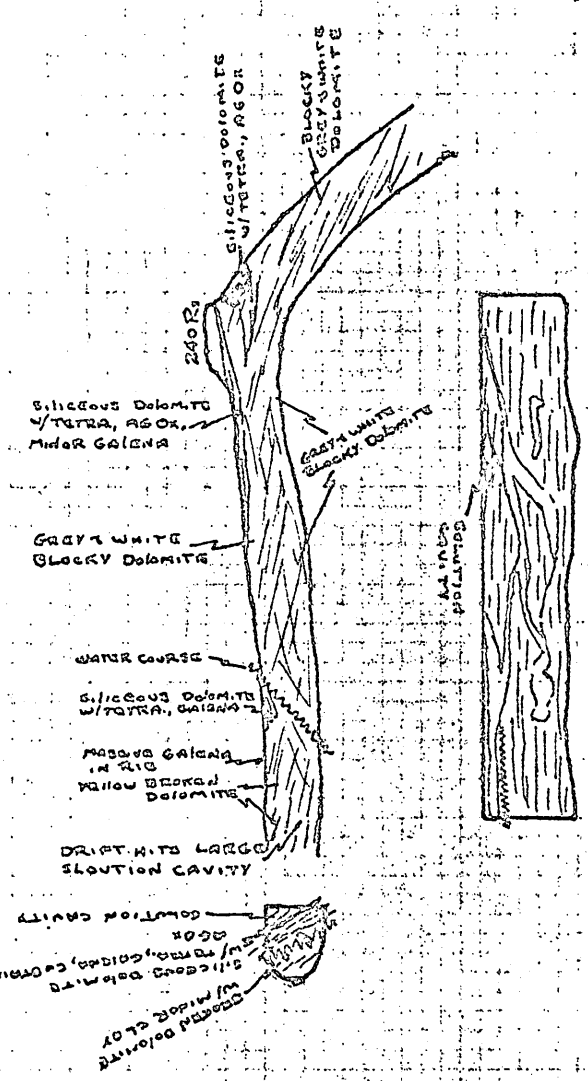
GEOLOGIC AND ASSAY MAP
240 FT. CONTACT DRIFT
ELKHORN MINE
JEFFERSON COUNTY, MONT.
GEOLOGY MAPPED OF BACK
SCALE: 1" = 20'
JULY 19, 1968
D.G. REITH



CHIP SAMPLES NORMAL TO VEIN
MAIN DRIFT

LOCATED FROM STATION Δ 978

FT.		Au	Ag	Pb	Zn
10 FT.	1.3	.010	13.9	0.60	0.25
15 FT.	1.4	.010	48.0	1.30	1.50
20 FT.	1.0	.005	9.4	0.20	0.10
25 FT.	1.0	.005	39.3	0.70	0.75
30 FT.	1.1	TR	1.8	NIL	NIL
35 FT.	0.5	TR	2.6	TR	NIL
40 FT.	2.0	.010	39.3	2.00	0.60
45 FT.	1.2	.010	19.6	0.85	1.35
50 FT.	0.8	TR	0.8	NIL	0.05
55 FT.	0.0	.020	52.8	2.60	2.15
FACE AT 57 FT.	0.7	.010	48.6	1.80	2.35



BY D.G. REITH DATE 7/19/68

CHKD. BY ..... DATE .....

SUBJECT SAMPLE MAP - 480 FT CONTACT

A[redacted]A - 550 FOOT LEVEL - ELKHOR[redacted]

MINE - JEFFERSON COUNTY, MONT.

SAMPLED BY: D.G. REITH, J.C. CLOYD

SCALE: 1" = 20'

JULY 19, 1968

SHEET NO. 2 OF 2

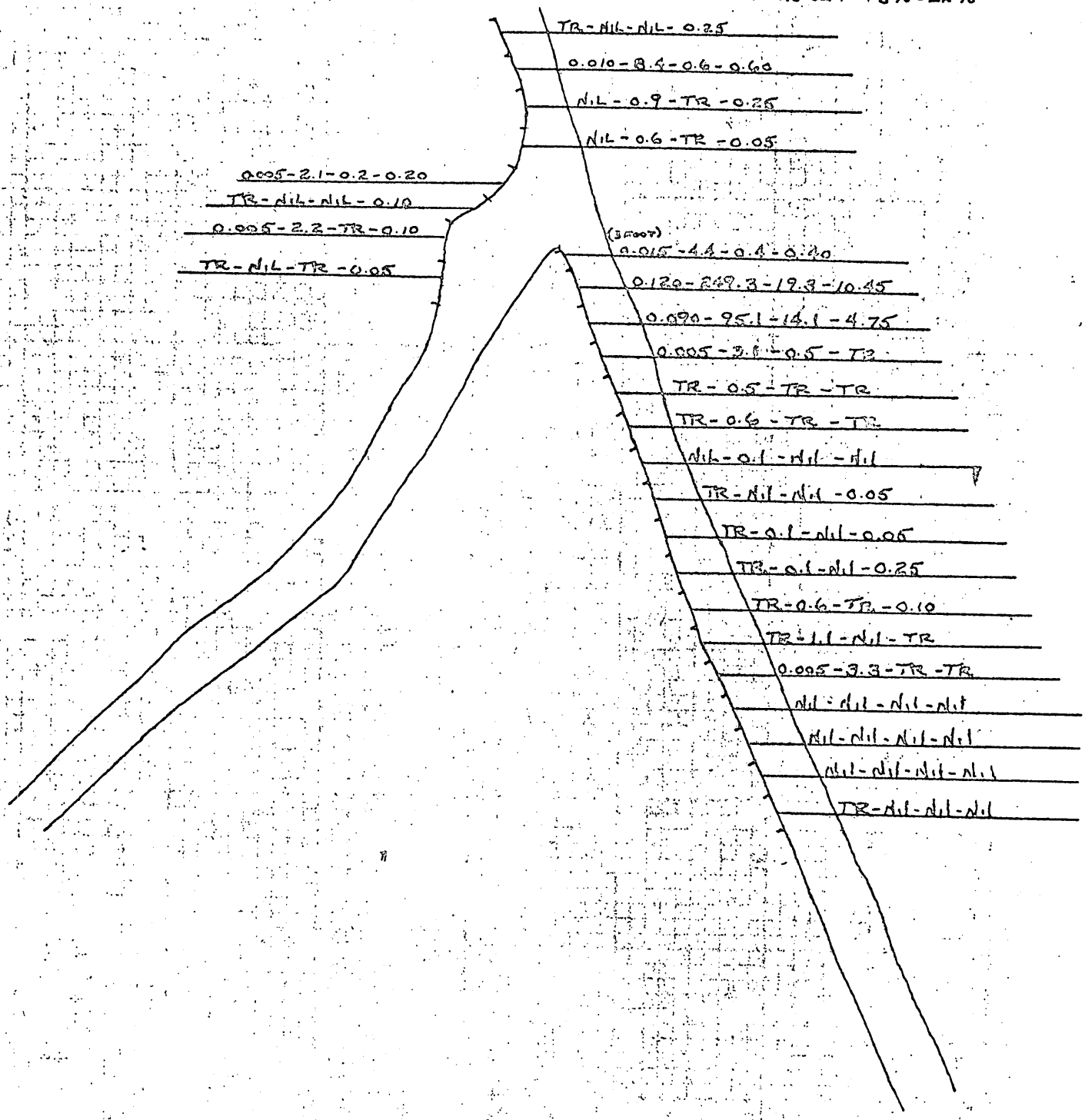
JOB NO. 1450 A

N

HORIZONTAL CHIP SAMPLE ALONG RIB BREAST HIGH. SAMPLE INTERVALS ARE 5 FT. EXCEPT WHERE NOTED.

ASSAYS ARE AS FOLLOWS:

AU OZ/T - AG OZ/T - PB% - ZN%



BY D.G. REITH DATE 7/19/68

CHKD. BY ..... DATE .....

SUBJECT SAMPLE MAP - 480 FT CONTACT

AREA - 550 FOOT LEVEL - ELKHORN

MINE - JEFFERSON COUNTY, MONT.

SAMPLED BY: D.G. REITH, J.C. CLOYD

SCALE: 1" = 20'

JULY 19, 1968

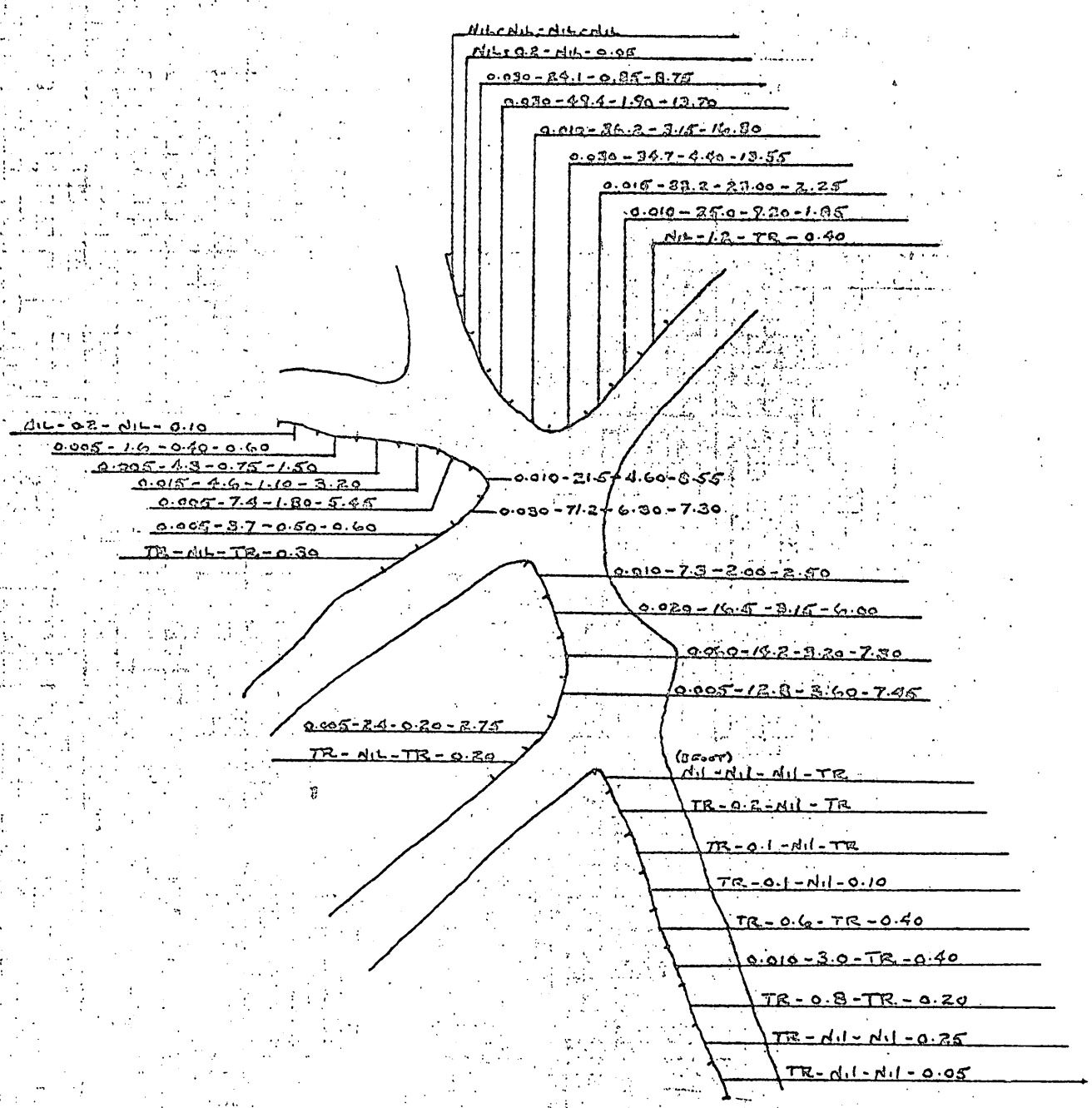
SHEET NO. 1 OF 2

JOB NO. 1450A

HORIZONTAL CHIP SAMPLE ALONG RIB BROKEN HIGH. SAMPLE INTERVALS ARE 6 FT. EXCEPT WHERE NOTED.

ASSAYS ARE AS FOLLOWS:

AU OZ/T - AG OZ/T - PB % - ZN %



MME FORM 60
SEPT. 1959

RECEIVED
AUG 19 1968
U.M.E.

OFFICIAL COPY

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

OPERATOR'S MONTHLY VOUCHER

For Month of July 1968

Docket No. 6587
Contract No. 14-23-090-2244
Contract Amount $ 7569.30
Gov't. Participation % 75 $ 5676.97
Mineral(s) Silver

Operator's Name Development Operating Corp.
Address P. O. Box 14, Boulder, Montana 59632

COST CATEGORIES	FOR OPERATOR'S USE			FOR GOVERNMENT APPROVAL ONLY		
	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE
Fixed Unit Costs and						
(1) Independent Contracts:						
Bulldozing						
Drifting	945.00	66600.00	67545.00			
Crosscutting						
Drilling						
Raising	6392.00	-	6392.00			
Office X	40.00	440.00	480.00			
Incid. Engr. X	178.98	1687.20	1866.18			
(2) Personal Services:						
Supervision & Technical						
Outside Consultants						
Labor						
(3) Operating Mat'l. & Supplies:						
Timber						
Explosives						
Pipe						
Rail						
Rehab Shaft	-	7850.00	7850.00			
Rehab Level	-	5500.00	5500.00			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehab. & Repairs:						
Buildings, Fixtures, etc.						
Operating Equipment						
(6) New Buildings, Fixtures, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Analytical Work Assays	31.50	353.50	385.00			
Payroll Taxes						
Employee's Liability Ins.						
Use	7569.30		90000.00			
TOTALS	7587.48	82430.70	90018.18			

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

Date 8-10-68 *Payee Development Operating corp.

Per Robt. C. Tally Title Mgr.

* 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.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

(INSTRUCTIONS ON REVERSE)

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

5,440.88 14X0804
200.00 14X6875(08)
$ 5,240.88

Signature Sg (Authorized Certifying Officer)

Date SEP 9 1968 Vou. No. 01487

(SEE OTHER SIDE)

Certification by Government Representative:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating an exploration project in accordance with the terms of Contract No. 2244

Signature D.R. MacKeen Title Field Officer, Region 1 Date AUG 27 1968

Approved by OME Executive Officer or Alternate:

Signature D.R. MacKeen Title Field Officer, Region 1 Date AUG 27 1968

OPERATOR'S MONTHLY REPORT

The Operator, under an Office of Minerals Exploration contract, is required to report monthly to the Government. The report consists of three parts.

FIRST, the Operator's Monthly Voucher on MME Form 60 listing the project costs incurred and claimed by the Operator is the voucher basis for payment of the Government's share of the cost.

SECOND, the Operator's Progress Report on MME Form 61 is a statistical report of the units and cost of of work performed under the contract.

THIRD, the Operator's Narrative Report is a concise description of the work performed, results accomplished, and any unusual situations encountered, illustrated and supported by engineering-geological maps or sketches, drill hole logs, assay reports, etc., as pertinent.

The Operator submits the original and ~~four~~ three copies of each of the three sections of this report to the OME regional Executive Officer at the end of each month during the life of the contract.

PREPARATION OF OPERATOR'S MONTHLY VOUCHER, MME FORM 60

After all applicable spaces are filled in, the Operator or his agent must sign the certification in the lower left corner. Categories (2) through (7) apply to "Actual Cost" contracts only.

Under "Fixed Unit Costs" and Category (1) report, (a) the total fixed unit costs of work performed under contract provisions for contribution by the Government on a basis of "fixed unit costs"; and (b) the claimed costs of work performed on a unit-price basis by independent contractors.

Under Category (2) include the claimed costs of all payrolled and invoiced supervisory, technical, and labor personnel, except the costs for services applicable to Categories (5) and (6).

Under Category (3) include the claimed costs of all project materials and supplies other than those used for work under Categories (5) and (6).

Under Category (4) report claimed rentals on equipment belonging to a third party, claimed payments or obligations for payments on the Operator's purchase of equipment, and claimed depreciation for the use of Operator-owned equipment.

Under Categories (5) and (6) include all claimed costs of labor, supervision, technical services, operating materials and supplies, and all other items used in (5) the initial rehabilitation and repairs of existing buildings, fixtures, installations (exclusive of mine workings), and operating equipment; and (6) the installation or construction of new buildings, fixtures, and fixed improvements (exclusive of mine workings). Do not report these costs under Categories (2), (3), (4), and (7).

Under Category (7) include all miscellaneous claimed costs such as repairs (other than initial) and maintenance of equipment, sampling and analysis, travel, communication, accounting, office expenses, and the Operator's share of payroll taxes and insurance.

Except for amounts claimed under "fixed unit costs" provisions of the contract, all costs claimed in this voucher must be supported by documentary evidence consisting of: (a) certified copies or transcripts of payrolls which list each employee, wage rate, period of employment, gross earnings, itemized deductions, and net earnings; (b) original or certified copies of invoices, statements of accounts, or purchase orders which indicate items of materials or services, quantities, unit prices, total charges, and payment terms; and (c) certified memoranda of the Operator for such items as depreciation of Operator-owned equipment, unemployment taxes, and employee's liability insurance. The certification may be stated thus, "Certified True Copy (or Transcript)", followed by the signature of the Operator or his agent. One copy of each document should accompany the original of this voucher.

The requirement for submitting documentary evidence of claimed costs may be waived by the OME regional Executive Officer if he determines that it is impracticable for an Operator to submit this material. In any case of waiver of this requirement an "on-site" audit by an OME auditor is mandatory prior to payment of the final Operator's Monthly Voucher.

MME FORM 61
SEPT. 1959

RECEIVED
AUG 19 1968

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

OPERATOR'S PROGRESS REPORT

For Month of July 1968 Docket No. 6587

Operator's Name Development Operating Corp. Contract No. 14-23-090- 2244

OPERATION	UNITS	FOR OPERATOR'S USE: UNITS THIS MONTH	UNITS TO DATE	COSTS TO DATE	FOR GOVERNMENT USE: APPROVED UNITS THIS MONTH	APPROVED UNITS TO DATE	APPROVED COSTS TO DATE
Drifting	Ft.	21	1501	67545.00	19 1/	1499 1/	$ 67,455.00
Crosscutting	Ft.	136	136	6392.00	131 1/	131 1/	6,157.00
Raising							
Shafts							
Winzes							
Other Underground							
Drilling, Core-Diamond							
Rotary							
Drilling, Non-core-Diamond							
Rotary							
Churn							
Percussion							
Miscellaneous Office Exp Mo.		1	12	480.00	1	12	480.00
Incid Engr. Exp	Ft.	157	1637	1866.18	150 1/	1630 1/	1858.20
Roads and Trails							
Stripping							
Trenching							
Test Pitting							
Other Surface Work							
Initial Rehabilitation and Repairs Elkhorn Shaft				7850.00			7850.00
Rehabilitation of Mine Workings 550' Level				5500.00			5500.00
New Buildings, Fixtures, etc.							
Operating Equipment Purchases							
Analytical Work Assays #				385.00			385.00
TOTAL TO DATE (per MME Form 60)				90018.18			$ 89,685.20 2/

REMARKS

* 9 Au & Ag @ $ 3.50 $ 31.50
Previous Total 353.50
Total to date $ 385.00 LCT

(Continue on back)

REMARKS

1/ Final inspection measurement made August 13, 1968

2/ Withhold $200 pending receipt of operator's final report and report of review

(Continue on back)

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 8-10-68 Operator Development Operating Corp.

Per Lee C. Tally Title Mgr.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

I certify that the information above is complete and accurate to the best of my knowledge and belief.

Signature D R Mackoen

Title Field Officer, Region I
Government Representative

Date AUG 27 1968

(INSTRUCTIONS ON REVERSE)

REMARKS *(Cont.)*

REMARKS *(Cont.)*

INSTRUCTIONS FOR PREPARING OPERATOR'S PROGRESS REPORT, MME FORM 61

This report is the second of the three parts of the Operator's Monthly Report. Submit the original and ~~four~~ three copies.

The cost for each operation should be the total of all claimed costs attributable to that type of work with two exceptions, namely—operating equipment purchased and analytical work which are stated separately. For example, drifting costs should be the total of all costs chargeable to drifting including supervision, technical services, timbering (if any), etc. Similarly, drilling costs should include the cost of cementing, reaming, core boxes, etc. This procedure of distribution holds whether the contract was written on an actual cost or a unit cost basis, or some combination of the two. Distribute the cost of such general items as supervision, equipment rented, etc. according to relative footages or on some other conventional basis. The item "Initial Rehabilitation and Repairs" covers all rehabilitation and/or repairs other than the rehabilitation of mine workings.

The item titled "Drilling, Non-core Percussion" includes all drilling performed with wagon, jack-hammer, stoper and mounted drills. The several items labelled "Other" are provided to take care of particular exploration operations not specified on this form.

UNITED STATES
DEPARTMENT OF THE INTERIOR
Geological Survey
Branch of Budget and Finance
Washington, D. C. 20242

ADMINISTRATIVE SUSPENSION STATEMENT

Name and Address of Payee: Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632

Amount Claimed:	Differences (Explained Below)	Amount Approved
$7,587.48	$532.98	$7,254.50 5,440.88 Gov't. Part. 200.00 $5,240.88
Bi. Voucher No.	Payee's Invoice No.	Period
	Docket #6587 Contract #2244	July, 1968

EXPLANATION

21 ft. of Drifting @ $45.00/ft. claimed - final inspection measurement showed 19 ft.	$ 90.00	
136 ft. of Raising @ $47.00/ft. claimed - final inspection measurement showed 131 ft.	235.00	
Incidental Engineering Expense for 157 ft. of drifting and raising @ $1.14/ft. claimed - final inspection measurement allowed incidental expenses for only 150 ft.	7.98	
Disallowed		$332.98
Withheld pending receipt of acceptable Final Report		200.00
Total Difference		$532.98

Any reclaim for items deducted must be included as a separate item on subsequent monthly voucher and supported by the original of this statement.

60

Branch of Budget and Finance

Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632
8-10-68

Mr. D. R. MacLaren
Field Officer, OME
U. S. Geological Survey
U. S. Court House, Rm. 656
West 920 Riverside Ave.
Spokane, Washington 99201

Re: OME 6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract No. 2244
Narrative

Dear Mr. MacLaren:

Some 136' of Raise is reported for July at the following locations:

Raise #	2	23.0'
	2-A	3.0
	9	73.0
	9-A	8.0
	9-B	10.0
	9-C	12.0
	Sophia	7.0
Total		136.0'

Assay values for samples taken in this raise work were reported for June, although progress credit was not then claimed. Some very good ore was encountered which will be described more fully in the final report.

A total of 21.0' of drift was driven in 4-A through the fractured zone in an attempt to get through but again we terminated in broken heavy ground having to timber and encountering considerable water. The face pans a small amount of metalics but it appears barren. This will be pushed forward on a future program.

We are now starting to pump down to the 1050' Level, through the Elkhorn Shaft, on a month to month basis, as finances permit. This requires a head frame, larger pump, hoist, and compressor, rehabilitating the shaft as we follow the water down as well as the 1050' Level, when encountered. We would very much like to have OME participation in this second exploration venture and propose to make

an application, once the final report is submitted.

The days are getting cooler, with a tang of fall in the air and it wont be long until the first snow falls.

Respectfully submitted

Robt. E. Tally

Robert E. Tally

RET/frm

RECEIVED
AUG 19 1968
O. M.
SPOKANE, WASH.

MME FORM 60
SEPT. 1959

TRUE COPY

OFFICIAL COPY
O. M. E.
RECEIVED
AUG 9 1968
INITIALS CODE

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

TRUE COPY

Docket No. 6587
Contract No.
14-23-090- 2244
Contract Amount $ 3485.86
Gov't. Participation % 75 $ 2614.30
Mineral(s) Silver

OPERATOR'S MONTHLY VOUCHER

For Month of June 1968

Operator's Name Development Operating Corp.
Address P. O. Box 14, Boulder, Mont. 59632

COST CATEGORIES	FOR OPERATOR'S USE			FOR GOVERNMENT APPROVAL ONLY		
	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE
Fixed Unit Costs and						
(1) Independent Contracts:						
Bulldozing						
Drifting	3330.00	63270.00	66,600.00			
Crosscutting						
Drilling						
Office X	40.00	400.00	440.00			
Incid. Engr. X	84.36	1602.84	1687.20			
(2) Personal Services:						
Supervision & Technical						
Outside Consultants						
Labor						
(3) Operating Mat'l. & Supplies:						
Timber						
Explosives						
Pipe						
Rail						
Rehab. Shaft	-	7850.00	7850.00			
Rehab. Level	-	5500.00	5500.00			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehab. & Repairs:						
Buildings, Fixtures, etc.						
Operating Equipment						
(6) New Buildings, Fixtures, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Analytical Work Assays	31.50	322.00	353.50			
Payroll Taxes						
Employee's Liability Ins.						
TOTALS	3485.86	78944.84	82430.70			

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

Date 7-7-68 *Payee Development Operating Corp.

Per /s/ Robt. E. Tully Title Mgr.

* 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.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

(INSTRUCTIONS ON REVERSE)

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

$ 2614.40

Signature [illegible]
(Authorized Certifying Officer)

Date 7/18/68 Vou. No. 90375

(SEE OTHER SIDE)

Certification by Government Representative:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating an exploration project in accordance with the terms of Contract No. 2244

Signature Donald McLaren Title _____ Date JUL 12 1968

Approved by OME Executive Officer or Alternate:

Signature Donald McLaren Title _____ Date JUL 12 1968

OPERATOR'S MONTHLY REPORT

The Operator, under an Office of Minerals Exploration contract, is required to report monthly to the Government. The report consists of three parts.

FIRST, the Operator's Monthly Voucher on MME Form 60 listing the project costs incurred and claimed by the Operator is the voucher basis for payment of the Government's share of the cost.

SECOND, the Operator's Progress Report on MME Form 61 is a statistical report of the units and cost of of work performed under the contract.

THIRD, the Operator's Narrative Report is a concise description of the work performed, results accomplished, and any unusual situations encountered, illustrated and supported by engineering-geological maps or sketches, drill hole logs, assay reports, etc., as pertinent.

The Operator submits the original and ~~four~~ three copies of each of the three sections of this report to the OME regional Executive Officer at the end of each month during the life of the contract.

PREPARATION OF OPERATOR'S MONTHLY VOUCHER, MME FORM 60

After all applicable spaces are filled in, the Operator or his agent must sign the certification in the lower left corner. Categories (2) through (7) apply to "Actual Cost" contracts only.

Under "Fixed Unit Costs" and Category (1) report, (a) the total fixed unit costs of work performed under contract provisions for contribution by the Government on a basis of "fixed unit costs"; and (b) the claimed costs of work performed on a unit-price basis by independent contractors.

Under Category (2) include the claimed costs of all payrolled and invoiced supervisory, technical, and labor personnel, except the costs for services applicable to Categories (5) and (6).

Under Category (3) include the claimed costs of all project materials and supplies other than those used for work under Categories (5) and (6).

Under Category (4) report claimed rentals on equipment belonging to a third party, claimed payments or obligations for payments on the Operator's purchase of equipment, and claimed depreciation for the use of Operator-owned equipment.

Under Categories (5) and (6) include all claimed costs of labor, supervision, technical services, operating materials and supplies, and all other items used in (5) the initial rehabilitation and repairs of existing buildings, fixtures, installations (exclusive of mine workings), and operating equipment; and (6) the installation or construction of new buildings, fixtures, and fixed improvements (exclusive of mine workings). Do not report these costs under Categories (2), (3), (4), and (7).

Under Category (7) include all miscellaneous claimed costs such as repairs (other than initial) and maintenance of equipment, sampling and analysis, travel, communication, accounting, office expenses, and the Operator's share of payroll taxes and insurance.

Except for amounts claimed under "fixed unit costs" provisions of the contract, all costs claimed in this voucher must be supported by documentary evidence consisting of: (a) certified copies or transcripts of payrolls which list each employee, wage rate, period of employment, gross earnings, itemized deductions, and net earnings; (b) original or certified copies of invoices, statements of accounts, or purchase orders which indicate items of materials or services, quantities, unit prices, total charges, and payment terms; and (c) certified memoranda of the Operator for such items as depreciation of Operator-owned equipment, unemployment taxes, and employee's liability insurance. The certification may be stated thus, "Certified True Copy (or Transcript)", followed by the signature of the Operator or his agent. One copy of each document should accompany the original of this voucher.

The requirement for submitting documentary evidence of claimed costs may be waived by the OME regional Executive Officer if he determines that it is impracticable for an Operator to submit this material. In any case of waiver of this requirement an "on-site" audit by an OME auditor is mandatory prior to payment of the final Operator's Monthly Voucher.

MME FORM 61
SEPT. 1959

TRUE COPY

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

TRUE COPY

OPERATOR'S PROGRESS REPORT

For Month of June 1968 Docket No. 6587

Operator's Name Development Operating Corp. Contract No. 14-23-090- 2244

OPERATION	UNITS	FOR OPERATOR'S USE: UNITS THIS MONTH	UNITS TO DATE	COSTS TO DATE	FOR GOVERNMENT USE: APPROVED UNITS THIS MONTH	APPROVED UNITS TO DATE	APPROVED COSTS TO DATE
Drifting	Ft.	74	1580	66600.00	74	1480 1/	$66,600.00
Crosscutting							
Raising							
Shafts							
Winzes							
Other Underground							
Drilling, Core-Diamond							
Rotary							
Drilling, Non-core-Diamond							
Rotary							
Churn							
Percussion							
Miscellaneous Office X	Mo.	1	11	440.00	1	11	440.00
Incid. Engr. X	Ft.	74	1480	1687.20	74	1480	1,687.20
Roads and Trails							
Stripping							
Trenching							
Test Pitting							
Other Surface Work							
Initial Rehabilitation and Repairs Elkhorn Shaft				7850.00			7,850.00
Rehabilitation of Mine Workings 550' Level				5500.00			5,500.00
New Buildings, Fixtures, etc.							
Operating Equipment Purchases							
Analytical Work * Assays				353.50			353.50
TOTAL TO DATE (per MME Form 60)				82430.70			$82,430.70

REMARKS

* 9 Au & Ag at $ 3.50 = $31.50
Previous Total 322.00
Total to date $353.50

(Continue on back)

REMARKS

1/ Previous approval 1406
74
8480

(Continue on back)

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 7-7-68 Operator Development Operating Corp.

Per (S) Robt F Talley Title Mgr.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

I certify that the information above is complete and accurate to the best of my knowledge and belief.

Signature Donald R. MacKeen

Title Field Officer, Region II
Government Representative

Date JUL 12 1968

(INSTRUCTIONS ON REVERSE)

REMARKS *(Cont.)*

REMARKS *(Cont.)*

INSTRUCTIONS FOR PREPARING OPERATOR'S PROGRESS REPORT, MME FORM 61

This report is the second of the three ~~parts of~~ the Operator's Monthly Report. Submit the original and ~~four~~ three copies.

The cost for each operation should be the total of all claimed costs attributable to that type of work with two exceptions, namely—operating equipment purchased and analytical work which are stated separately. For example, drifting costs should be the total of all costs chargeable to drifting including supervision, technical services, timbering (if any), etc. Similarly, drilling costs should include the cost of cementing, reaming, core boxes, etc. This procedure of distribution holds whether the contract was written on an actual cost or a unit cost basis, or some combination of the two. Distribute the cost of such general items as supervision, equipment rented, etc. according to relative footages or on some other conventional basis. The item "Initial Rehabilitation and Repairs" covers all rehabilitation and/or repairs other than the rehabilitation of mine workings.

The item titled "Drilling, Non-core Percussion" includes all drilling performed with wagon, jack-hammer, stoper and mounted drills. The several items labelled "Other" are provided to take care of particular exploration operations not specified on this form.

Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632
7-8-68

Mr. D. R. MacLaren
Field Officer, OME
U. S. Geological Survey
U. S. Court House, Rm. 656
West 920 Riverside Ave.
Spokane, Washington 99201

Re: OME 6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract No. 2244
Narrative

Dear Mr. MacLaren:

Some 76' of drifting is claimed for the month of June, 46' in #10 Working and 30' in #4-A Working as designated on the progress maps.

An amendment has been requested for the raise work, etc. so no claims are made in this category at this time.

The weather is beautiful with warm days, cool nights, green grass and hords of mosquitos.

July should complete the first phase of our contract and we have hopes of continuing on down to the 1050' Level on the second phase. Application for this work will be made at the completion of the first phase, with final report.

Respectfully submitted,

Robert E. Tally

Robert E. Tally

RET/frm

RECEIVED
JUL 11 1968
O. M. E.
SPOKANE, WASH.

See maps in folder, dtd June, '68 and July, '68.

N. B. [illegible]

MME FORM 6 REFERENCE SLIP
REV. 2-59 OFFICE OF MINERALS EXPLORATION

TO:	DATE	INITIALS
1. Chief, OME	7/30/68	
2. Re: OME-6587(Silver) Development Operating Corp. Elkhorn Mine		
3. Jefferson County, Montana Contract 2244		
4.		
5. D. R. MacLaren		
FROM: Fld. Officer, Reg. I		

FOR: Check items for action desired

X Action ____ Reply for signature of ____
____ Approval ____ Investigate ____ Surname
____ Comment ____ Recommendations ____ Signature
____ Conference ____ Rewrite ____ File
____ Instructions ____ Your information

REMARKS: Attached returned to this office by the Operator.

OFFICIAL COPY
O. M. E.
RECEIVED
AUG 1 1968

INITIALS	CODE
	~~134~~
WC	120 M
JG	~~110~~
	120 S

INT.-DUP. SEC., WASH., D.C. M56300-62

MME FORM 6 REFERENCE SLIP
REV. 2-59 OFFICE OF MINERALS EXPLORATION

TO:	DATE	INITIALS
1. Chief, OME		
2. Re: OME-6587 (Silver) Development Operating Corp. Elkhorn Mine		
3. Jefferson County, Montana Contract 2244		
4.		
5. D. R. MacLaren		
FROM: Fld. Officer, Reg. I		

OFFICIAL COPY
O. M. E.
RECEIVED
JUL 15 1968

INITIALS	CODE
	~~120~~
	120 M
	~~110~~
	120 S

FOR: Check items for action desired

X Action ____ Reply for signature of ____
____ Approval ____ Investigate ____ Surname
____ Comment ____ Recommendations ____ Signature
____ Conference ____ Rewrite ____ File
____ Instructions ____ Your information

REMARKS: Transmittal of MME Forms 60 and 61 together with Operator's narrative, assay data and sketches for June 1968.

P. SEC., WASH., D.C. M56300-62

FORM 60
T. 1959

RECEIVED
JUL 11 1968
O.M.E.
SPOKANE, WASH.

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

RECEIVED
JUL 30 1968
O.M.E.
SPOKANE, WASH.

Docket No. 6587
Contract No. 14-20-0101-2244
Contract Amount $ 3485.86
Gov't. Participation % 75 $2614.30
Mineral(s) Silver

OPERATOR'S MONTHLY VOUCHER

For Month of June 1968

Operator's Name Development Operating Corp.
Address P. O. Box 14, Boulder, Mont. 59632

COST CATEGORIES	FOR OPERATOR'S USE			FOR GOVERNMENT APPROVAL ONLY		
	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE
Fixed Unit Costs and						
(1) Independent Contracts:						
Bulldozing						
Drifting	3330.00	63270.00	66,600.00			
Crosscutting						
Drilling						
Office X	40.00	400.00	440.00			
Incid. Engr. X	84.36	1602.84	1687.20			
(2) Personal Services:						
Supervision & Technical						
Outside Consultants						
Labor						
(3) Operating Mat'l. & Supplies:						
Timber						
Explosives						
Pipe						
Rail						
Rehab. Shaft	-	7850.00	7850.00			
Rehab. Level	-	5500.00	5500.00			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehab. & Repairs:						
Buildings, Fixtures, etc.						
Operating Equipment						
(6) New Buildings, Fixtures, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Analytical Work Assays	31.50	322.00	353.50			
Payroll Taxes						
Employee's Liability Ins.						
TOTALS	3485.86	78944.84	82430.70			

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

Date 7-7-68 *Payee Development Operating Corp.

Per Lola C. Tally Title Mgr.

* 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.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

(INSTRUCTIONS ON REVERSE)

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

14X0804

$ 2,614.40

Signature [illegible]
(Authorized Certifying Officer)

Date JUL 18 1968 Vou. No. 90375

(SEE OTHER SIDE)

Certification by Government Representative:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating an exploration project in accordance with the terms of Contract No. 2244

Signature D.R. Macharen Title Field Officer, Region II Date JUL 12 1968

Approved by OME Executive Officer or Alternate:

Signature D.R. Macharen Title Field Officer, Region II Date JUL 12 1968

OPERATOR'S MONTHLY REPORT

The Operator, under an Office of Minerals Exploration contract, is required to report monthly to the Government. The report consists of three parts.

FIRST, the Operator's Monthly Voucher on MME Form 60 listing the project costs incurred and claimed by the Operator is the voucher basis for payment of the Government's share of the cost.

SECOND, the Operator's Progress Report on MME Form 61 is a statistical report of the units and cost of of work performed under the contract.

THIRD, the Operator's Narrative Report is a concise description of the work performed, results accomplished, and any unusual situations encountered, illustrated and supported by engineering-geological maps or sketches, drill hole logs, assay reports, etc., as pertinent.

The Operator submits the original and ~~four~~ three copies of each of the three sections of this report to the OME regional Executive Officer at the end of each month during the life of the contract.

PREPARATION OF OPERATOR'S MONTHLY VOUCHER, MME FORM 60

After all applicable spaces are filled in, the Operator or his agent must sign the certification in the lower left corner. Categories (2) through (7) apply to "Actual Cost" contracts only.

Under "Fixed Unit Costs" and Category (1) report, (a) the total fixed unit costs of work performed under contract provisions for contribution by the Government on a basis of "fixed unit costs"; and (b) the claimed costs of work performed on a unit-price basis by independent contractors.

Under Category (2) include the claimed costs of all payrolled and invoiced supervisory, technical, and labor personnel, except the costs for services applicable to Categories (5) and (6).

Under Category (3) include the claimed costs of all project materials and supplies other than those used for work under Categories (5) and (6).

Under Category (4) report claimed rentals on equipment belonging to a third party, claimed payments or obligations for payments on the Operator's purchase of equipment, and claimed depreciation for the use of Operator-owned equipment.

Under Categories (5) and (6) include all claimed costs of labor, supervision, technical services, operating materials and supplies, and all other items used in (5) the initial rehabilitation and repairs of existing buildings, fixtures, installations (exclusive of mine workings), and operating equipment; and (6) the installation or construction of new buildings, fixtures, and fixed improvements (exclusive of mine workings). Do not report these costs under Categories (2), (3), (4), and (7).

Under Category (7) include all miscellaneous claimed costs such as repairs (other than initial) and maintenance of equipment, sampling and analysis, travel, communication, accounting, office expenses, and the Operator's share of payroll taxes and insurance.

Except for amounts claimed under "fixed unit costs" provisions of the contract, all costs claimed in this voucher must be supported by documentary evidence consisting of: (a) certified copies or transcripts of payrolls which list each employee, wage rate, period of employment, gross earnings, itemized deductions, and net earnings; (b) original or certified copies of invoices, statements of accounts, or purchase orders which indicate items of materials or services, quantities, unit prices, total charges, and payment terms; and (c) certified memoranda of the Operator for such items as depreciation of Operator-owned equipment, unemployment taxes, and employee's liability insurance. The certification may be stated thus, "Certified True Copy (or Transcript)", followed by the signature of the Operator or his agent. One copy of each document should accompany the original of this voucher.

The requirement for submitting documentary evidence of claimed costs may be waived by the OME regional Executive Officer if he determines that it is impracticable for an Operator to submit this material. In any case of waiver of this requirement an "on-site" audit by an OME auditor is mandatory prior to payment of the final Operator's Monthly Voucher.

JUL 17 10 37 AM '68
FINANCE
8 1 5 7 8

7/16/68/R 2nd

MME FORM 61
SEPT. 1959

RECEIVED
JUL 11 1968
O.M.E.

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

OPERATOR'S ~~PROGRESS~~ SPORADIC REPORT For Month of June 1968 Docket No. 6587

Operator's Name Development Operating Corp. Contract No. 14-23-090-2244

OPERATION	UNITS	FOR OPERATOR'S USE: UNITS THIS MONTH	UNITS TO DATE	COSTS TO DATE	FOR GOVERNMENT USE: APPROVED UNITS THIS MONTH	APPROVED UNITS TO DATE	APPROVED COSTS TO DATE
Drifting	Ft.	74	1480 1580	66600.00	74	1480	66,600.00
Crosscutting							
Raising							
Shafts							
Winzes							
Other Underground							
Drilling, Core-Diamond							
Rotary							
Drilling, Non-core-Diamond							
Rotary							
Churn							
Percussion							
Miscellaneous Office X	Mo.	1	11	440.00	1	11	440.00
Incid. Engr. X	Ft.	74	1480	1687.20	74	1480	1687.20
Roads and Trails							
Stripping							
Trenching							
Test Pitting							
Other Surface Work							
Initial Rehabilitation and Repairs Elkhorn Shaft				7850.00			7850.00
Rehabilitation of Mine Workings 550' Level				5500.00			5500.00
New Buildings, Fixtures, etc.							
Operating Equipment Purchases							
Analytical Work * Assays				353.50			353.50
TOTAL TO DATE *(per MME Form 60)*				82430.70			82430.70

REMARKS

* 9 Au & Ag @ $ 3.50 = $ 31.50
Previous Total 322.00
Total to date $ 353.50

(Continue on back)

REMARKS

11 prior approved here 1406 + 74 = 1480

(Continue on back)

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 7-7-68 Operator Development Operating Corp.

Per Robert C. Tally Title Mgr.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

I certify that the information above is complete and accurate to the best of my knowledge and belief.

Signature D.R. MacKaren

Title Field Officer, Region II
Government Representative

Date JUL 12 1968

(INSTRUCTIONS ON REVERSE)

REMARKS *(Cont.)*

REMARKS *(Cont.)*

INSTRUCTIONS FOR PREPARING OPERATOR'S PROGRESS REPORT, MME FORM 61

This report is the second of the three parts of the Operator's Monthly Report. Submit the original and ~~four~~ three copies.

The cost for each operation should be the total of all claimed costs attributable to that type of work with two exceptions, namely—operating equipment purchased and analytical work which are stated separately. For example, drifting costs should be the total of all costs chargeable to drifting including supervision, technical services, timbering (if any), etc. Similarly, drilling costs should include the cost of cementing, reaming, core boxes, etc. This procedure of distribution holds whether the contract was written on an actual cost or a unit cost basis, or some combination of the two. Distribute the cost of such general items as supervision, equipment rented, etc. according to relative footages or on some other conventional basis. The item "Initial Rehabilitation and Repairs" covers all rehabilitation and/or repairs other than the rehabilitation of mine workings.

The item titled "Drilling, Non-core Percussion" includes all drilling performed with wagon, jack-hammer, stoper and mounted drills. The several items labelled "Other" are provided to take care of particular exploration operations not specified on this form.

BUDGET & FINANCE
JUL 17 10 25 AM '68
8 9 1 5 7 8

Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632
7-8-68

Mr. D. R. MacLaren
Field Officer, OME
U. S. Geological Survey
U. S. Court House, Rm. 656
West 920 Riverside Ave.
Spokane, Washington 99201

Re: OME 6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract No. 2244
Narrative

Dear Mr. MacLaren:

Some 76' of drifting is claimed for the month of June, 46' in #10 Working and 30' in #4-A Working as designated on the progress maps.

An amendment has been requested for the raise work, etc. so no claims are made in this category at this time.

The weather is beautiful with warm days, cool nights, green grass and hords of mosquitos.

July should complete the first phase of our contract and we have hopes of continuing on down to the 1050' Level on the second phase. Application for this work will be made at the completion of the first phase, with final report.

Respectfully submitted,

Robert E. Tally

Robert E. Tally

RET/frm

RECEIVED
JUL 11 1968
O. M. E.
SPOKANE, WASH.

Signed Jones & Lawson - Jon C. Lawson, Geologi

Field no.	Lab no.	Description	~~% SiO_2~~ Au	~~% Al_2O_3~~ Ag	% Fe_2O_3	% FeO	% MgO	% CaO	% Na_2O	% K_2O	% H_2O	% CO_2	% TiO_2	%	%	%
221	10		0.050	53.2												
2	14		0.090	126.4												
3	5-#9		0.020	31.6												
4	203		0.0005	0.65												
225	213/6		0.001	0.30												
6	33		0.025	28.3												
7	41		0.010	9.6												
8	46		0.040	38.4												
9	12		0.025	24.5												
230	17		0.150	168.9												
1	22		0.050	56.1												
2	30		0.250	254.2												
3			0.005	7.6												
4	38		0.010	11.7												

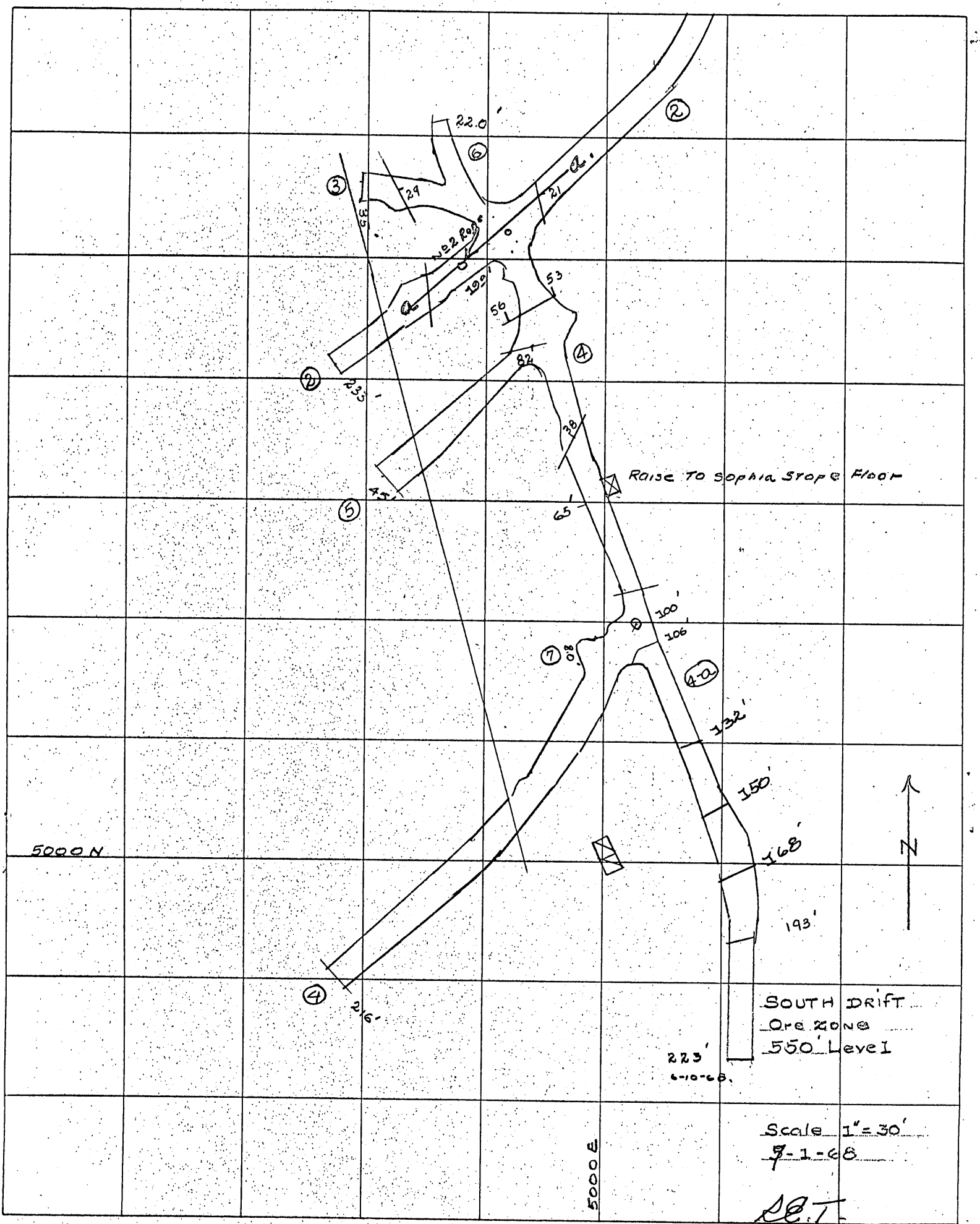
Signed Jones & Lawson Don C Lawson

Field no.	Lab no.	Description	% SiO_2	% Al_2O_3	% Fe_2O_3	% FeO	% MgO	% CaO	% Na_2O	% K_2O	% H_2O	% CO_2	% TiO_2	%	%	%
			Au	Ag												
235	43		0.020	23.1												
6	47		0.010	10.4												
7	57		0.002	1.8												
238	70		0.0005	0.5												

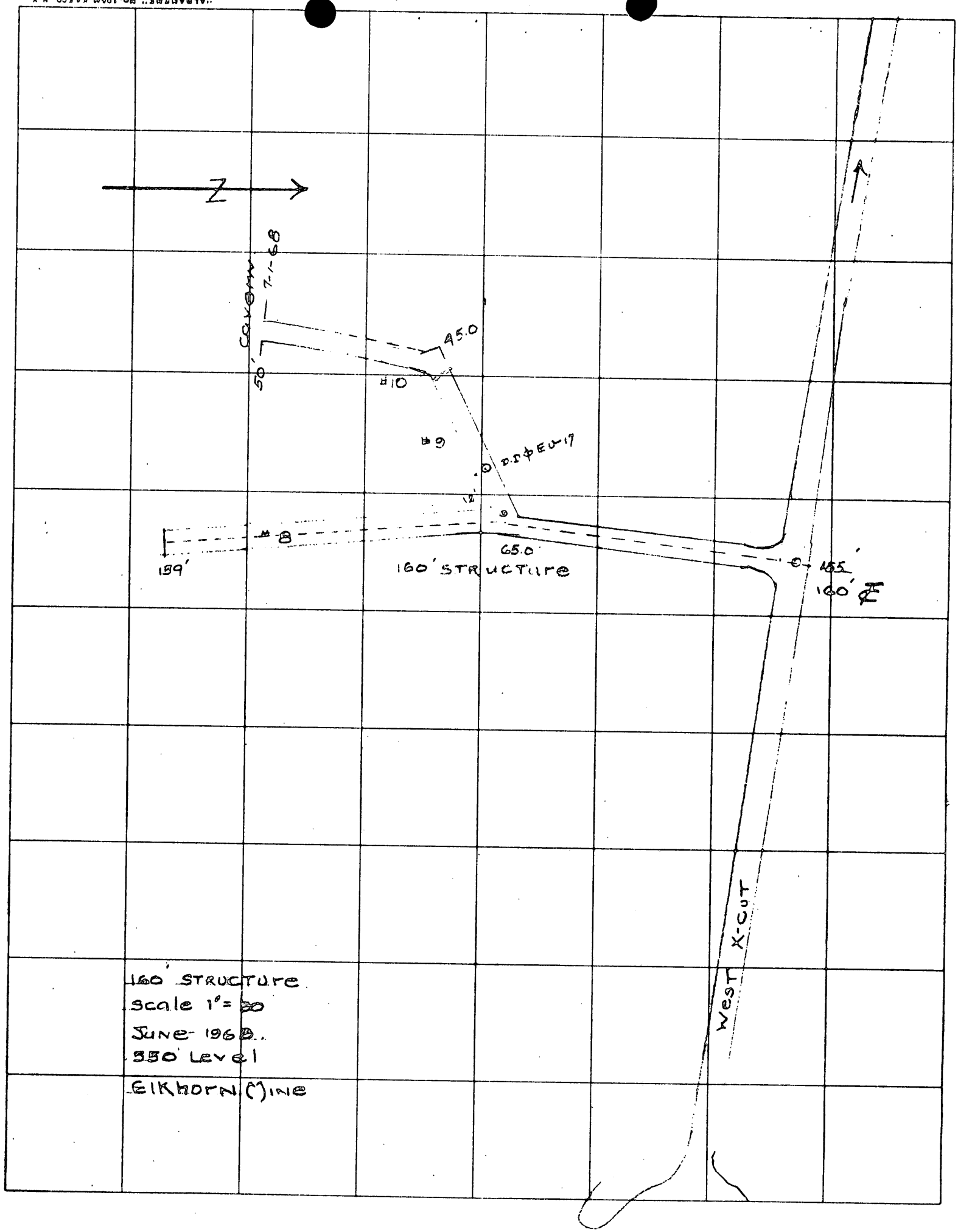
Assay Data - June 1968

'68 Date	No.	Location	Sta.	Au	Silt. Clay.
6-7.	221	10	10'	0.050	53.2
✓	222	10	14'	0.090	126.4
✓	223.	9	5'	0.020	31.6
✓	224	4-a	203	0.0005	0.65
6-6	225	4-a	213'	0.001	0.30
6-11	226	10	33'	0.025	38.30
6-12	227	10	41'	0.010	9.60
6-12	228	10	46	0.040	38.40
6-14	229	R-9	12'	0.025	19.50
6-14	230	R-9	17'	0.150	168.90
6-17	231	R-9	22'	0.050	56.10
6-18	232	R-9	30'	0.150	159.20
6-10	233	10	24'	0.005	7.60
6-19	234	R-9	38'	0.010	11.70
6-20	235	R-9	43'	0.020	33.60
6-21	236	R-9	47'	0.010	10.40
6-25	237	R-9	57'	0.002	1.80
6-26	238	R-9	70'	0.0005	0.50

LITHOGRAPHED IN U.S.A. - ADDISON-WESLEY PUBLISHING COMPANY, INC., READING, MASS. A-W Data Form 104



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


N
COVERN 7-1-68
50'
45.0
#10
#9
D.I.Φ EU-17
12'
#8
159'
65.0
160' STRUCTURE
155'
160' ℄
West X-CUT
160' STRUCTURE
Scale 1" = 20
June 1969.
350' Level
ELKHORN MINE

MME FORM 60
SEPT. 1959

RECEIVED
JUL 11 1968
O.M.E.

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

RECEIVED
JUL 30 1968
O.M.E.

Docket No. 6587
Contract No. 2244
Contract Amount $3485.86
Gov't. Participation % 75 $2614.30
Mineral(s) Silver

OPERATOR'S MONTHLY VOUCHER

For Month of June 1968

Operator's Name Development Operating Corp.
Address P. O. Box 14, Boulder, Mont. 59632

COST CATEGORIES	FOR OPERATOR'S USE			FOR GOVERNMENT APPROVAL ONLY		
	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE
Fixed Unit Costs and						
(1) Independent Contracts:						
Bulldozing						
Drifting	3330.00	63270.00	66,600.00			
Crosscutting						
Drilling						
Office X	40.00	400.00	440.00			
Incid. Engr. X	84.36	1602.84	1687.20			
(2) Personal Services:						
Supervision & Technical						
Outside Consultants						
Labor						
(3) Operating Mat'l. & Supplies:						
Timber						
Explosives						
Pipe						
Rail						
Rehab. Shaft	-	7850.00	7850.00			
Rehab. Level	-	5500.00	5500.00			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehab. & Repairs:						
Buildings, Fixtures, etc.						
Operating Equipment						
(6) New Buildings, Fixtures, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Analytical Work Assays	31.50	322.00	353.50			
Payroll Taxes						
Employee's Liability Ins.						
TOTALS	3485.86	78944.84	82430.70			

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

Date 7-7-68 Payee Development Operating Corp.

Per Robt C. Kelly Title Mgr.

* 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.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

(INSTRUCTIONS ON REVERSE)

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

14X0804

$ 2,614.40

Signature [illegible] (Authorized Certifying Officer)

Date JUL 18 1968 Vou. No. 90375

(SEE OTHER SIDE)

Certification by Government Representative:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating an exploration project in accordance with the terms of Contract No. 2244

Signature D.R. MacKaren Title Field Officer, Region I Date JUL 12 1968

Approved by OME Executive Officer or Alternate:

Signature D.R. MacKaren Title Field Officer, Region I Date JUL 12 1968

OPERATOR'S MONTHLY REPORT

The Operator, under an Office of Minerals Exploration contract, is required to report monthly to the Government. The report consists of three parts.

FIRST, the Operator's Monthly Voucher on MME Form 60 listing the project costs incurred and claimed by the Operator is the voucher basis for payment of the Government's share of the cost.

SECOND, the Operator's Progress Report on MME Form 61 is a statistical report of the units and cost of of work performed under the contract.

THIRD, the Operator's Narrative Report is a concise description of the work performed, results accomplished, and any unusual situations encountered, illustrated and supported by engineering-geological maps or sketches, drill hole logs, assay reports, etc., as pertinent.

The Operator submits the original and ~~four~~ three copies of each of the three sections of this report to the OME regional Executive Officer at the end of each month during the life of the contract.

PREPARATION OF OPERATOR'S MONTHLY VOUCHER, MME FORM 60

After all applicable spaces are filled in, the Operator or his agent must sign the certification in the lower left corner. Categories (2) through (7) apply to "Actual Cost" contracts only.

Under "Fixed Unit Costs" and Category (1) report, (a) the total fixed unit costs of work performed under contract provisions for contribution by the Government on a basis of "fixed unit costs"; and (b) the claimed costs of work performed on a unit-price basis by independent contractors.

Under Category (2) include the claimed costs of all payrolled and invoiced supervisory, technical, and labor personnel, except the costs for services applicable to Categories (5) and (6).

Under Category (3) include the claimed costs of all project materials and supplies other than those used for work under Categories (5) and (6).

Under Category (4) report claimed rentals on equipment belonging to a third party, claimed payments or obligations for payments on the Operator's purchase of equipment, and claimed depreciation for the use of Operator-owned equipment.

Under Categories (5) and (6) include all claimed costs of labor, supervision, technical services, operating materials and supplies, and all other items used in (5) the initial rehabilitation and repairs of existing buildings, fixtures, installations (exclusive of mine workings), and operating equipment; and (6) the installation or construction of new buildings, fixtures, and fixed improvements (exclusive of mine workings). Do not report these costs under Categories (2), (3), (4), and (7).

Under Category (7) include all miscellaneous claimed costs such as repairs (other than initial) and maintenance of equipment, sampling and analysis, travel, communication, accounting, office expenses, and the Operator's share of payroll taxes and insurance.

Except for amounts claimed under "fixed unit costs" provisions of the contract, all costs claimed in this voucher must be supported by documentary evidence consisting of: (a) certified copies or transcripts of payrolls which list each employee, wage rate, period of employment, gross earnings, itemized deductions, and net earnings; (b) original or certified copies of invoices, statements of accounts, or purchase orders which indicate items of materials or services, quantities, unit prices, total charges, and payment terms; and (c) certified memoranda of the Operator for such items as depreciation of Operator-owned equipment, unemployment taxes, and employee's liability insurance. The certification may be stated thus, "Certified True Copy (or Transcript)", followed by the signature of the Operator or his agent. One copy of each document should accompany the original of this voucher.

The requirement for submitting documentary evidence of claimed costs may be waived by the OME regional Executive Officer if he determines that it is impracticable for an Operator to submit this material. In any case of waiver of this requirement an "on-site" audit by an OME auditor is mandatory prior to payment of the final Operator's Monthly Voucher.

7/16/68 / RMS

MME FORM 61
SEPT. 1959

RECEIVED
JUL 11 1968
OMAE
SPOKANE, WASH.

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

OPERATOR'S PROGRESS REPORT — For Month of June 1968 — Docket No. 6587

Operator's Name Development Operating Corp. — Contract No. 14-23-090-2244

OPERATION	UNITS	FOR OPERATOR'S USE: UNITS THIS MONTH	UNITS TO DATE	COSTS TO DATE	FOR GOVERNMENT USE: APPROVED UNITS THIS MONTH	APPROVED UNITS TO DATE	APPROVED COSTS TO DATE
Drifting	Ft.	74	1580	66600.00	74	1480 L	66,600.00
Crosscutting							
Raising							
Shafts							
Winzes							
Other Underground							
Drilling, Core-Diamond							
Rotary							
Drilling, Non-core-Diamond							
Rotary							
Churn							
Percussion							
Miscellaneous Office X	Mo.	1	11	440.00	1	11	440.00
Incid. Engr. X	Ft.	74	1480	1687.20	74	1480	1687.20
Roads and Trails							
Stripping							
Trenching							
Test Pitting							
Other Surface Work							
Initial Rehabilitation and Repairs Elkhorn Shaft				7850.00			7850.00
Rehabilitation of Mine Workings 550' Level				5500.00			5500.00
New Buildings, Fixtures, etc.							
Operating Equipment Purchases							
Analytical Work * Assays				353.50			353.50
TOTAL TO DATE (per MME Form 60)				82430.70			82,430.70

REMARKS

* 9 Au & Ag @ $ 3.50 = $ 31.50
Previous Total 322.00
Total to date $ 353.50

(Continue on back)

REMARKS

L Prior approved 1406
Incl 74
1480

(Continue on back)

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 7-7-68 Operator Development Operating Corp.

Per Lyle C. Tally Title Mgr.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

I certify that the information above is complete and accurate to the best of my knowledge and belief.

Signature D P MacLaren

Title Field Officer, Region I
Government Representative

Date JUL 12 1968

(INSTRUCTIONS ON REVERSE)

REMARKS (Cont.)

REMARKS (Cont.)

INSTRUCTIONS FOR PREPARING OPERATOR'S PROGRESS REPORT, MME FORM 61

This report is the second of the three ~~parts~~ of the Operator's Monthly Report. Submit the original and ~~four~~ three copies.

The cost for each operation should be the total of all claimed costs attributable to that type of work with two exceptions, namely—operating equipment purchased and analytical work which are stated separately. For example, drifting costs should be the total of all costs chargeable to drifting including supervision, technical services, timbering (if any), etc. Similarly, drilling costs should include the cost of cementing, reaming, core boxes, etc. This procedure of distribution holds whether the contract was written on an actual cost or a unit cost basis, or some combination of the two. Distribute the cost of such general items as supervision, equipment rented, etc. according to relative footages or on some other conventional basis. The item "Initial Rehabilitation and Repairs" covers all rehabilitation and/or repairs other than the rehabilitation of mine workings.

The item titled "Drilling, Non-core Percussion" includes all drilling performed with wagon, jack-hammer, stoper and mounted drills. The several items labelled "Other" are provided to take care of particular exploration operations not specified on this form.

Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632
7-8-68

Mr. D. R. MacLaren
Field Officer, OME
U. S. Geological Survey
U. S. Court House, Rm. 656
West 920 Riverside Ave.
Spokane, Washington 99201

Re: OME 6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract No. 2244
Narrative

Dear Mr. MacLaren:

Some 76' of drifting is claimed for the month of June, 46' in #10 Working and 30' in #4-A Working as designated on the progress maps.

An amendment has been requested for the raise work, etc. so no claims are made in this category at this time.

The weather is beautiful with warm days, cool nights, green grass and hords of mosquitos.

July should complete the first phase of our contract and we have hopes of continuing on down to the 1050' Level on the second phase. Application for this work will be made at the completion of the first phase, with final report.

Respectfully submitted,

Robert E. Tally

Robert E. Tally

RET/frm

RECEIVED
JUL 11 1968
O. M. E.
SPOKANE, WASH.

Signed Jones & Lawson, Geologi

Field no.	Lab no.	Description	~~% SiO_2~~	~~% Al_2O_3~~	% Fe_2O_3	% FeO	% MgO	% CaO	% Na_2O	% K_2O	% H_2O	% CO_2	% TiO_2	%	%	%
			Au	Ag												
221	10		0.050	53.2												
2	14		0.090	126.4												
3	5-49		0.020	31.6												
4	203		0.0005	0.65												
225	213/6		0.001	0.30												
6	33		0.025	28.3												
7	41		0.010	9.6												
8	46		0.040	38.4												
9	12		0.025	24.5												
230	17		0.150	168.9												
1	22		0.050	56.1												
2	30		0.250	254.2												
3			0.005	7.6												
4	38		0.010	11.7												

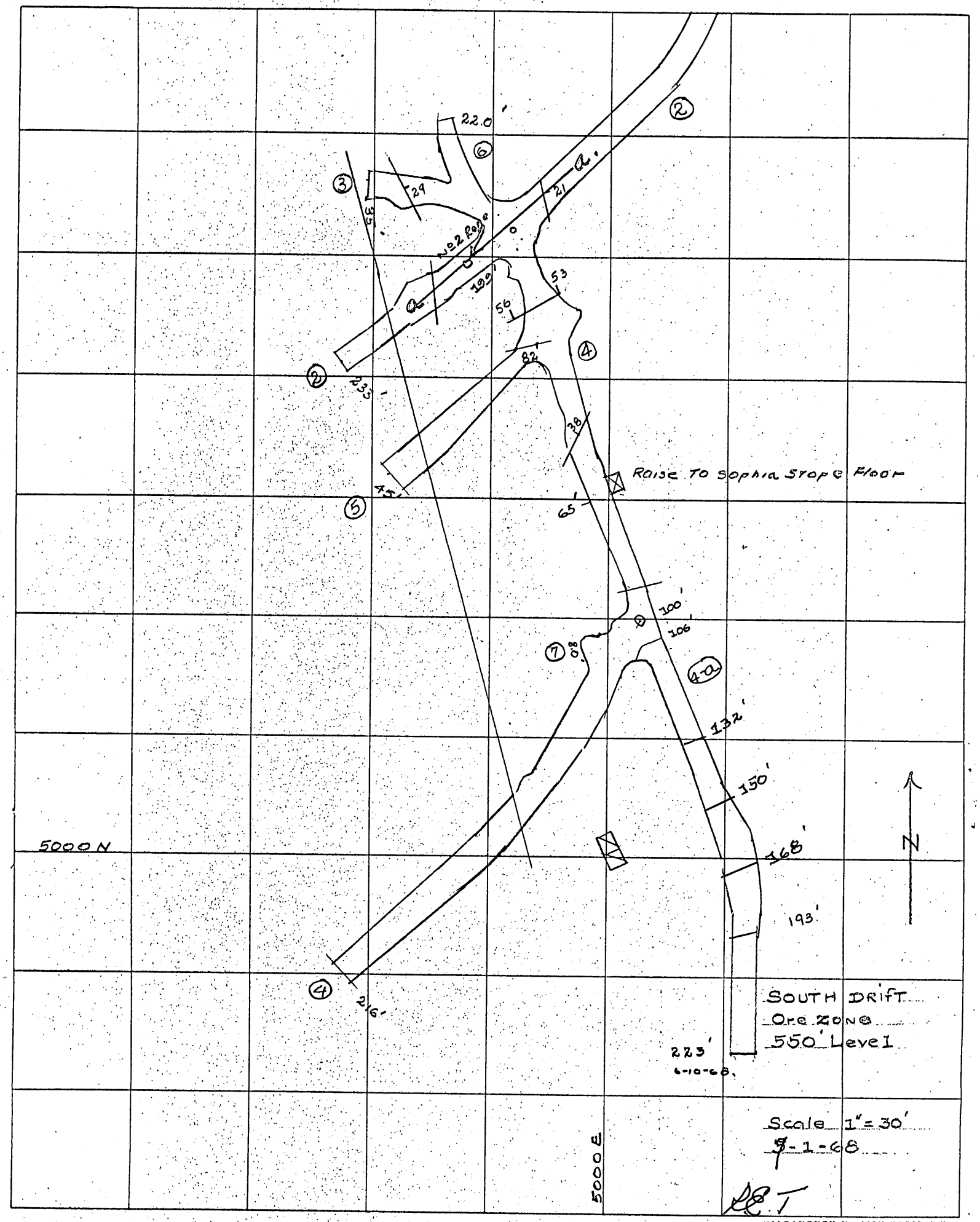
Signed Jones & Lawson

Field no.	Lab no.	Description	% SiO_2	% Al_2O_3	% Fe_2O_3	% FeO	% MgO	% CaO	% Na_2O	% K_2O	% H_2O	% CO_2	% TiO_2	%	%	%
			10	48												
238	43		0.020	25.1												
6	47		0.010	10.4												
7	57		0.002	1.8												
238	70		0.0005	0.5												

Assay Data - June 1968

'68 Date	No.	Location	Sta.	Au	Ag.
6-7.	221	10	10'	0.050	53.2
✓	222	10	14'	0.090	126.4
✓	223.	9	5'	0.020	31.6
✓	224	4-a	203	0.0005	0.65
6-6	225	4-a	213'	0.001	0.30
6-11	226	10	33'	0.025	18.30
6-12	227	10	41'	0.010	9.60
6-12	228	10	46	0.040	38.40
6-14	229	R-9	12'	0.035	24.50
6-14	230	R-9	17'	0.150	168.90
6-17	231	R-9	22'	0.050	56.10
6-18	232	R-9	30'	0.150	159.20
6-10	233	10	24'	0.005	7.60
6-19	234	R-9	38'	0.010	11.70
6-20	235	R-9	43'	0.020	23.60
6-21	236	R-9	47'	0.010	10.40
6-25	237	R-9	57'	0.002	1.80
6-26	238	R-9	70'	0.0005	0.50

LITHOGRAPHED IN U.S.A. - ADDISON-WESLEY PUBLISHING COMPANY INC., READING, MASS. A-W Data Form 104



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

OFFICIAL ~~FILE~~ COPY

Date	Surname	Code
7/18/68	[illegible]	120
7/18/68	[illegible]	120
		110
7/18	[illegible]	220
		120M

AIRMAIL

Memorandum

To: Field Officer, Region I

From: Chief, Office of Minerals Exploration

Subject: OMX-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Please refer to your memo of July 10, 1968, transmitting the Operator's request for an amendment to permit:

1. Untimbered raises @ $45.00/foot.

2. Additional drifting and/or raising with funds provided for headframe and compressor house.

3. Additional raising, untimbered, with funds provided for drifting.

We concur in your conclusions that these changes from the original estimate are warranted. Our interpretation of the contract is that its terms are sufficiently flexible to permit these minor changes without a formal amendment. Certainly it was our intent in drafting the contract to permit normal departures from the original estimate to accommodate to the geologic conditions encountered.

The following provisions of the contract authorize the three changes requested:

1. Exhibit A, General Provisions, Paragraph 1 specifies that "... raises... shall be timbered as necessary." The intent of the further specification is that <u>if</u> timber is necessary, then a chute and manway shall be installed.

2. Amendment 1 makes installation of the headframe and compressor house optional. If they are not constructed the funds are automatically available for any other item in Exhibit A.

3. Article 1(b) of the contract specifies that the Government will contribute "... not in excess of $67,500.00..." to the total costs of the work performed, but no maximums are specified for individual items of work. The Government is protected from unwarranted departures from the original estimate by the General Provisions that "The location, direction and extent of each work item shall be subject to Government approval."

Please inform the Operator that he should continue to submit vouchers for all items of work that you have approved. He may claim only $45.00 per foot for raising - instead of $47.00 - if he prefers. The difference would be available for drifting or additional raising automatically.

FRANK E. JOHNSON

Frank E. Johnson

cc: Director's Reading File
Economic Geology File
OME Docket
OME Reading File
Mr. Smith

RMSmith/bsl 7/18/68

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
GEOLOGICAL SURVEY
U. S. Court House, Rm. 656
W. 920 Riverside Avenue
Spokane, Washington 99201
July 10, 1968

JUL 11 1968

INITIALS	CODE
	~~130~~
bal	120 M
	~~110~~
	120 S

Memorandum

To: Chief, Office of Minerals Exploration

From: Field Officer, Region I

Subject: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Enclosed are the original and one copy of a letter dated June 21, 1968, in which the Operator requests an amendment to provide:

1. That the requirement of timbering a flat raise be deleted "Gen. Prov. Timb. if necess." and the unit price be decreased from $47.00 to $45.00 per foot.

2. That the sums of $500.00 provided for headframe construction and $250.00 provided for a compressor house be made available for additional drifting and/or raising. Amend. 1 does this

3. That the remaining 20 feet of drifting at $45.00 per foot be made available for additional raising, untimbered, at $45.00 per foot, this raise to follow the one found in area of workings 2, 3, and 4. No item is a maximum except "Total"

An inspection of the contract work was made with Robert E. Tally, General Manager, June 21, 1968. Since the last inspection made March 8, 1968, the heading then designated "crosscut 1E" and now called on the Operator's progress map as heading 4, has been advanced 166 feet; from previously designated "crosscut 2W," now called heading 3, heading 4 has been driven 22 feet; from heading 4, heading 4-a has been advanced 117 feet; heading 8 has been advanced southerly from the west crosscut a distance of 159 feet; heading 9 was advanced southwesterly 45 feet from heading 8; heading 10 was advanced 50 feet southerly from heading 9; and raise 1 has been driven 49 feet westerly at a pitch of 35°-40° from the westerly end of heading 9. The total advance since the last inspection is 559 feet of drift and 49 feet of raise.

At and around the junctions of headings 2, 3, and 4 assays of 21 samples for silver and 17 for lead indicate an average grade of 15.59 ounces silver per ton and 1.56 percent lead; this represents an irregularly shaped planar area of about 1,000 square feet. It is this ore body in which the Operator proposes to drive a second raise.

Another streak of ore-grade material extends from station 184 plus 55 feet in heading 4 to plus 127 feet in heading 4(a). Fifteen samples assayed for silver and 9 assayed for lead indicate an average grade of 32.92 ounces silver per ton and 4.69 percent lead.

At his own expense the Operator drove a vertical raise that holed into the bottom of the Sophia stope about 15 feet above the sill of the drift. The stope was entered and was fairly large with some pillars of low-grade ore or waste. Whether the ore on the level has been stoped or lies in the footwall of the stope could not be determined. It is definitely certain that the stope did not extend more than 20 feet or so northerly from the raise and therefore does not include the ore body in which raise 2 is proposed.

Heading 10 broke into a large limestone cavern. At the time of the inspection the cavern was filled with water to within 3 feet of the level and could not be entered. Above the break through a chip sample was taken by the examiner. It assayed 52.55 ounces silver per ton and 0.24 percent copper over a width of 1 foot--no other sulfides were noted and were not included in the assay. Assays of three samples taken in the area of the heading 9-10 junction indicated an average grade of 31.87 ounces silver per ton. Additional samples have been taken along heading 10 by the Operator, but their assays are not yet available. However, DDH EU-17, according to drill logs cut 0.3 feet of ore that assayed 13.40 ounces silver per ton, 1.60 percent lead, and 3.10 percent zinc. This intercept is 10-20 feet below the 550 level and probably represents the same shoot. At the top of the 49-foot raise the vein had pinched out.

SUMMARY AND CONCLUSIONS

At least 3 ore shoots or bodies have been found, 2 in the heading 2, 4, and 4(a) workings and 1 in the heading 9 and 10 workings. Heading 10 was following an ore-grade deposit southerly until it broke into a water-filled cavern. Ore in the raise and in DDH EU 17 indicates a vein "height" of 50-60 feet. This structure should be followed northerly. Heading 9-10 junction is about 90 feet from the main west crosscut and this ore shoot will undoubtedly pinch out within that distance. When the cavern is dewatered, drifting farther to the south may be found to be justified.

The indicated 1,000 square foot ore body in headings 2, 4, and 4(a) is east of any known stopes from the Sophia area and its upward extension should be tested.

The No. 1 raise is so flat--40° or less--that it is necessary to use a slusher to remove the muck. The general pitch of the Sophia stopes is the same. The contract requirement for timbered raises envisaged raises at 60°-90°. The Operator's request to change this specification to untimbered raises at $45.00 per foot, a difference of $2.00 per foot, is reasonable and approval is recommended.

Neither the headframe nor the hoist house with the respective included items will be installed as they are not necessary to the exploration project. Through June there remain unclaimed 20 feet of drifting and crosscutting at $45.00 per foot, 100 feet of timbered raising at $47.00 per foot, and incidental allowance, 120 feet at $1.14 per foot. Other items will remain unchanged. Of the items to be changed there are available:

Item	Allowed	Claimed	Balance available
Headframe, etc.	$ 500.00	--	$ 500.00
Compressor house, etc.	250.00	--	250.00
Crosscut and drift	67,500.00	$66,600.00	900.00
Raise w/timber	4,700.00	--	4,700.00
Incidental allowance	1,820.00	1,683.20	136.80
Total available	$74,770.00	$68,283.20	$6,486.80

RECOMMENDATIONS

Tally is an exceptionally well-qualified and experienced mining engineer. It is recommended that his request be approved and an amendment to the contract be prepared somewhat as follows:

1. In Exhibit A, General Provisions, p. 1, first paragraph delete the last sentence which now reads: "Raises shall be timbered to provide a chute and manway with lagging on the chute side and ladders on the manway side."

2. Exhibit A, Description of the Work, p. 2, first paragraph delete all but the first sentence which reads: "The initial work shall consist of rehabilitating the Elkhorn shaft and 550-foot level south drift."

3. Exhibit A, Description of the Work, p. 2, delete the 3rd and 4th paragraphs substituting therefor: "Drifts shall be driven northerly and/or southerly on the best showings in the crosscut. Raises may be driven to explore or delineate further ore bodies found by crosscutting or drifting. It is estimated that 1,620 feet of crosscut, drift, and raise will be required."

4. Exhibit A, Estimated Costs of the Work, p. 2 and 3, delete "Constructing headframe, etc., $500.00, constructing compressor house, etc., $250.00, crosscutting and drifting, etc., 1,500 feet at $45.00/foot, $67,500.00, and raising, etc., 100 feet at $47.00 per foot, $4,700.00. Combine and change the last two items to read: "Crosscutting, drifting, and raising, including necessary timber 1,620 feet at $45.00 per foot."

5. Exhibit A, Estimated Costs of the Work, p. 3, Incidental Allowance, change "1,600 feet" to "1,620 feet" at $1.14 per foot (rounded). Change Total Estimated Fixed Unit Cost $90,000.00 and Government Participation at 75 percent $67,500.00 to $89,977.00 and $67,482.75, respectively.

These changes will give an exceptionally qualified Operator the leeway to explore more economically and the slight reduction in cost is to the Government's benefit.

D. R. MacLaren

D. R. MacLaren

Enclosures

Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632
6-21-68

Mr. D. R. MacLaren
Field Officer, OME
U. S. Dept. of Interior
Geological Survey
So. 157 Howard Street
Spokane, Washington 99204

Re: OME 6587 Silver
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana

Dear Mr. MacLaren:

It was real good to have you visit our operation on Friday the 21st, instant.

Some things have come up, as discussed with you and I would like to have authority to change proceedure as outlined in our contract.

1.) Our #9 raise driven from Station 40 in #9 Cross-Cut Working on the ore zone contact along the dip of 32-37 degrees is so flat that it does not require timbering for man-way, chute, etc. other than a cross stull about every 5.0'. Timbering is normally necessary for safety and disposal of broken rock. It is standard practice in this area not to timber flat raises. As to the disposal of the blasted material, we scrape it down to the drift with a slusher and then load it into mine cars with the mucking machine; the raise being completely cleaned out each shift and the stulls checked. Actually this method costs about the same overall. My request here is that we be authorized to delete the timbering requirement as set up in our contract specifications and be paid a unit cost somewhere in the neighborhood of drifting, $45.00/ft. advance and that for a timbered raise, $47.00/ft.

2.) Our initial contract called for constructing a head-frame at $500.00 and a compressor house at $250.00, or a total of $750.00 allocated. These items were necessary for work below the 550 Level only and so an amendment was made deleting them for the first phase of the exploration program, not withdrawing the money so alloted from the account. I am requestion that this sum be reassigned for exploration either drifting or raise work or both.

3.) We ran into a good sized water cavern in drifting working No. 10 at Station 50', eleminating futher advance here in any direction, but up, leaving us with a total of 20.0' to go of our allocated 1500'. I am requesting that this allocation be applied to additional raise work such as in the middle of the ore body encountered on the

360' Structure by workings 2,3,4,5, and 6. This raise would be located adjacent to Station 199' of No. 2 Drift Working at about the middle of the ore zone with a 36 degree slope to a height determined by the number of feet remaining in our contract at your unit cost per foot for a non-timbered raise. Also in the event that No. 9 Raise working should run our of ore, it would be pertinent to stop here, and carry on at #2 Raise completing the use of all allocated funds, as outlined. Rough calculations indicate an additional 36' of raise work in ore which would be very helpful in establishing height at this point, for determining ore reserves.

Yours very truly,

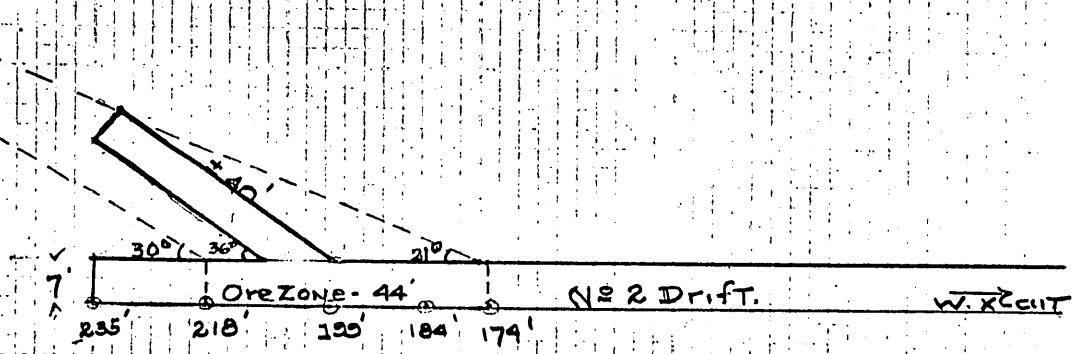
Robt. E. Tally

Robert E. Tally

RET/frm

RECEIVED
JUN 26 1968

(6)



Sect a-a
Proposed № 2 Raise

Elkhorn Mine
550' Level

Scale 1" = 30'

6-22-68.

MME FORM 60
SEPT. 1959

RECEIVED
JUN 10 1968

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

Docket No. 6587
Contract No. 14-23-090-2244
Contract Amount $ 9799.40
Gov't. Participation % 75 $ 7349.55
Mineral(s) Silver

OPERATOR'S MONTHLY VOUCHER

For Month of May 1968

Operator's Name Development Operating Corp.
Address P. O. Box 14, Boulder, Montana

COST CATEGORIES	FOR OPERATOR'S USE			FOR GOVERNMENT APPROVAL ONLY		
	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE
Fixed Unit Costs and						
(1) Independent Contracts:						
Bulldozing						
Drifting	9450.00	53820.00	63270.00			
Crosscutting						
Drilling						
Office X	40.00	360.00	400.00			
Incid. Engr. X	239.40	1363.44	1602.84			
(2) Personal Services:						
Supervision & Technical						
Outside Consultants						
Labor						
(3) Operating Mat'l. & Supplies:						
Timber						
Explosives						
Pipe						
Rail						
Rehab. Shaft	-	7850.00	7850.00			
Rehab. Level	-	5500.00	5500.00			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehab. & Repairs:						
Buildings, Fixtures, etc.						
Operating Equipment						
(6) New Buildings, Fixtures, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Analytical Work	70.00	252.00	322.00			
Payroll Taxes						
Employee's Liability Ins.						
TOTALS	9799.40	69145.44	78944.84			

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

Date 6-3-68 *Payee Development Oper. Corp.

Per Robt. C. Tally Title Mgr.

* 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.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

(INSTRUCTIONS ON REVERSE)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of: 14X0804

$ 7349.55

Signature [illegible]
(Authorized Certifying Officer)

Date JUN 21 1968 Vou. No. 87648

(SEE OTHER SIDE)

Certification by Government Representative:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating an exploration project in accordance with the terms of Contract No. 224f

Signature D.R. MacKeen Title Field Officer, Region I Date JUN 12 1968

Approved by OME Executive Officer or Alternate:

Signature D.R. MacKeen Title Field Officer, Region I Date JUN 12 1968

OPERATOR'S MONTHLY REPORT

The Operator, under an Office of Minerals Exploration contract, is required to report monthly to the Government. The report consists of three parts.

FIRST, the Operator's Monthly Voucher on MME Form 60 listing the project costs incurred and claimed by the Operator is the voucher basis for payment of the Government's share of the cost.

SECOND, the Operator's Progress Report on MME Form 61 is a statistical report of the units and cost of of work performed under the contract.

THIRD, the Operator's Narrative Report is a concise description of the work performed, results accomplished, and any unusual situations encountered, illustrated and supported by engineering-geological maps or sketches, drill hole logs, assay reports, etc., as pertinent.

The Operator submits the original and ~~four~~ three copies of each of the three sections of this report to the OME regional Executive Officer at the end of each month during the life of the contract.

PREPARATION OF OPERATOR'S MONTHLY VOUCHER, MME FORM 60

After all applicable spaces are filled in, the Operator or his agent must sign the certification in the lower left corner. Categories (2) through (7) apply to "Actual Cost" contracts only.

Under "Fixed Unit Costs" and Category (1) report, (a) the total fixed unit costs of work performed under contract provisions for contribution by the Government on a basis of "fixed unit costs"; and (b) the claimed costs of work performed on a unit-price basis by independent contractors.

Under Category (2) include the claimed costs of all payrolled and invoiced supervisory, technical, and labor personnel, except the costs for services applicable to Categories (5) and (6).

Under Category (3) include the claimed costs of all project materials and supplies other than those used for work under Categories (5) and (6).

Under Category (4) report claimed rentals on equipment belonging to a third party, claimed payments or obligations for payments on the Operator's purchase of equipment, and claimed depreciation for the use of Operator-owned equipment.

Under Categories (5) and (6) include all claimed costs of labor, supervision, technical services, operating materials and supplies, and all other items used in (5) the initial rehabilitation and repairs of existing buildings, fixtures, installations (exclusive of mine workings), and operating equipment; and (6) the installation or construction of new buildings, fixtures, and fixed improvements (exclusive of mine workings). Do not report these costs under Categories (2), (3), (4), and (7).

Under Category (7) include all miscellaneous claimed costs such as repairs (other than initial) and maintenance of equipment, sampling and analysis, travel, communication, accounting, office expenses, and the Operator's share of payroll taxes and insurance.

Except for amounts claimed under "fixed unit costs" provisions of the contract, all costs claimed in this voucher must be supported by documentary evidence consisting of: (a) certified copies or transcripts of payrolls which list each employee, wage rate, period of employment, gross earnings, itemized deductions, and net earnings; (b) original or certified copies of invoices, statements of accounts, or purchase orders which indicate items of materials or services, quantities, unit prices, total charges, and payment terms; and (c) certified memoranda of the Operator for such items as depreciation of Operator-owned equipment, unemployment taxes, and employee's liability insurance. The certification may be stated thus, "Certified True Copy (or Transcript)", followed by the signature of the Operator or his agent. One copy of each document should accompany the original of this voucher.

The requirement for submitting documentary evidence of claimed costs may be waived by the OME regional Executive Officer if he determines that it is impracticable for an Operator to submit this material. In any case of waiver of this requirement an "on-site" audit by an OME auditor is mandatory prior to payment of the final Operator's Monthly Voucher.

BUREAU OF MINES
JUN 14 1 50 PM '68
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6/17/68/RMS

MME FORM 61
SEPT. 1959

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

RECEIVED
JUN 10 1968
O.M.E.

OPERATOR'S PROGRESS REPORT

For Month of May 1968 Docket No. 6587

Operator's Name Development Operating Corp. Contract No. 14-23-090- 2244

OPERATION	UNITS	FOR OPERATOR'S USE: UNITS THIS MONTH	UNITS TO DATE	COSTS TO DATE	FOR GOVERNMENT USE: APPROVED UNITS THIS MONTH	APPROVED UNITS TO DATE	APPROVED COSTS TO DATE
Drifting	Ft	210	1406	$63270.00	210	1406	$63,270.00
Crosscutting							
Raising							
Shafts							
Winzes							
Other Underground							
Drilling, Core-Diamond							
Rotary							
Drilling, Non-core-Diamond							
Rotary							
Churn							
Percussion							
Miscellaneous Office X	Mo	1	10	400.00	1	10	400.00
Incid. Engr. X	Ft	210	1406	1602.84	210	1406	1602.84
Roads and Trails							
Stripping							
Trenching							
Test Pitting							
Other Surface Work							
Initial Rehabilitation and Repairs Elkhorn Shaft				7850.00			7850.00
Rehabilitation of Mine Workings 550' Level				5500.00			5500.00
New Buildings, Fixtures, etc.							
Operating Equipment Purchases							
Analytical Work Assays*				322.00			322.00
TOTAL TO DATE (per MME Form 60)				$78944.84			$78,944.84

REMARKS

* 20 Au & Ag @ $3.50 $ 70.00
Previous Total 252.00
Total to date $ 322.00

(Continue on back)

REMARKS

(Continue on back)

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 6-1-68 Operator Development Operating Corp.

Per Robt. C. Tally Title Mgr.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

I certify that the information above is complete and accurate to the best of my knowledge and belief.

Signature [illegible]

Title Field Office, Region I
Government Representative

Date JUN 12 1968

(INSTRUCTIONS ON REVERSE)

REMARKS *(Cont.)*

REMARKS *(Cont.)*

INSTRUCTIONS FOR PREPARING OPERATOR'S PROGRESS REPORT, MME FORM 61

This report is the second of the three parts of the Operator's Monthly Report. Submit the original and ~~four~~ three copies.

The cost for each operation should be the total of all claimed costs attributable to that type of work with two exceptions, namely—operating equipment purchased and analytical work which are stated separately. For example, drifting costs should be the total of all costs chargeable to drifting including supervision, technical services, timbering (if any), etc. Similarly, drilling costs should include the cost of cementing, reaming, core boxes, etc. This procedure of distribution holds whether the contract was written on an actual cost or a unit cost basis, or some combination of the two. Distribute the cost of such general items as supervision, equipment rented, etc. according to relative footages or on some other conventional basis. The item "Initial Rehabilitation and Repairs" covers all rehabilitation and/or repairs other than the rehabilitation of mined workings.

The item titled "Drilling, Non-core Percussion" includes all drilling performed with wagon, jack-hammer, stoper and mounted drills. The several items labelled "Other" are provided to take care of particular exploration operations not specified on this form.

JUN 17 1980
U.S. GEOLOGICAL SURVEY
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JUN 10 1968
U.S.G.S.
SPK. WASH.

3

Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632
6-3-68

Mr. D. R. MacLaren
Field Officer, OME
U. S. Geological Survey
U. S. Court House, Rm. 656
West 920 Riverside Ave.
Spokane, Washington 99201

Re: OME 6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract No. 2244
Narrative

Dear Mr. MacLaren:

Total drift and cross-cut footage driven for May was 206 ft. Refering to the accompanying sketch, 159' of South drifting was completed, following the 160' Structure from Station 155' of the original West X-Cut. This drift proved to be pretty much barren as confirmed by assay returns from samples taken along the drift. We have designated this drift as Working No. 8.

From Station 65' of No. 8 Drift we X-Cut a total of 45', hitting the vertical Diamond Drill Hole No. EU-17 at Station 12', dead center. At Station 37' cuttings from the drill holes showed metallic content, the beginning of a new ore body to 45' continuing on with ore in the face at the end of the month. This is a heavy, hard, siliceous ore, with very little sulphide content, varying in color from pinkish-white to light brown with inclusions of green and yellow material and assaying over a distance of 10', 4.60 - 24.20 - 66.8 oz. Ag. The vein of ore has a N-S strike with a dip of 32-37 degrees going up to the roof of the drift at Station 45'. This has been designated as Working No. 9.

From Station 142' we turned at an angle of 10 degrees SW, in order to stay in ore, for a distance of 6' (still in ore). This has been designated as Working No. 10.

We request permission to complete the additional 94' remaining of the original 1500 of proposed drift and x-cut work authorized in our contract, in Workings No. 9 & 10 and also in 4-a each of which is in ore. We also request authorization to drive the 100' of raise in the area of 9 & 10, in a separate and new ore body.

Respectively submitted,

Robt. E. Tally

Robert E. Tally

RET/fm

Signed Jones & Lawson

Field no.	Lab no.	Description	Oz. per ton Au	Oz. per ton Ag	% Cu	% Pb	% Zn	%	%	%	%	%	%
201			.001	1.10									
2			.001	0.90									
3			Trace	0.20									
4			"	0.20									
5			"	0.10									
6			"	0.30									
7			"	0.10									
8			"	0.10									
9			"	0.10									
10			0.001	1.7									

Signed Jones & Lawson

Field no.	Lab no.	Description	Oz. per ton Au	Oz. per ton Ag	% Cu	% Pb	% Zn	%	%	%	%	%	%
211			0.001	1.3									
12			0.001	1.0									
13			0.002	1.2									
14			Trace	0.3									
15			0.0005	0.8									
16			Trace	0.2									
17			0.005	4.6									
18			0.025	24.2									
19			0.0005	0.6									
20			0.055	66.8									

Assay Data - May 1968

Date	No.	Location	Sta.	Au.	Ag.	% Pb	% Zn
5-1-68	201	#8	8'	0.001	1.10		
5-1-68	202	#4-a	193'	0.001	0.90		
5-3	203	#8	13'	Tr.	0.20		
5-6	204	#8	28'	Tr.	0.20		
5-7	205	4-a	132'	Tr.	0.10		
5-7	206	4-a	137'	Tr.	0.30		
5-7	207	4-a	142'	Tr.	0.10		
5-7	208	8	33'	Tr.	0.10		
5-7	209	4-a	162'	Tr.	0.10		
5-24	210	8	10'	0.001	1.70		
5-24	211	8	20'	0.001	1.30		
5-24	212	8	30'	0.001	1.00		
5-24	213	8	40'	0.002	1.20		
5-24	214	8	50'	Tr.	0.30		
5-24	215	8	60'	0.0005	0.80		
5-24	216	8	65'	Tr.	0.20		
5-30	217	#9	37'	0.005	4.60		
5-30	218	#9	42'	0.025	24.20		
5-30	219	#8	158'	0.0005	0.60		
5-31	220	#10	7'	0.055	66.80		

GEOLOGICAL SURVEY
656 U. S. Court House
W. 920 Riverside Avenue
Spokane, Washington 99201

June 14, 1968

OFFICIAL COPY
O. M. E.
RECEIVED
JUN 17 1968

INITIALS	CODE
	130
6of	120
	110
	120

Mr. Robert E. Tally, Manager
Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632

Work Authorization

Re: OME-6587 (Silver)
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Dear Mr. Tally:

This will confirm the oral authorization given by telephone June 12, 1968, to use the remaining 94 feet of drifting to extend drifts 4(a), 9, and 10, and to raise near the junction of 9 and 10.

Sincerely yours,

D. R. MacLaren
Field Officer, OME
Region I

DRMacLaren:my

OME(2)
Director's reading file

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MME FORM 60
SEPT. 1959

MAY 6 1968

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

OFFICIAL COPY M. E. RECEIVED MAY 21 1968 INITIALS

Docket No. 6587
Contract No.
14-23-090- 2344
Contract Amount $ 6401.68
Gov't. Participation % 75 $ 4801.26
Mineral(s) Silver

OPERATOR'S MONTHLY VOUCHER For Month of April 1968

Operator's Name Development Operating Corp.
Address P. O. Box 14, Boulder, Mont. 59632

COST CATEGORIES	FOR OPERATOR'S USE			FOR GOVERNMENT APPROVAL ONLY		
	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE
Fixed Unit Costs and						
(1) Independent Contracts:						
Bulldozing						
Drifting	6165.00	47655.00	53820.00			
Crosscutting						
Drilling						
Office X	40.00	320.00	360.00			
Incld. Engr. X	156.18	1207.26	1363.44			
(2) Personal Services:						
Supervision & Technical						
Outside Consultants						
Labor						
(3) Operating Mat'l. & Supplies:						
Timber						
Explosives						
Pipe						
Rail						
Rehab. Shaft	-	7850.00	7850.00			
Rehab. Level	-	5500.00	5500.00			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehab. & Repairs:						
Buildings, Fixtures, etc.						
Operating Equipment						
(6) New Buildings, Fixtures, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Analytical Work	40.50	211.50	252.00			
Payroll Taxes						
Employee's Liability Ins.						
TOTALS	6401.68	62743.76	69145.44			

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

Date 5-1-68 *Payee Development Oper. Corp.

Per Robt. C. Tally Title Mgr.

* 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.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

(INSTRUCTIONS ON REVERSE)

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

$ 4,801.26 14X0804

Signature [illegible]
(Authorized Certifying Officer)

Date MAY 16 1968 Vou. No. 86901

(SEE OTHER SIDE)

Certification by Government Representative:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating an exploration project in accordance with the terms of Contract No. 2244

Signature D R MacKaren Title Field Officer, Region I Date MAY 7 1968

Approved by OME Executive Officer or Alternate:

Signature D R MacKaren Title Field Officer, Region I Date MAY 7 1968

OPERATOR'S MONTHLY REPORT

The Operator, under an Office of Minerals Exploration contract, is required to report monthly to the Government. The report consists of three parts.

FIRST, the Operator's Monthly Voucher on MME Form 60 listing the project costs incurred and claimed by the Operator is the voucher basis for payment of the Government's share of the cost.

SECOND, the Operator's Progress Report on MME Form 61 is a statistical report of the units and cost of of work performed under the contract.

THIRD, the Operator's Narrative Report is a concise description of the work performed, results accomplished, and any unusual situations encountered, illustrated and supported by engineering-geological maps or sketches, drill hole logs, assay reports, etc., as pertinent.

The Operator submits the original and ~~four~~ three copies of each of the three sections of this report to the OME regional Executive Officer at the end of each month during the life of the contract.

PREPARATION OF OPERATOR'S MONTHLY VOUCHER, MME FORM 60

After all applicable spaces are filled in, the Operator or his agent must sign the certification in the lower left corner. Categories (2) through (7) apply to "Actual Cost" contracts only.

Under "Fixed Unit Costs" and Category (1) report, (a) the total fixed unit costs of work performed under contract provisions for contribution by the Government on a basis of "fixed unit costs"; and (b) the claimed costs of work performed on a unit-price basis by independent contractors.

Under Category (2) include the claimed costs of all payrolled and invoiced supervisory, technical, and labor personnel, except the costs for services applicable to Categories (5) and (6).

Under Category (3) include the claimed costs of all project materials and supplies other than those used for work under Categories (5) and (6).

Under Category (4) report claimed rentals on equipment belonging to a third party, claimed payments or obligations for payments on the Operator's purchase of equipment, and claimed depreciation for the use of Operator-owned equipment.

Under Categories (5) and (6) include all claimed costs of labor, supervision, technical services, operating materials and supplies, and all other items used in (5) the initial rehabilitation and repairs of existing buildings, fixtures, installations (exclusive of mine workings), and operating equipment; and (6) the installation or construction of new buildings, fixtures, and fixed improvements (exclusive of mine workings). Do not report these costs under Categories (2), (3), (4), and (7).

Under Category (7) include all miscellaneous claimed costs such as repairs (other than initial) and maintenance of equipment, sampling and analysis, travel, communication, accounting, office expenses, and the Operator's share of payroll taxes and insurance.

Except for amounts claimed under "fixed unit costs" provisions of the contract, all costs claimed in this voucher must be supported by documentary evidence consisting of: (a) certified copies or transcripts of payrolls which list each employee, wage rate, period of employment, gross earnings, itemized deductions, and net earnings; (b) original or certified copies of invoices, statements of accounts, or purchase orders which indicate items of materials or services, quantities, unit prices, total charges, and payment terms; and (c) certified memoranda of the Operator for such items as depreciation of Operator-owned equipment, unemployment taxes, and employee's liability insurance. The certification may be stated thus, "Certified True Copy (or Transcript)", followed by the signature of the Operator or his agent. One copy of each document should accompany the original of this voucher.

The requirement for submitting documentary evidence of claimed costs may be waived by the OME regional Executive Officer if he determines that it is impracticable for an Operator to submit this material. In any case of waiver of this requirement an "on-site" audit by an OME auditor is mandatory prior to payment of the final Operator's Monthly Voucher.

BUDGET & FINANCE
MAY 10 2 30 PM 68
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83744

6/9/68/RMJ.

MME FORM 61
SEPT. 1959

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MAY 6 1968

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

OPERATOR'S PROGRESS REPORT For Month of April 1968 Docket No. 6587

Operator's Name Development Operating Corp. Contract No. 14-23-090- 2244

OPERATION	UNITS	FOR OPERATOR'S USE: UNITS THIS MONTH	UNITS TO DATE	COSTS TO DATE	FOR GOVERNMENT USE: APPROVED UNITS THIS MONTH	APPROVED UNITS TO DATE	APPROVED COSTS TO DATE
Drifting	Ft.	137	1196	53820.00	137	1196	53,820.00
Crosscutting							
Raising							
Shafts							
Winzes							
Other Underground							
Drilling, Core-Diamond							
Rotary							
Drilling, Non-core-Diamond							
Rotary							
Churn							
Percussion							
Miscellaneous Office X	No.	40	9	360.00	1 mo	9 mos	360.00
Incid. Engr. X	Ft.	137	1196	1363.44	137	1196	1,363.44
Roads and Trails							
Stripping							
Trenching							
Test Pitting							
Other Surface Work							
Initial Rehabilitation and Repairs AY-Elkhorn Shaft				7850.00			7,850.00
Rehabilitation of Mine Workings 550' Level				5500.00			5,500.00
New Buildings, Fixtures, etc.							
Operating Equipment Purchases							
Analytical Work Assays				252.00			252.00
TOTAL TO DATE (per MME Form 60)				69145.44			69,145.44

REMARKS

8 Au & Ag @ $3.50 $28.00
5 Pb @ 2.50 12.50
No. Total 40.50
Previous Total 211.50
Total to Date $252.00

(Continue on back)

REMARKS

(Continue on back)

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 5-1-68 Operator Development Oper. Corp.

Per Robt E. Tooley Title Mgr.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

I certify that the information above is complete and accurate to the best of my knowledge and belief.

Signature D. R. MacKaren

Title Field Officer, Region I
Government Representative

Date MAY 7 1968

(INSTRUCTIONS ON REVERSE)

REMARKS *(Cont.)*

REMARKS *(Cont.)*

INSTRUCTIONS FOR PREPARING OPERATOR'S PROGRESS REPORT, MME FORM 61

This report is the second of the three parts of the Operator's Monthly Report. Submit the original and ~~four~~ three copies.

The cost for each operation should be the total of all claimed costs attributable to that type of work with two exceptions, namely—operating equipment purchased and analytical work which are stated separately. For example, drifting costs should be the total of all costs chargeable to drifting including supervision, technical services, timbering (if any), etc. Similarly, drilling costs should include the cost of cementing, reaming, core boxes, etc. This procedure of distribution holds whether the contract was written on an actual cost or a unit cost basis, or some combination of the two. Distribute the cost of such general items as supervision, equipment rented, etc. according to relative footages or on some other conventional basis. The item "Initial Rehabilitation and Repairs" covers all rehabilitation and/or repairs other than the rehabilitation of mine workings.

The item titled "Drilling, Non-core Percussion" includes all drilling performed with wagon, jack-hammer, stoper and mounted drills. The several items labelled "Other" are provided to take care of particular exploration operations not specified on this form.

MAY 10 2 00 PM '68
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8 3 7 4 4

RECEIVED
MAY 6 1968

Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632
5-2-68

Mr. D. R. MacLaren
Field Officer, OME
U.S. Geological Survey
U.S. Court House, Rm. 656
West 920 Riverside Ave.
Spokane, Washington 99201

Re: OME 6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract No. 2244
Narrative

Dear Mr. MacLaren:

We drove 137' total in Drifts No. 4 and No. 4-a during the month of April, 1968.

In Drift No. 4 we drove forward along about the same course an additional 50.0' or a total of 216.0'. From the big water course, encountered in Drifts Nos. 2 and 5 and in No. 4, at about Station 160, the ground is brecciated, blocky, and with drilling and blasting is so broken up it required 16 sets of drift sets to the face. Sample No. 993 taken in the face at 216' assayed 3.8 oz. Ag./T, although one can't tell it by visual inspection. What we took for a large fault zone may very well be a large brecciated area. We will resample and if confirmed return to this area as it could lead to an ore body. We stopped work here previous to assay returns.

Our next move was to station 106' in No. 4 Drift driving straight ahead in what we term No. 4-a a distance of 87.0', encountering some very nice ore. This ore is unusual in that it varies from sulphides to oxides, making for a complex mill recovery. Samples have been taken to the face, the returns of which are awaited with interest as Ag. content is not readily perceptable to the eye, with glass, although it does pan a small amount of Pb. We plan on sampling at 5.0' intervals in 4-a to give us a complete return.

Geology is being plotted for the work done to date and will be forthcoming shortly.

After intermittent snow storms, we now have a spell of warm, clear, sunny days.

Respectfully submitted,

Robert E. Tally

Robert E. Tally

RET/fm

Signed Jones & Lawson

Field no.	Lab no.	Description	Oz. per ton Au	Oz. per ton Ag	% Cu	% Pb	% Zn	%	%	%	%	%	%
993	4A-	216 DET	0.002	3.8		0.45							
994	4A-	113	0.045	28.0		10.3							
995	4A-	118	0.225	151.7		15.0							
996	4A-	122	0.005	4.4		3.15							
997	4A-	127	0.125	88.4		4.55							
998			0.030	30.4									
999			0.005	5.0									
1000			0.012	13.6									

				Quiet			
				Cu.			Cu.⊗
4-16	993	4-	216	0.002	3.8	0.45	—
4-17	994	4-0	113	0.045	28.0	10.30	—
4-18	995	4-0	118	0.225	151.7	15.00	
4-19	996	4-0	122	0.005	4.4	3.15	
4-19	997	4-0	127	0.125	28.7	4.55	
4-20	998	4-0	[illegible]	0.030	30.4	—	—
4-24	999	4-0	158	0.005	5.0	—	—
4-25	1000	4-0	168	0.012	13.6	—	—

⊗From appearance of cores.

MME FORM 60
SEPT. 1959

RECEIVED
APR 15 1968

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

OFFICIAL CORRESPONDENCE
O. M. E.
RECEIVED
MAY 1968
INITIALS

OPERATOR'S MONTHLY VOUCHER

For Month of March 1968

Docket No. 6587
Contract No. 14-23-090-2244
Contract Amount $ 7073.14
Gov't. Participation % 75 $ 5304.86
Mineral(s) Silver

Operator's Name Development Operating Corporation
Address P. O. Box 14, Boulder Montana

COST CATEGORIES	FOR OPERATOR'S USE			FOR GOVERNMENT APPROVAL ONLY		
	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE
Fixed Unit Costs and						
(1) Independent Contracts:						
Bulldozing						
Drifting	6795.00	40860.00	47655.00			
Crosscutting						
Drilling						
Office Exp.	40.00	280.00	320.00			
Incid. Engr. X.	172.14	1035.12	1207.26			
(2) Personal Services:						
Supervision & Technical						
Outside Consultants						
Labor						
(3) Operating Mat'l. & Supplies:						
Timber						
Explosives						
Pipe						
Rail						
Rehab Shaft	-	7850.00	7850.00			
Rehab Level	-	5500.00	5500.00			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehab. & Repairs:						
Buildings, Fixtures, etc.						
Operating Equipment						
(6) New Buildings, Fixtures, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Analytical Work	66.00	145.50	211.50			
Payroll Taxes						
Employee's Liability Ins.						
TOTALS	7073.14	55670.62	62743.76			

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

Date 4-3-68 *Payee Development Oper. Corp.

Per Robt. C. Talley Title Mgr.

* 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.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

(INSTRUCTIONS ON REVERSE)

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

$ 5,304.85 14X0804

Signature John
(Authorized Certifying Officer)

Date MAY 7 1968 Vou. No. 867

(SEE OTHER SIDE)

Certification by Government Representative:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating an exploration project in accordance with the terms of Contract No. 2244

Signature D.H. MacKaven Title Field Officer, Region I Date APR 26 1968

Approved by OME Executive Officer or Alternate:

Signature D.H. MacKaven Title Field Officer, Region I Date APR 26 1968

OPERATOR'S MONTHLY REPORT

The Operator, under an Office of Minerals Exploration contract, is required to report monthly to the Government. The report consists of three parts.

FIRST, the Operator's Monthly Voucher on MME Form 60 listing the project costs incurred and claimed by the Operator is the voucher basis for payment of the Government's share of the cost.

SECOND, the Operator's Progress Report on MME Form 61 is a statistical report of the units and cost of of work performed under the contract.

THIRD, the Operator's Narrative Report is a concise description of the work performed, results accomplished, and any unusual situations encountered, illustrated and supported by engineering-geological maps or sketches, drill hole logs, assay reports, etc., as pertinent.

The Operator submits the original and ~~four~~ three copies of each of the three sections of this report to the OME regional Executive Officer at the end of each month during the life of the contract.

PREPARATION OF OPERATOR'S MONTHLY VOUCHER, MME FORM 60

After all applicable spaces are filled in, the Operator or his agent must sign the certification in the lower left corner. Categories (2) through (7) apply to "Actual Cost" contracts only.

Under "Fixed Unit Costs" and Category (1) report, (a) the total fixed unit costs of work performed under contract provisions for contribution by the Government on a basis of "fixed unit costs"; and (b) the claimed costs of work performed on a unit-price basis by independent contractors.

Under Category (2) include the claimed costs of all payrolled and invoiced supervisory, technical, and labor personnel, except the costs for services applicable to Categories (5) and (6).

Under Category (3) include the claimed costs of all project materials and supplies other than those used for work under Categories (5) and (6).

Under Category (4) report claimed rentals on equipment belonging to a third party, claimed payments or obligations for payments on the Operator's purchase of equipment, and claimed depreciation for the use of Operator-owned equipment.

Under Categories (5) and (6) include all claimed costs of labor, supervision, technical services, operating materials and supplies, and all other items used in (5) the initial rehabilitation and repairs of existing buildings, fixtures, installations (exclusive of mine workings), and operating equipment; and (6) the installation or construction of new buildings, fixtures, and fixed improvements (exclusive of mine workings). Do not report these costs under Categories (2), (3), (4), and (7).

Under Category (7) include all miscellaneous claimed costs such as repairs (other than initial) and maintenance of equipment, sampling and analysis, travel, communication, accounting, office expenses, and the Operator's share of payroll taxes and insurance.

Except for amounts claimed under "fixed unit costs" provisions of the contract, all costs claimed in this voucher must be supported by documentary evidence consisting of: (a) certified copies or transcripts of payrolls which list each employee, wage rate, period of employment, gross earnings, itemized deductions, and net earnings; (b) original or certified copies of invoices, statements of accounts, or purchase orders which indicate items of materials or services, quantities, unit prices, total charges, and payment terms; and (c) certified memoranda of the Operator for such items as depreciation of Operator-owned equipment, unemployment taxes, and employee's liability insurance. The certification may be stated thus, "Certified True Copy (or Transcript)", followed by the signature of the Operator or his agent. One copy of each document should accompany the original of this voucher.

The requirement for submitting documentary evidence of claimed costs may be waived by the OME regional Executive Officer if he determines that it is impracticable for an Operator to submit this material. In any case of waiver of this requirement an "on-site" audit by an OME auditor is mandatory prior to payment of the final Operator's Monthly Voucher.

4/30/68/Rm 8.

MME FORM 61
SEPT. 1959

RECEIVED
APR 15 1968

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

OPERATOR'S PROGRESS REPORT For Month of March 1968 Docket No. 6587

Operator's Name Development Operating Corp. Contract No. 14-23-090-2244

OPERATION	UNITS	FOR OPERATOR'S USE: UNITS THIS MONTH	UNITS TO DATE	COSTS TO DATE	FOR GOVERNMENT USE: APPROVED UNITS THIS MONTH	APPROVED UNITS TO DATE	APPROVED COSTS TO DATE
Drifting	Ft.	151	1059	47655.00	151	1059	47,655.00
Crosscutting							
Raising							
Shafts							
Winzes							
Other Underground							
Drilling, Core-Diamond							
Rotary							
Drilling, Non-core-Diamond							
Rotary							
Churn							
Percussion							
Miscellaneous Office X.	Mo.	1	8	320.00	1	8	320.00
Incid. Engr. X.	Ft.	151	1059	1207.26	151	1059	1,207.26
Roads and Trails							
Stripping							
Trenching							
Test Pitting							
Other Surface Work							
Initial Rehabilitation and Repairs Elkhorn Shaft				7850.00			7,850.00
Rehabilitation of Mine Workings 550' Level				5500.00			5,500.00
New Buildings, Fixtures, etc.							
Operating Equipment Purchases							
Analytical Work Assays*				211.50			211.50
TOTAL TO DATE (per MME Form 60)				62743.76			62,743.76

REMARKS *Assays: 16 Au @ $3.50 = $56.00
4 Pb @ 2.50 = 10.00
Mo. Total $ 66.00
Previous Total 145.50
Total to Date 211.50

(Continue on back)

REMARKS

(Continue on back)

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 4-3-68 Operator Development Oper. Corp.

Per Robt. C. Tally Title Mgr.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

I certify that the information above is complete and accurate to the best of my knowledge and belief.

Signature [illegible]

Title Field Officer, Region 1
Government Representative

Date APR 26 1968

(INSTRUCTIONS ON REVERSE)

REMARKS *(Cont.)*

REMARKS *(Cont.)*

INSTRUCTIONS FOR PREPARING OPERATOR'S PROGRESS REPORT, MME FORM 61

This report is the second of the three parts of the Operator's Monthly Report. Submit the original and ~~four~~ three copies.

The cost for each operation should be the total of all claimed costs attributable to that type of work with two exceptions, namely—operating equipment purchased and analytical work which are stated separately. For example, drifting costs should be the total of all costs chargeable to drifting including supervision, technical services, timbering (if any), etc. Similarly, drilling costs should include the cost of cementing, reaming, core boxes, etc. This procedure of distribution holds whether the contract was written on an actual cost or a unit cost basis, or some combination of the two. Distribute the cost of such general items as supervision, equipment rented, etc. according to relative footages or on some other conventional basis. The item "Initial Rehabilitation and Repairs" covers all rehabilitation and/or repairs other than the rehabilitation of mine workings.

The item titled "Drilling, Non-core Percussion" includes all drilling performed with wagon, jack-hammer, stoper and mounted drills. The several items labelled "Other" are provided to take care of particular exploration operations not specified on this form.

Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632
4-3-68

Mr. D. R. MacLaren
Field Officer, OME
U. S. Geological Survey
U. S. Court House, Room 656
West 920 Riverside Ave.
Spokane, Washington 99201

Re: OME 6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract No. 2244
Narrative

Dear Mr. MacLaren:

Our progress for March in the South Drift is 151' of drifting, encountering some 56' of silver ore having a weighed average of approximately 20.0 oz. silver.

We holed through to the bottom of the Sophia Winze from Station 92 in the form of a raise at an angle of 50 degrees and a sloped distance of 8.0'. At Station 89 we intercepted Diamond Drill Hole No. 32 having a measured dip of 42 degrees.

From Station 184 of the South Drift we have driven 166' -50 in a general SE-SW direction to directly under the Sophia Ore Body, as mapped by Mentor Engineers. We are now driving toward the vertical projection of the Sophia Shaft from the 110' level, to the drift level, in which vicinity there is a good expectancy of finding ore. We have encountered the fault zone at 137' in the form of several parallel, narrow, dry, sandy filled seams dipping 72 degrees, to the face where the ground is broken, white dolomite with black, mineral like spots, which may turn out to be ore. In those areas of access in the old Sophia workings, it has been most difficult to pick up dips and strikes because of the crude method of extraction and overbreaking the ore. There is some thought that this could be a vertical pipe from the 65' level on down west of the Sophia Shaft. Identification No. 2.

We have driven 22.0' NW 35 degrees from Station 184 plus 11', the samples of which assayed 0.4 to 1.0 oz. of silver per ton. Identification No. 6.

Another 8.0' was driven from Station 100' near the Sophia Raise in a SW 60 degrees direction running out of ore. Identification No. 7.

Our compressor was down for four days undergoing repairs and is now back in good working order.

The weather continues wintery with occasional snow fluries and temperatures below 32 degrees with open access to the mine so far.

For reasons of simplification of terminology and identification of the various drifts and x-cuts driven on this exploration program the following identifying numerology has been set up:

Number	Description
1.	The West x-cut, 530' length.
2.	The South Drift from Station 345 of 1. - 233' length
3.	From Station 184 of 2., NW 78 degrees for 35.0'
4.	From Station 184 of 2., SE 20 degrees for 106'; 11 degrees SW to Station 136' and then 25 degrees SW to face at 166'
5.	From Station 24' of 4., SW 40 degrees for 45.0'
6.	From Station 11' of 3., NW 35 degrees for 22.0'
7.	From Station 100 of 4., SW 60 degrees for 8.0'

Respectfully submitted,

Robt. E. Tally

Robt. E. Tally
4-1-68

RET/ fm

Certified true copy
R.E.T.

RECEIVED
APR 5 1968
O.M.E.
SPOKANE, WASH.

Assay Data March 1968

Date	Sample No.	Loc.	Sta.	Symbol	oz. Au.	oz. Ag	% Pb	% Zn
3-4-68	977	S.E. Drift	55'	4	0.006	7.8	–	–
3-5	978	✓	67'	4	0.006	7.3	–	–
3-6	979	✓	72'	4	0.012	12.5	–	–
3-1	980	✓	50'	4	0.006	6.4	1.20	–
3-7	981	✓	80'	4	0.024	26.65	5.50	–
3-7	982	✓	85'	4	0.050	100.0	1.20	–
3-7	983	✓	90'	4	0.020	22.8	–	–
3-8	984	✓	97'	4	0.003	3.0	–	–
3-11	985	✓	102'	4	0.015	17.0	0.85	–
3-12	986	✓	106'	4	0.020	13.5	–	–
3-15	987	✓	126'	4	0.010	0.8	–	–
3-15	989	✓	133'	4	Tr.	0.2	–	–
	988	NW+11'	7'	6	0.005	0.4	–	–
3-25	990	✓	12'	6	0.001	1.0	–	–
3-26	991	✓	17'	6	0.001	0.60	–	–
3-27	992	✓	22	6	0.0005	0.40	–	–

16 Au + Ag. assays
4 Pb ✓
20 Total ✓

Signed: Jones & Lawson

Field no.	Lab no.	Description	Oz. per ton Au	Oz. per ton Ag	% Cu	% Pb	% Zn	%	%	%	%	%	%
977		S.E. 70 55'	0.006	7.8									
8		67'	0.006	7.3									
9		72'	0.012	12.5									
980		50''	0.006	6.40		1.2							
1		80'	0.024	26.65		5.5							
2		85'	0.050	100.0		1.2							
3		89'	0.020	22.8									
4		98'	0.003	3.0									
985		102'	0.015	17.0		0.85							
6		4'	0.020	13.5									
7		26'	0.001	9.80									
8		35 NE 7'	0.005	0.40									
9		33'	Trace	0.20									
990		12'	0.001	1.00									

Department:

Signed: Jones & Lawson

Field no.	Lab no.	Description	Oz. per ton Au	Oz. per ton Ag	% Cu	% Pb	% Zn	%	%	%	%	%	%
991		17'	0.001	0.60									
992		22'	0.0005	0.40									

(Mel 2)

GEOLOGICAL SURVEY
U. S. Court House, Rm. 656
W. 920 Riverside Avenue
Spokane, Washington 99201
April 10, 1968

OFFICIAL COPY
O. M. E.
RECEIVED
APR 12 1968
INITIALS | CODE
130
120
110
130

Mr. Robert E. Tally, Manager
Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632

Re: OME-6587 (Silver)
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Dear Mr. Tally:

I regret the necessity of returning the original and three copies of Forms MME 60 and 61 for corrections as follows:

1. In the MME Form 61, section headed "For Operator's Use," last column to the right is headed "Costs to Date." All entries in this section appear to be correct until we come to Analytical Work which, according to our records, should be $211.50 not $66.00.

2. Same Form and section, bottom line calls for "Total to Date (per Form MME 60)." On Form MME 60, under "Totals to Date" opposite "Analytical Work" you show $211.50 and on the last line your "Total" of "Totals to Date" is $62,743.76, which would not agree with the final "Total to Date" on MME Form 61 had the "Cost to Date" column been totalled.

3. You will note on the back of MME Form 60 that there is a Certification that must be executed by a Government Representative, and that on the back of MME Form 61 there is space reserved for "Remarks" that often must be entered. Therefore, the photostatic copies of these forms are not acceptable. Presumably, you have run out of forms and for your use there are enclosed a three-month supply along with an extra set for the above corrections necessary for the month of March.

There is no problem with respect to the supporting data which we will keep here. I have indicated in pencil on one copy of the MME Form 61 the problem area.

Sincerely yours,

D. R. MacLaren
Field Officer, OME, Region I

Enclosures

DRMacLaren/mls
cc: OME(2) Director's Reading File
Voucher File

Ome 2-1

GEOLOGICAL SURVEY
U. S. Court House, Rm. 656
W. 920 Riverside Avenue
Spokane, Washington 99201
April 10, 1968

OFFICIAL COPY
O. M. E.
RECEIVED
APR 12 1968

SINTRANS	CONE
	100
bol	120 M
JR J	110
RMJ	120 S

Mr. Robert E. Tally, Manager
Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632

Re: Work Authorization
OME-6587 (Silver)
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Dear Mr. Tally:

This will confirm oral authorization given by telephone March 26, 1968, to start a drift southerly along the 160-foot contact at which we looked during my interim inspection March 8.

Based on presently available data 160 feet of drift along this contact should suffice and no more drifting than that is authorized at this time. About 60 to 70 feet from the start of this drift authorization is also given to drive a crosscut to intersect diamond drill hole 17 which showed 3.5 feet assaying 13.4 ounces silver per ton.

Sincerely yours,

D. R. MacLaren
Field Officer, OME
Region I

DRMacLaren/mls
cc: OME(2)
Voucher File
Director's Reading File

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
GEOLOGICAL SURVEY
U. S. Court House, Rm. 656
W. 920 Riverside Avenue
Spokane, Washington 99201
March 25, 1968

OFFICIAL COPY
O. M. E.
RECEIVED
MAR 26 1968
INITIALS | CODE
gla 1130
bsf 1120 M
FEB 1110
Rms 1130 S

Memorandum

To: Chief, Office of Minerals Exploration

From: Field Officer, Region I

Subject: Interim Inspection
OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

The project was inspected March 8, 1968, in the company of Robert E. Tally, General Manager, and David D. Walker, Mining Engineer-Geologist. The crosscut west has been driven 531 feet; the drift south, 233 feet. From the drift south crosscut 1W has been driven 5 feet; crosscut 2W 35 feet; crosscut 1E, 101 feet; and drift SW from crosscut 1S, 44 feet for a total advance of 949 feet.

Although no mineral other than weak iron oxide stains could be identified in the crosscut, bedding contacts could be distinguished, some with difficulty, at about 60 feet (80-ft. contact), at 165 feet (160-ft. contact), at 195 feet (230-ft. contact) and at 365 feet (360-ft. contact). The crosscut ends in a N. 50° W. striking, 80° NE. dipping fault and water course, now essentially drained. Caving and debris washed out of the fault obscures the end of the crosscut but several irregularly shaped voids and channels were seen along the hanging wall. This probably represents the 480-foot contact zone and, if so, it is barren in the immediate area.

The 360-foot contact in the crosscut showed no mineralization but because of the strike, S. 75° W. and dip 30° SE. at least locally, it would lead to the area of the Sophia ore body, this seemed to be the best structure to follow. The "contact" bedding was difficult to follow and at 30 feet a 5-foot round was blasted to the west (XC 1W) disclosing another bedding plane. After driving this portion of drift for about 115 feet, the heading was turned to S. 45° W. and was driven about 113 feet. About 55 to 95 feet from the turn an ore-bearing zone was crossed. From this zone seven muck car samples ranged in grade from 1.80 to 66.10 ounces silver per ton and indicated an average grade of 15.48 ounces silver per ton. Of these

samples, six assayed for lead, ranged in grade from 0.10 to 2.50 percent and averaged 1.39 percent.

To explore this mineral zone further crosscuts 2W and 1E were driven. From XC 2W eight muck samples ranged in grade from 2.10 to 34.90 ounces silver per ton and indicated an average grade of 16.25 ounces silver per ton. Of these samples, six assayed for lead, ranged in grade from 0.10 to 3.10 percent and averaged 1.09 percent. From XC 1E six muck samples ranged in grade from 8.0 to 23.70 ounces silver per ton. Of these samples, five assayed for lead ranged in grade from 1.1 to 4.0 percent and averaged 2.32 percent. For the approximate limits of this ore shoot see the sketch accompanying the Operator's February 1968 progress report.

In XC 1E, about 90 feet from its start, the examiner took a chip sample of an obviously high grade showing on the southwest wall. It assayed 0.02 ounce gold and 70.0 ounces silver per ton and 0.40 percent copper. Thus, it appears that the XC 1E is entering another potential ore zone.

Mineralization is replacement in dolomite and is essentially silver bromides, chlorides, etc., with some galena in a gangue of coarsely crystalline dolomite and some pyrite. Tetrahedrite and sphalerite reported elsewhere in the mine were not identified.

It is the intent of the Operator to continue XC 1E until he passes through the Sophia ore zone and possibly to raise on the first showing described above. The question of drifting on the 80, 160, or 230 contact was discussed with Tally and Walker, and the Operator's preference is discussed in a letter dated March 11, 1968, from Walker to Tally. A copy of this letter with an explanatory plan sketch was forwarded to you March 13, 1968.

The 80-foot contact is represented by a tight silicified breccia zone about 3 feet wide that strikes nearly N-S and dips 36° E. The footwall is marked by 1 to 2 inches of thin beds moderately stained by iron oxide; the hanging wall is irregular. Between some of the breccia fragments is a very fine-grained, dark mineral, unidentifiable with a hand lens, although one or two specks are believed to be pyrite. Samples taken by the Operator at 57 and 59 feet assayed respectively 0.38 and 0.10 ounce silver per ton. About 150 feet north of the OME crosscut, an old crosscut had been driven westerly on the 550 level to the 80-foot contact. At the end of the crosscut an inaccessible raise had been driven on the contact, and a level drift had been driven along it for about 80 feet to the south. No metallic minerals were found in the drift which ends within 70 feet or so of the OME crosscut west. Possibly, the raise connects with a stope on the 80-foot contact that extends approximately 20 to 30 feet below the 450 level.

Below the 550 level diamond drill holes 6, 9, 12, 13, 15, and 16 all crossed the 80-foot contact. Allowing for swings in dip and strike of the bedding contact zones and in the bearings and inclinations of the holes, the drill hole data for this contact zone below the level may be summarized:

seams lead to ore bodies

Hole	Horiz.dist. from 550 XC	Vert. dist. from 550 XC	Assays or Remarks
6	160' N	45' below	1.7' 1.6 Ag 0.15 Pb 0.2 Zn
	"	52' below	1.3' 0.5 Ag 0.1 Pb 0.15 Zn
9	68' N	25' below	1.0' Tr Ag Tr Pb Tr Zn
12	8' N	60' below	2.2' 0.2 Ag 0.02 Pb Tr Zn
13	15' S	8' below	No assays. Broken core 20' to 40' in hole; ½" brick red strs at 35' and 43'.
15	20' S	18' below	No assays. Wh. dolo. broken core 25' to 52'.
16	220' N	10' below	No assays. Pale grey hard silic. dolomite. Speckled 46' to 47'.

The 160-foot contact is a tight breccia zone about a foot wide that strikes S. 5° E. and dips 27° SE. Unidentified hard dark mineral seams up to 1/16th inch thick lace the zone. This contact was identified in the Sophia 110 level easterly crosscut as a series of thin beds devoid of any sign of mineral. No ore bodies along it are known to have been found, above the 1650 level; this is not to say that none exist.

Referring to Plate 3 which accompanied the Field Examination Report dated May 11, 1967, this contact falls very close to the indicated hanging wall of the 230 contact. The probable location of the 230 contact in the 550 crosscut is only about 30 feet west of the 160 contact. The 230 contact in the crosscut has the appearance of a tight jointing plane but its strike of N. 15° W., dip of 37° NE., its proximity to the location of the 230 contact projected from the Sophia 110 level, and its distance from the main contact all contribute to its identification. As an area of exploration the two contacts will be considered as one potentially ore-bearing zone some 30 feet wide. On the Sophia 110 level six samples from the 230 contact representing a strike length of about 35 feet have an average grade of 4.68 ounces silver per ton and 0.21 percent lead across an average width of 3.92 feet. In plan this exposure is from 165 to 200 feet south of the

contact on the 550 level. Below the 550 level the 160-230 zone has been crossed by diamond drill holes 11, 12, 13, 14, 15, 16, and 17, the data from which may be summarized:

Hole	Horiz.dist. from 550 XC	Vert. dist. from 550 XC	Assays or Remarks
11	0-10' N	45' above	No assays. No evid. of contact or minl.
12	5' N	105' below	Minl. dolo. w/3.5" qtz and minl brecc. 3.2' 0.28 Ag, 0.08 Pb 0.08 Zn
13	65' S	23' below	Qtz-dolo. brecc. 3.7' 7.17 Ag, 0.1 Pb, 0.1 Zn (1.0' 21.7 Ag, 0.4 Pb, 0.2 Zn)
	70' S	26' below	Qtz-dolo. brecc. 3.1' 25.3 Ag 1.0 Pb, 2.6 Zn
14	20' N	45' above	1/8" minl. seam, slight brecc. No assays.
15	100' S	70' below	Brn. minl. qtz. 1.6' 1.2 Ag, 0.1 Pb, 0.3 Zn
16	130' N	40' below	No evid. of cont. or minl. No assay.
17	80' S	15' below	Silic. dolo., qutz strs., 2.8' 1.84 Ag, 0.32 Pb, 1.32 Zn (3.5" 13.4 Ag, 1.6 Pb, 3.1 Zn)

In view of the foregoing it appears that the 160- to 230-foot contact zone offers a better target area than the 80-foot contact zone. Because the assays from hole 13 appear to be nearer to the 160 contact, and because that contact should be easier to follow, the Operator will be authorized to drift 160 feet southerly along this contact. To explore the showing in hole 17 he will also be authorized to crosscut west at 60 to 70 feet from the start of the drift.

D. R. MacLaren

Distribution:
OME (Orig.&1)
Docket

FORM 6 REFERENCE SLIP
2-59 OFFICE OF MINERALS EXPLORATION

	DATE	INITIALS
1. Chief, OME		
Re OME-6587 (Silver)		
2. Development Operating Corp		
Elkhorn Mine		
3. Jefferson County Montana		
Contract 22A4		
4.		
5.		
FROM: DDMacKenzie		

FOR: Check items for action desired

___ Action	___ Reply for signature of ___	___ Surname
___ Approval	___ Investigate	___ Signature
___ Comment	___ Recommendations	___ File
___ Conference	___ Rewrite	
___ Instructions	X Your information	

REMARKS: Will discuss this in Inspection Report to be prepared

GOVT. PRINT. OFF. SUP. SEC., WASH., D.C. M56300-62

P.O. Box 14
Boulder, Montana 59632
3-12-67

OFFICIAL
COPY
O. M. E.
RECEIVED
MAR 15 1968
INITIALS | CODE
| 120
| 110
| 120 S

Mr. D.R. MacLaren
Field Officer, OME
U.S. Geological Survey
U.S. Court House, Room 656
West 920 Riverside Ave.
Spokane, Washington 99201

Re: OME 6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract No.2244
Exploration Authorization.

Dear Mr. MacLaren:

Enclosed herewith please find two copies of Mr. D.D. Walkers recommendation of proposed future exploration in the form of X-cutting & drifting on the above contract. This is all in accordance with our conversations regarding this matter during the past week at the time of your inspection visit to the mine.

We would very much appreciate your consideration in this respect so that we may properly plan our work & utilize our crew to the best advantage.

It was good to see you out here & we look forward to your next visit.

Yours most sincerely,

Robt. E. Tally

Robt. E. Tally
Encl.

1114 Maryland
Butte, Montana
March 11, 1968

Mr. Robert E. Tally, Manager
Elkhorn Mine
Development Operating Co.
Boulder, Montana

Dear Bob:

In considering the problem of where to use the remaining drift and crosscut footage under the OME contract I have come to the conclusion that the two most promising locations are the 160' and 80' contacts south of the OME 550XW. This conclusion is based on the diamond drill hole intercepts, my own geological mapping, many inspection trips underground, and information obtained from the "King" and "Weed" reports.

The 160' contact should be explored first as it appears to be the better of the two. It is well exposed by the OME 550 XW; it has been intersected by DDH 13 and DDH 17, DDH 13 cut 3.5 ' of 25 oz. silver ore. I suggest following the 160' contact southerly for about 155' to expose the possible ore shoot in this area (see accompanying sketch). At 70' from the collar of the 160' contact drift run about 25' of crosscut on a heading of S65W to pick up the ore zone indicated by DDH 17.

Remaining footage should be expended by drifting south along the 80' contact. This also is well exposed in the OME 550XW. It was cut by DDH's 12, 13, and 15; and although no ore was shown by these holes they do show that the structure is strong and getting stronger to the south. It is possible that 100' to 150' of drifting would expose an ore shoot.

Ore zones were plotted by projecting DDH intercepts from their actual elevation to the elevation of the OME 550XW using an assumed dip of 40 degrees. Until there are actual ore exposures in this area so true dips can be taken 40 degrees appears to be the best dip to use. These projections tie well with the exposures in the OME 550XW.

Exploration North of the OME 550XW is not to be considered at this time because the drill hole logs show no ore, and little promising structure in this area. Also on the 80' contact most of the available ground has been stoped.

Sincerely yours,

David D. Walker
Mining Engineer
and Geologist

MME FORM 60
SEPT. 1959

RECEIVED
MAR 11 1968
O. M. E.

OFFICIAL COPY RECEIVED MAR 22 1968 INTS CODE 210 130 1201 110 Rms 1205

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

OPERATOR'S MONTHLY VOUCHER

For Month of Feb. 1968

Docket No. 6587
Contract No. 14-23-090-4-2224
Contract Amount $ 6158.34
Gov't. Participation % 75 $ 4618.76
Mineral(s) Silver

Operator's Name Development Operating Corp.
Address P.O. Box 14, Boulder, Montana

COST CATEGORIES	FOR OPERATOR'S USE			FOR GOVERNMENT APPROVAL ONLY		
	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE
Fixed Unit Costs and						
(1) Independent Contracts:						
Bulldozing						
Drifting	5895.00	11070.00	16965.00			
Crosscutting	-	23895.00	23895.00			
Drilling						
Inold. X Engr.	149.34	885.78	1035.12			
(2) Personal Services:						
Supervision & Technical						
Outside Consultants						
Labor						
(3) Operating Mat'l. & Supplies:						
Timber						
Explosives						
Pipe						
Rail						
Rehab. Shaft	-	7850.00	7850.00			
Rehab. Level	-	5500.00	5500.00			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehab. & Repairs:						
Buildings, Fixtures, etc.						
Operating Equipment						
(6) New Buildings, Fixtures, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Analytical Work 24 assays	74.00	75.50	149.50		71.50	145.50
Payroll Taxes						
Employee's Liability Ins.						
Office X	40.00	240.00	280.00			
TOTALS	6158.34	49516.28	55674.62		49,512.28	55,670.62

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

Date 3-1-68 *Payee Development Operating Corp.

Per Geo. C. Talley Title Mgr.

* 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.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

(INSTRUCTIONS ON REVERSE)

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

$ 4,618.75 14X0804

Signature John
(Authorized Certifying Officer)

Date MAR 21 1968 Vou. No. 85816

(SEE OTHER SIDE)

Certification by Government Representative:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating an exploration project in accordance with the terms of Contract No. 2224

Signature D R MacLaren Title Field Officer, Region I Date MAR 12 1968

Approved by OME Executive Officer or Alternate:

Signature D R MacLaren Title Field Officer, Region I Date MAR 12 1968

OPERATOR'S MONTHLY REPORT

The Operator, under an Office of Minerals Exploration contract, is required to report monthly to the Government. The report consists of three parts.

FIRST, the Operator's Monthly Voucher on MME Form 60 listing the project costs incurred and claimed by the Operator is the voucher basis for payment of the Government's share of the cost.

SECOND, the Operator's Progress Report on MME Form 61 is a statistical report of the units and cost of of work performed under the contract.

THIRD, the Operator's Narrative Report is a concise description of the work performed, results accomplished, and any unusual situations encountered, illustrated and supported by engineering-geological maps or sketches, drill hole logs, assay reports, etc., as pertinent.

The Operator submits the original and ~~four~~ three copies of each of the three sections of this report to the OME regional Executive Officer at the end of each month during the life of the contract.

PREPARATION OF OPERATOR'S MONTHLY VOUCHER, MME FORM 60

After all applicable spaces are filled in, the Operator or his agent must sign the certification in the lower left corner. Categories (2) through (7) apply to "Actual Cost" contracts only.

Under "Fixed Unit Costs" and Category (1) report, (a) the total fixed unit costs of work performed under contract provisions for contribution by the Government on a basis of "fixed unit costs"; and (b) the claimed costs of work performed on a unit-price basis by independent contractors.

Under Category (2) include the claimed costs of all payrolled and invoiced supervisory, technical, and labor personnel, except the costs for services applicable to Categories (5) and (6).

Under Category (3) include the claimed costs of all project materials and supplies other than those used for work under Categories (5) and (6).

Under Category (4) report claimed rentals on equipment belonging to a third party, claimed payments or obligations for payments on the Operator's purchase of equipment, and claimed depreciation for the use of Operator-owned equipment.

Under Categories (5) and (6) include all claimed costs of labor, supervision, technical services, operating materials and supplies, and all other items used in (5) the initial rehabilitation and repairs of existing buildings, fixtures, installations (exclusive of mine workings), and operating equipment; and (6) the installation or construction of new buildings, fixtures, and fixed improvements (exclusive of mine workings). Do not report these costs under Categories (2), (3), (4), and (7).

Under Category (7) include all miscellaneous claimed costs such as repairs (other than initial) and maintenance of equipment, sampling and analysis, travel, communication, accounting, office expenses, and the Operator's share of payroll taxes and insurance.

Except for amounts claimed under "fixed unit costs" provisions of the contract, all costs claimed in this voucher must be supported by documentary evidence consisting of: (a) certified copies or transcripts of payrolls which list each employee, wage rate, period of employment, gross earnings, itemized deductions, and net earnings; (b) original or certified copies of invoices, statements of accounts, or purchase orders which indicate items of materials or services, quantities, unit prices, total charges, and payment terms; and (c) certified memoranda of the Operator for such items as depreciation of Operator-owned equipment, unemployment taxes, and employee's liability insurance. The certification may be stated thus, "Certified True Copy (or Transcript)", followed by the signature of the Operator or his agent. One copy of each document should accompany the original of this voucher.

The requirement for submitting documentary evidence of claimed costs may be waived by the OME regional Executive Officer if he determines that it is impracticable for an Operator to submit this material. In any case of waiver of this requirement an "on-site" audit by an OME auditor is mandatory prior to payment of the final Operator's Monthly Voucher.

RECEIVED

MAR 11 1968

O.M.E.
SPOKANE, WASH.

3/14/68/RMD

MME FORM 61
SEPT. 1959

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

OPERATOR'S PROGRESS REPORT

For Month of Feb. 1968 Docket No. 6587

Operator's Name Development Operating Corp. Contract No. 14-23-090- 2224

OPERATION	UNITS	FOR OPERATOR'S USE: UNITS THIS MONTH	UNITS TO DATE	COSTS TO DATE	FOR GOVERNMENT USE: APPROVED UNITS THIS MONTH	APPROVED UNITS TO DATE	APPROVED COSTS TO DATE
Drifting	Ft.	131	908	40860.00	131	908	$40,860.00
Crosscutting							
Raising							
Shafts							
Winzes							
Other Underground							
Drilling, Core-Diamond							
Rotary							
Drilling, Non-core-Diamond							
Rotary							
Churn							
Percussion							
Miscellaneous Office X	Mo.	1	7	280.00	1	7	280.00
Incid. X Engr.	Ft.	131	908	1035.12	131	908	1,035.12
Roads and Trails							
Stripping							
Trenching							
Test Pitting							
Other Surface Work							
Initial Rehabilitation and Repairs							
Rehabilitation of Mine Workings Elkhorn Shaft				7850.00			7,850.00
New Buildings, Fixtures, etc.				5500.00			5,500.00
Operating Equipment Purchases							
Analytical Work Assays 14 Au & Ag 10 Pb				149.50			145.50
TOTAL TO DATE (per MME Form 60)				55674.62			$55,670.62

REMARKS

(Continue on back)

REMARKS
See Jan MME 61
Approved here
14 assays @ $3.50 = $49.00
10 " " 2.50 = 25.00
74.00
Prior approved 71.50
$145.50

(Continue on back)

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 3-1-68 Operator Development Operating Corp.

Per Robert E. Talley Title M'gr.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

I certify that the information above is complete and accurate to the best of my knowledge and belief.

Signature D. R. McLaren

Title Field Officer, Region II
Government Representative

Date MAR 12 1968

(INSTRUCTIONS ON REVERSE)

REMARKS *(Cont.)*

REMARKS *(Cont.)*

INSTRUCTIONS FOR PREPARING OPERATOR'S PROGRESS REPORT, MME FORM 61

This report is the second of the three parts of the Operator's Monthly Report. Submit the original and ~~four~~ three copies.

The cost for each operation should be the total of all claimed costs attributable to that type of work with two exceptions, namely—operating equipment purchased and analytical work which are stated separately. For example, drifting costs should be the total of all costs chargeable to drifting including supervision, technical services, timbering (if any), etc. Similarly, drilling costs should include the cost of cementing, reaming, core boxes, etc. This procedure of distribution holds whether the contract was written on an actual cost or a unit cost basis, or some combination of the two. Distribute the cost of such general items as supervision, equipment rented, etc. according to relative footages or on some other conventional basis. The item "Initial Rehabilitation and Repairs" covers all rehabilitation and/or repairs other than the rehabilitation of mine workings.

The item titled "Drilling, Non-core Percussion" includes all drilling performed with wagon, jack-hammer, stoper and mounted drills. The several items labelled "Other" are provided to take care of particular exploration operations not specified on this form.

(3)

Development Operating Corp.
P.O. Box 14
Boulder, Montana 59632
3-1-68

Mr. D. R. MacLaren
Field Officer, OME
U.S. Geological Survey
U.S. Court House, Room 656
West 920 Riverside Ave.
Spokane, Washington 99201

Re: OME 6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract No. 2224

Dear Mr. MacLaren:

Our progress for the month of February in the 360' South Drift consists of some 130' of drifting.

a) We attempted to go through the fault zone from Station 233' because of the drag ore that came down from overhead, placing two sets of drift timbering and overhead spiling but it is so big, seeing some 30' ahead of open broken ground and still making about 12 g.p.m. of water, that we could find nothing to block to sideways, overhead and even the floor, would not support the mucker-attempt abondoned at this site, no progress.

b) From Station 184, about 50 degrees N.W. from the course of the South Drift, we X-cut an additional 29' or a total of 35', running out of ore at approximately 31.0'. A 6.0' sideswipe round was drilled and shot from the south wall at Station 20, advancing 3.0', running out of ore. Total advances 32'. X-cut abandoned.

c) From Station 184, 45' of X-cut in ore, was driven at an angle of approximately 40 degrees S.E. from the course of the South Drift, running out of ore at Station 27.0'. From Station 19 we turned at an angle of S.E. 30 degrees for 9.0', again running out of ore. Total advance 54.0'. We plan on driving ahead on this course, objective to encounter the Sophia ore body.

d) From Station 24 of the 45' S.W. X-cut we drove 45' of drift, approximately parallel to the 233' South Drift, in an attempt to get through the fault zone encountered near the end of the South Drift. The fault zone was picked up at Station 35. We widened out here and placed three sets of timber, advancing by overhead

spiling. This too is making water, but not as much as in the South Drift. We plan on driving through to determine what is on the other side of the fault zone. Total progress 45.0'.

The transit survey brought to light that the ore body encountered is north and west of the Sophia ore body and probably not connected with it, as near as we can determine at this time.

Total progress for the month is 131.0', somewhat less that other months. The difference is due to attempting to get through the fault zone, requiring drift sets and spiling and the additional time required for sideswiping each turn made and the laying of track switches.

The snow is melting rapidly and it is very muddy afoot, on the surface, with daily temperatures ranging from 15-50 degrees.

Respectfully submitted,

Robt E. Tally

Robt. E. Tally
3-1-68

RET/fm

RECEIVED
MAR 11 1968
O. & G.
SPOKANE, WASH.

Certified True Copy
R. E. Tally

Developement Operating Corp., Feb. 1968 Signed Jones & Lawson 3/2/68 Don C. Lawson

Field no.	Lab no.	Description	% SiO_2	% Al_2O_3	% Fe_2O_3	% FeO	% MgO	% CaO	% Na_2O	% K_2O	% H_2O	% CO_2	% TiO_2	Oz. Au	Oz. Ag	% Pb	%
963														.080	34.9	3.1	
964														.005	7.0	0.75	
965														.010	7.0	0.70	
966														.006	7.6	0.40	
967														.010	24.3	1.5	
968														.015	30.8	—	
969														.002	2.1		
970														.006	8.0	1.1	
971														.010	23.7	2.1	
972														.007	8.1	1.65	
973														.020	23.4	4.00	
974														.010	9.1	2.75	
975														.015	16.6	—	
976														.001	1.2	—	
977																	

Assay Data Elkhorn Exploration Program

Date	Sample No.	Location	Sta.			oz. Au.	oz. Ag.	% Pb.	% Zn.
11-6-67	930	W. X-cut	51			—	0.40	—	—
11-6-67	933	✓	57			—	0.38	—	—
11-6-67	935	✓	59			—	0.10	—	—
11-6-67	936	✓	88			—	0.24	—	—
1-8-68	938	✓	500'			0.001	0.60		
1-11-68	940	So. Drift	112'			0.061	0.40		
1-12-68	941	✓	35'	7.0' W.		0.001	0.60		
1-21-68	944	✓	183'			0.005	1.30	1.8	
1-22-68	947	✓	192'			0.040	21.50	2.5	
1-24-68	949	✓	197'	(muck)		0.080	66.10	2.0	1.6
1-24-68	951	✓	201'			0.002	1.80		
1-24-68	952	✓	205'			0.003	0.80	0.15	
1-25-68	954	✓	210'			0.010	13.30	0.10	
1-26-68	955	✓	215'			0.005	3.60	1.80	
1-29-68	957	✓	220'			0.002	1.80		
1-30-68	960	✓	225'			0.003	1.80		
1-31-68	961	✓	233'			0.001	1.00	5.60	
1-31-68	962	✓	184	4.5' W	LET.	~~0.500~~ 0.050	1630	0.10	
2-1-68	963	✓	184	9.0 W		0.080	34.90	3.10	
2-2-68	964	✓	✓	13.0 W.		0.005	7.00	0.75	
2-2-68	965	✓	✓	17.0 W		0.010	7.00	0.70	
2-5-68	966	✓	✓	19.0 W		0.006	7.60	0.40	
2-5-68	967	✓	✓	23.0 W		0.010	24.30	1.50	
2-6-68	968	✓	✓	26.0 W		0.015	30.80		
2-6-68	969	✓	✓	31.0 W		0.002	2.10		
2-7-68	970	✓	✓	6.0 E		0.006	8.08	1.1	
2-8-68	971	✓	✓	11.0 E	LET	~~0.188~~ 0.010	23.70	2.1	
2-9-68	972	✓	✓	14.0 E.		0.007	8.10	1.65	
2-12-68	973	✓	✓	18.0 E.		0.020	23.40	4.0	
2-13-68	974	✓	✓	22.0 E		0.010	9.10	2.75	
2-14-68	975	✓	✓	27.0 E		0.015	16.60		
2-21-68	976	✓	✓	120 SW	Parallel Drift	0.001	1.20		LET.

LITHOGRAPHED IN U.S.A. — ADDISON-WESLEY PUBLISHING COMPANY, INC., READING, MASS. A-W Datagram # 104

FORM 60
OCT. 1959

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

OFFICIAL COPY
RECEIVED
MAR 8 1968
INITIALS

Docket No. 6587
Contract No. 4
14-23-090- 2224
Contract Amount $ 11,465.94 LCT
Gov't. Participation % 75 $ 8,599.50
Mineral(s) Silver

OPERATOR'S MONTHLY VOUCHER

For Month of Jan. 68

Operator's Name Development Operating Corp.
Address P.O. Box 14 Boulder, Mont.

COST CATEGORIES	FOR OPERATOR'S USE: MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE	FOR GOVERNMENT APPROVAL ONLY: MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE
Fixed Unit Costs and						
(1) Independent Contracts:						
Drilling	7245.00	-				
~~Bulldozing~~						
Drifting 85' in Dec	3825.00	-	11,070.00			
Crosscutting	-	23,895.00	23,895.00			
Drilling						
(2) Personal Services: Incld Ex. Engr	183.54					
Supervision & Technical Dec.	96.90	605.34	885.78			
Outside Consultants						
Labor						
(3) Operating Mat'l. & Supplies:						
Timber						
Explosives						
Pipe						
Rail						
Rehab Shaft	-	7,850.00	7,850.00			
Rehab Level	-	5,500.00	5,500.00			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehab. & Repairs:						
Buildings, Fixtures, etc.						
Operating Equipment						
(6) New Buildings, Fixtures, etc.						
(7) Miscellaneous:						
Repairs to Equipment	LCT		LCT			
Analytical Work 23 deter.	75.50		75.50	71.50		71.50
Payroll Taxes						
Employee's Liability Ins.						
Office Exp.	40.00	200.00	240.00			
TOTALS	11,465.94	38,050.34	49,516.28	11,461.94		49,512.28

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

Date 2-14-68 *Payee Development Operating Corp.

Per Robt. E. Tally Title Mgr.

* 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.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

(INSTRUCTIONS ON REVERSE)

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

$ 8,596.45 14X0804

Signature jdm
(Authorized Certifying Officer)

Date MAR 8 1968 Vou. No. 85588

(SEE OTHER SIDE)

Certification by Government Representative:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating an exploration project in accordance with the terms of Contract No. 2244

Signature D.R. MacLaren Title Field Officer, Region I Date FEB 28 1968

Approved by OME Executive Officer or Alternate:

Signature D.R. MacLaren Title Field Officer, Region I Date FEB 28 1968

OPERATOR'S MONTHLY REPORT

The Operator, under an Office of Minerals Exploration contract, is required to report monthly to the Government. The report consists of three parts.

FIRST, the Operator's Monthly Voucher on MME Form 60 listing the project costs incurred and claimed by the Operator is the voucher basis for payment of the Government's share of the cost.

SECOND, the Operator's Progress Report on MME Form 61 is a statistical report of the units and cost of of work performed under the contract.

THIRD, the Operator's Narrative Report is a concise description of the work performed, results accomplished, and any unusual situations encountered, illustrated and supported by engineering-geological maps or sketches, drill hole logs, assay reports, etc., as pertinent.

The Operator submits the original and ~~four~~ three copies of each of the three sections of this report to the OME regional Executive Officer at the end of each month during the life of the contract.

PREPARATION OF OPERATOR'S MONTHLY VOUCHER, MME FORM 60

After all applicable spaces are filled in, the Operator or his agent must sign the certification in the lower left corner. Categories (2) through (7) apply to "Actual Cost" contracts only.

Under "Fixed Unit Costs" and Category (1) report, (a) the total fixed unit costs of work performed under contract provisions for contribution by the Government on a basis of "fixed unit costs"; and (b) the claimed costs of work performed on a unit-price basis by independent contractors.

Under Category (2) include the claimed costs of all payrolled and invoiced supervisory, technical, and labor personnel, except the costs for services applicable to Categories (5) and (6).

Under Category (3) include the claimed costs of all project materials and supplies other than those used for work under Categories (5) and (6).

Under Category (4) report claimed rentals on equipment belonging to a third party, claimed payments or obligations for payments on the Operator's purchase of equipment, and claimed depreciation for the use of Operator-owned equipment.

Under Categories (5) and (6) include all claimed costs of labor, supervision, technical services, operating materials and supplies, and all other items used in (5) the initial rehabilitation and repairs of existing buildings, fixtures, installations (exclusive of mine workings), and operating equipment; and (6) the installation or construction of new buildings, fixtures, and fixed improvements (exclusive of mine workings). Do not report these costs under Categories (2), (3), (4), and (7).

Under Category (7) include all miscellaneous claimed costs such as repairs (other than initial) and maintenance of equipment, sampling and analysis, travel, communication, accounting, office expenses, and the Operator's share of payroll taxes and insurance.

Except for amounts claimed under "fixed unit costs" provisions of the contract, all costs claimed in this voucher must be supported by documentary evidence consisting of: (a) certified copies or transcripts of payrolls which list each employee, wage rate, period of employment, gross earnings, itemized deductions, and net earnings; (b) original or certified copies of invoices, statements of accounts, or purchase orders which indicate items of materials or services, quantities, unit prices, total charges, and payment terms; and (c) certified memoranda of the Operator for such items as depreciation of Operator-owned equipment, unemployment taxes, and employee's liability insurance. The certification may be stated thus, "Certified True Copy (or Transcript)", followed by the signature of the Operator or his agent. One copy of each document should accompany the original of this voucher.

The requirement for submitting documentary evidence of claimed costs may be waived by the OME regional Executive Officer if he determines that it is impracticable for an Operator to submit this material. In any case of waiver of this requirement an "on-site" audit by an OME auditor is mandatory prior to payment of the final Operator's Monthly Voucher.

3/4/68/RMB

FORM 61
SEPT. 1959

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

OPERATOR'S PROGRESS REPORT For Month of Jan. 68 Docket No. 6587

Operator's Name Development Operating Corp. Contract No. 14-23-090-2224

OPERATION	UNITS	FOR OPERATOR'S USE: UNITS THIS MONTH	UNITS TO DATE	COSTS TO DATE	FOR GOVERNMENT USE: APPROVED UNITS THIS MONTH	APPROVED UNITS TO DATE	APPROVED COSTS TO DATE
Drifting 360-So.	Ft.	161	246	11,070.00	246	246	11,070.00
Crosscutting W. x-cut	Ft.	-	531	23,895.00	—	531	23,895.00
Raising							
Shafts							
Winzes							
Other Underground							
Drilling, Core-Diamond							
Rotary							
Drilling, Non-core-Diamond							
Rotary							
Churn							
Percussion							
Miscellaneous Office X.	mo.	1	6	240.00	1	6	240.00
Incid. Engr.	Ft.	161	777	885.78	426	777	885.78
Roads and Trails							
Stripping							
Trenching							
Test Pitting							
Other Surface Work							
Initial Rehabilitation and Repairs Rehab. Shaft				7,850.00			7,850.00
Rehabilitation of Mine Workings Rehab. Level				5,500.00			5,500.00
New Buildings, Fixtures, etc.							
Operating Equipment Purchases							
Analytical Work Assays-14 Au & Ag 8 Pb 1 Zn				75.50			71.50
TOTAL TO DATE (per MME Form 60)				49,516.28			49,512.28

REMARKS

85' driven in 360' So. drift not allowed in Dec. for lack of O.M.E. authorization, now claimed in Jan., authorization since having been approved.

(Continue on back)

REMARKS

1/ Reinstating 85' drift disallowed in Dec

2/ See Operator's Remarks" Dec MME-61 - He did not then claim 180' omitted from his Nov, MME 61460 - is claiming it here.

Accepted herewith Nov 180'
Jan 246'
426

(Continue on back) over

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 2-14-68 Operator Development Operating Corp.

Per Robt. E. Tally Title M'gr.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

I certify that the information above is complete and accurate to the best of my knowledge and belief.

Signature [illegible]

Title Field Officer, Region I
Government Representative

Date FEB 28 1968

(INSTRUCTIONS ON REVERSE)

REMARKS *(Cont.)*

REMARKS *(Cont.)*

3/ 14 assays for Au+Ag @ $3.50 = $49.00
6 " " Pb @ $2.50 = 20.00
1 " " Zn @ $2.50 = 2.50
$71.50

INSTRUCTIONS FOR PREPARING OPERATOR'S PROGRESS REPORT, MME FORM 61

This report is the second of the three parts of the Operator's Monthly Report. Submit the original and ~~four~~ three copies.

The cost for each operation should be the total of all claimed costs attributable to that type of work with two exceptions, namely—operating equipment purchased and analytical work which are stated separately. For example, drifting costs should be the total of all costs chargeable to drifting including supervision, technical services, timbering (if any), etc. Similarly, drilling costs should include the cost of cementing, reaming, core boxes, etc. This procedure of distribution holds whether the contract was written on an actual cost or a unit cost basis, or some combination of the two. Distribute the cost of such general items as supervision, equipment rented, etc. according to relative footages or on some other conventional basis. The item "Initial Rehabilitation and Repairs" covers all rehabilitation and/or repairs other than the rehabilitation of mine workings.

The item titled "Drilling, Non-core Percussion" includes all drilling performed with wagon, jack-hammer, stoper and mounted drills. The several items labelled "Other" are provided to take care of particular exploration operations not specified on this form.

UNITED STATES
DEPARTMENT OF THE INTERIOR
Geological Survey
Branch of Budget and Finance
Washington, D. C. 20242

ADMINISTRATIVE SUSPENSION STATEMENT

Name and Address of Payee:

Development Operating Corp.
P.O. Box 14
Boulder, Mont. 59632

Amount Claimed:	Differences (Explained Below)	Amount Approved
$11,465.94	$4.00	$11,461.94 $8,596.45 Government Participation
Ex. Voucher No.	**Payee's Invoice No.**	**Period**
	Docket # 6587 Contract # 2244	January 1968

EXPLANATION

Analytical work claimed		$75.50
" " allowed 14 gold & silver samples @ 3.50 ea.	49.00	
" " " 8 lead samples @ 2.50 ea.	20.00	
" " " 1 zinc sample @ 2.50 ea.	2.50	
Total approved		71.50
Disallowed		$4.00

Any reclaim for items deducted must be included as a separate item on subsequent monthly voucher and supported by the original of this statement.

JMH

Branch of Budget and Finance

(3)

Development Operating Corp.
P.O. Box 14
Boulder, Montana 59632
2-14-68

Mr. D. R. MacLaren
Field Officer, OME
U.S. Geological Survey
West 920 Riverside Ave.
Spokane, Washington 99201

Re: OME 6587
Development Operating Corp.
Elkkorn Mine
Jefferson County, Montana

Dear Mr. MacLaren:

During the month of January, 1968, we claim 246' of advance in the 360' So. Drift.

From 85- 115' driven in the same southerly direction appears to be barren of visable mineralization and is predominantly hard white dolomite with small portions of hard blue dolomite and some yellow-buff dolomite. We then returned to station 35' and followed the 360' structure for 7.0' where it paralleled the W. X-Cut and abandoning it there, taking a sample which ran 0.6 oz. Ag. We returned to station 115' of the So. Drift and drove in the same southerly direction in barren ground to station 120 at which point we turned 30 degrees S.W. to station 170, still in the same hard white dolomite, encountering cuttings of galena at 170 feet in the lifters on the day shift round. Blasted and mucked out, this proved to be a face of galena. We drove on in what appeared to be ore, diminishing in Pb content and increasing in Ag, to station 225, encountering a talcy mud-seam of sticky gouge, for another 8.0 or station 233' from which point we could stick a bar another 6.0'. This fault zone makes about 12 g.p.m. of water, with large boulders of ore coming down from above. We stopped here to determine if it would dry up appreciably and retreated to station 184 driving 6.0' at another 50 degrees S.W., attempting to skirt the fault zone and following the ore.

Note: All directions on this exploration program have been Brunton Compass readings and are suspect of error due to magnetic attraction from the track, although taken very carefully and cross-checked. For this reason a transit survey of all exploration work has been made and a map is now being prepared with geology included, copies of which will be forwarded to you as soon as available.

SAMPLES

Date	No.	Station	Oz. Au.	Oz. Ag.	% Pb.	% Zn.
1-8-68	938	500 W. X-Cut	.001	0.6	-	-
1-11-68	940	112 So.Drift	.001	0.4	-	-
1-12-68	941	35 7.0 W.from Sp.D.	.001	0.6	-	-
1-21-68	944	183 So. Drift	.005	1.3	1.30	-
1-22-68	947	192 " "	.040	21.5	2.50	-
1-24-68	949	197 " " (Muck)	.080	66.1	2.00	1.6
1-24-68	951	201 " "	.002	1.1	-	-
1-24-68	952	205 " "	.005	0.8	0.15	-
1-25-68	954	210 " "	.010	13.3	0.10	-
1-26-68	955	215 " "	.005	3.6	1.80	-
1-29-68	960	220 " "	.003	1.8	-	-
1-30-68	957	225 " "	.002	1.8	-	-
1-31-68	961	233 " "	.001	1.0	5.60	-
1-31-68	962	184 W. from So. Drift	.050	16.3	0.10	-

Respectfully submitted,

Robt. E. Tally

Robt. E. Tally

RT/FM

Certified true copy

Robt. E. Tally

Robt. E. Tally

2/68 Signed Jones and Lawson Don C Lawson

Field no.	Lab no.	Description	% SiO_2	% Al_2O_3	% Fe_2O_3	% FeO	% MgO	% CaO	% Na_2O	% K_2O	% H_2O	% CO_2	% TiO_2	oz Au	oz Ag	% Pb	% Zn
938														.001	0.60		
940														.001	0.40		
941														.001	0.60		
[illegible]44														.005	1.30	1.8	
947													✓	.040	21.5	2.5	
949													✓	.080	66.1	2.0	1.6
951														.002	1.8		
952														.003	0.80	0.15	
954														.010	13.30	0.10	
955														.005	3.60	1.8	
957														.002	1.8		
[illegible]60														.003	1.80		
961														.001	1.0	5.60	
962														.050	16.3	010	

U. S. Court House, Rm. 653
W. 920 Riverside Avenue
Spokane, Washington 99201

~~OFFICIAL~~ COPY
O. M. E.
RECEIVED
FEB 15 1968
INITIALS | CODE
120
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120.5

February 12, 1968

Mr. Robert E. Tally, Manager
Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632

Re: Work Authorization
OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Dear Mr. Tally:

Thank you for your letter of January 23, 1968, in which you present your justification for starting the 360 drift southerly. We agree that this drift offers the best chance of finding an ore body south of the crosscut. This letter will confirm our oral authorization to drive this drift under the terms of the OME contract.

Before authorizing your proposed north drift on the 360-foot contact we feel that the following points should be considered:

1. Within the permissible limits of the 80-foot contact zone, at 55-65 feet from the start of the crosscut west, the log that accompanied your voucher for October 1967 and the section along the north wall of the crosscut indicate a zone of brecciation. All prior descriptions of the ore bodies, from Weed to the present, mention breccia zones, among other environments, as being good hosts for ore deposition.

2. The same log and section indicate bedding and joint planes in yellow dolomite from 160-205 feet. This description has also been given to ore-bearing beds, and the interval is within permissive limits of the 230-foot contact zone.

3. Based on the history of the mine, footwall ore bodies seem to have been more numerous near the hanging wall and decreasing in frequency as the distance from the hanging wall becomes greater.

Thus, either of these two zones might be more promising areas than the 360-foot zone for a drift north. Without examining the crosscut I am reluctant to authorize either one at this time. Although as of now I am inclined to favor the breccia zone, I would first want to see it of course, and have a more accurate map of the 550 level, lest there be workings north of the crosscut that have already explored this zone.

I hope to be able to visit the mine by the first full week in March, and we can discuss the possibilities further.

Sincerely,

OME (2)

D. R. MacLaren
Field Officer, OME Region I

MME FORM 6
REV. 2-59

REFERENCE SLIP

OFFICE OF MINERALS EXPLORATION

	DATE	INITIALS
TO: Chief, OME	1/29/68	
1. Re: OME-6587 (Silver)		
2. ~~Development Operating Corp.~~ Elkhorn Mine		
3. ~~Jefferson County, Montana~~		
4. ~~Contract 2244~~		
5.		
FROM:		

COPY
O. M. E.
RECEIVED
JAN 31 1968
INITIALS | CODE
730
fol 1 20 m
fsf 1 10
RMS 1 25

FOR: Check items for action desired

___ Action	___ Reply for signature of	___ Surname
___ Approval	___ Investigate	___ Signature
___ Comment	___ Recommendations	___ File
___ Conference	___ Rewrite	
___ Instructions	X Your information	

REMARKS: Best chance of discovery lies in proposing work
Authorization for drift south along 360-ft contact
which I will propose. Drift north @ this contact
is more of a long shot. Please call me for
discussion when you receive this. 1/31/68
FO will authorize drift.
RMS

M56300-62

INT.-DUP. SEC., WASH., D.C.

Development Operating Corp.
P.O. Box 14
Boulder, Montana 59632
1-23-68.

Mr. D.R. MacLaren
Field Officer, OME
U.S. Geological Survey
Court House Bldg. Rm. 656
W. 920 Riverside
Spokane, Washington 00201

Re: OME 6587 Silver
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Dear Mr. MacLaren:

Refering to my letter of this afternoon, I wish to call to your attention an error in transposition on page 2, paragraph 1, fourth line: 100' of pretty fair ore should read 10.0'.

Hasta la vista,

Robt. E. Tally

Development Operating Corp.
P.O. Box 14
Boulder, Montana 59632
1-23-68.

Mr. D.R. MacLaren
Field Officer, OME
Geological Survey
Court House Bldg. Rm. 656
W. 920 Riverside
Spokane, Washington 99201.

Re: OME 6587 Silver
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Dear Mr. MacLaren:

They say that ignorance is bliss & I in ignorance did not fully realize that without any proof of mineralization in the entire 530' of West X-Cut, that it was essential that we obtain OME authorization for continuing the program & following the proposed exploration program as laid out in your Fig. 2 Proposed Exploration for Elkhorn Mine. I went ahead believing that all things were in order & what I was doing was accepted as being in the best mutual interests of the program. My humble apology.

As we are all aware, we did not encounter any mineralization in the X-Cut, although excellent structure was encountered at those "Potential Ore Intercepts" at Stations 40, 80, 160, 230, 360, & 480'. Much was expected of the 480' zone but it did not materialize & at its completion we realized that this was not the best place to drift without knowing more about it. After considerable time spent underground, work on the maps, study of the logs of the holes of the diamond drill program, making projections, etc. we came to the conclusion that the 360' mud-seam or intercept in the West X-Cut was the proper place to drift & that south, namely from Station 347 West X-Cut. Our reasons: post mineral

1. The alteration product contained in the 360' mud-seam as exposed on both sides & back, resembles that found in the workings of the Sophia, adjacent to the orebody, as to color, texture & general appearance. This led us to believe that there was a good possibility of this seam being an ore channel, leading us to ore in the Sophia area, projected down to the elevation of the 550' Level.

2. The Mentor Diamond Drill Program Maps show Hole No. 4 drilled from the 110' Level at a collar elevation of 6373' in a N 83 degrees E with a Dip of -57 degrees, encountered approximately 100' of pretty fair ore at a bottom elevation of 6373' which is approximately 46' above the floor elevation of the 550' Level. There is a possibility that this ore could project down to the area encountered by a 360' S. Drift.

3. The vertical projection of the Sophia Ore Body down to the 550' Level is around 200' from the W X-Cut. The sill between the bottom of the Sophia Winze & the Level is 25' thick, in which there are about 15' of contained water. There is reason reason to believe that ore will be encountered below the Sophia.

Our reasons seem sound in that at Station 35' in the South Drift we encountered low grade silver ore the sample of which assayed 0.001 os Au. & 0.60 oz. Ag. (Sampled & assayed in January). The drift continued in a general southerly direction to Station 128, again encountering no known mineralization, from which turned 25 degrees N.E. At this strike we encountered a face of galena ore thought to contain silver. Sample values will be forwarded as received, in our progress reports. As of 1-19-68, we have advanced an additional 15' to 185', still in ore.

Therefore, rather belatedly, I ask you for authority to drive & to continue to drive drifts in both a southerly & a northerly direction from a point 346' in on the W X-Cut & to follow the ore encountered.

Thank you Don for having a good understanding of what we are attempting to do here at the Elkhorn & I am looking forward to seeing you soon here on the job site so that we can discuss further in some detail some of the problems before they arise.

Yours most sinderely,

Robt. E. Tally

Robt. E. Tally

Ome (2)

GEOLOGICAL SURVEY
U. S. Court House, Rm. 656
W. 920 Riverside Avenue
Spokane, Washington 99201
January 19, 1968

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O. M. E.
RECEIVED
JAN 22 1968
INITIALS | CODE
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1,20 M
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Mr. Robert E. Tally, Manager
Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632

Re: OME-6587 (Silver)
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Dear Mr. Tally:

Exhibit A of the subject contract, on page 2, paragraph 3, under Description of the Work specifies: "Drifts shall be driven northerly and/or southerly on the best showings in the crosscut." The paragraph above states: "It is anticipated that mineral showings will be intersected by the crosscut at the 230-, 360-, and 480-foot 'contacts'." The fifth paragraph states in part: "* * * the provisional locations of the drifts are shown, etc."

Your narrative reports for September, October, November, and December 1967 all indicate that the crosscut west has not indicated any mineral showing that could be considered "best."

It is possible that the drift south which you have started may be on the 360-foot contact as there is shown at that point on your section along the north wall of the crosscut a structure apparently dipping 32° to the east and a vertical joint plane. However, in the Sophia stopes the beds appear to strike N. 10° W. and to dip about 40° east. At 337 feet you show another structure dipping 42° east.

What mineralization or assay evidence is there that might justify drifting on either of these structures? The only reason given in your narrative report for December is: "* * * in order to keep our crew busy * * *." This reason is not acceptable for OME participation.

In view of the contract specifications cited above the 85 feet of drifting claimed in your December voucher will have to be disallowed, at least for the time being. If sample assays show the structure to be mineralized, following it for say 200 feet to pass through the Sophia stoped area projected to the 550 level might be justified as following the best showing in the crosscut.

Also, in your narrative for December you mention drifting south in the vicinity of the 480 intercept. What justification do you have to warrant OME participation in the cost of this drift, within the framework of the contract specifications?

Unfortunately, it will probably be the latter part of February before I will be able to get over to inspect the project.

Sincerely yours,

D. R. MacLaren
Field Officer, OME
Region I

DRMacLaren/mls

cc: OME(2)
Voucher File

Director's Reading File

GEOLOGICAL SURVEY
U. S. Court House, Rm. 656
W. 920 Riverside Avenue
Spokane, Washington 99201
January 19, 1968

Mr. Robert E. Tally, Manager
Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632

Re: OMR-6587 (Silver)
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Dear Mr. Tally:

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Unfortunately, it will probably be the latter part of February before I will be able to get over to inspect the project.

Sincerely yours,

D. R. MacLaren
Field Officer, OME
Region I

DRMacLaren/mls

cc: OME(2)
Voucher File

Director's Reading File

MME FORM 60
SEPT. 1959

RECEIVED
JAN 12 1968
G. W. E.
SPOKANE, WASH.

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O. M. E.
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JAN 30 1968
INITIALS

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

Docket No. 6587
Contract No. 14-23-090-2244
Contract Amount $ 9657.76
Gov't. Participation % 75 $ 7243.32
Mineral(s) Silver

OPERATOR'S MONTHLY VOUCHER

For Month of December 1967

Operator's Name Development Operating Corp.
Address P.O. Box 14 Boulder, Montana 59632

COST CATEGORIES	FOR OPERATOR'S USE			FOR GOVERNMENT APPROVAL ONLY		
	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE
Fixed Unit Costs and						
(1) Independent Contracts:						
Bulldozing						
Drifting	3825.00	-	3825.00			
Crosscutting	5355.00	18540.00	23895.00			
Drilling						
(2) Personal Services: Engr.						
Supervision & Technical	232.56	264.48	497.04			
Outside Consultants						
Labor						
(3) Operating Mat'l. & Supplies:						
Timber						
Explosives						
Pipe						
Rail						
Rehab. Shaft	-	7850.00	7850.00			
Rehab. Level	-	5500.00	5500.00			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehab. & Repairs:						
Buildings, Fixtures, etc.						
Operating Equipment						
(6) New Buildings, Fixtures, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Analytical Work						
Payroll Taxes						
Employee's Liability Ins.						
Office Expense	40.00	160.00	200.00			
Incid. Exp. Engr.	205.20	-	205.20			
Engr. for Nov.						
TOTALS	9657.76	32314.48	41972.24	5735.86		

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

Date 1-9-68 *Payee Development Operating Corp.

Per Robt. C. Talley Title M'gr.

* 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.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

(INSTRUCTIONS ON REVERSE)

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

$ 4,301.89 14X0804

Signature John
(Authorized Certifying Officer)

Date JAN 26 1968 Vou. No. 64804

(SEE OTHER SIDE)

Certification by Government Representative:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating an exploration project in accordance with the terms of Contract No. 2244

Signature D R Macharen Title Field Officer, Region I Date JAN 19 1968

Approved by OME Executive Officer or Alternate:

Signature D R Macharen Title Field Officer, Region I Date JAN 19 1968

OPERATOR'S MONTHLY REPORT

The Operator, under an Office of Minerals Exploration contract, is required to report monthly to the Government. The report consists of three parts.

FIRST, the Operator's Monthly Voucher on MME Form 60 listing the project costs incurred and claimed by the Operator is the voucher basis for payment of the Government's share of the cost.

SECOND, the Operator's Progress Report on MME Form 61 is a statistical report of the units and cost of of work performed under the contract.

THIRD, the Operator's Narrative Report is a concise description of the work performed, results accomplished, and any unusual situations encountered, illustrated and supported by engineering-geological maps or sketches, drill hole logs, assay reports, etc., as pertinent.

The Operator submits the original and ~~four~~ three copies of each of the three sections of this report to the OME regional Executive Officer at the end of each month during the life of the contract.

PREPARATION OF OPERATOR'S MONTHLY VOUCHER, MME FORM 60

After all applicable spaces are filled in, the Operator or his agent must sign the certification in the lower left corner. Categories (2) through (7) apply to "Actual Cost" contracts only.

Under "Fixed Unit Costs" and Category (1) report, (a) the total fixed unit costs of work performed under contract provisions for contribution by the Government on a basis of "fixed unit costs"; and (b) the claimed costs of work performed on a unit-price basis by independent contractors.

Under Category (2) include the claimed costs of all payrolled and invoiced supervisory, technical, and labor personnel, except the costs for services applicable to Categories (5) and (6).

Under Category (3) include the claimed costs of all project materials and supplies other than those used for work under Categories (5) and (6).

Under Category (4) report claimed rentals on equipment belonging to a third party, claimed payments or obligations for payments on the Operator's purchase of equipment, and claimed depreciation for the use of Operator-owned equipment.

Under Categories (5) and (6) include all claimed costs of labor, supervision, technical services, operating materials and supplies, and all other items used in (5) the initial rehabilitation and repairs of existing buildings, fixtures, installations (exclusive of mine workings), and operating equipment; and (6) the installation or construction of new buildings, fixtures, and fixed improvements (exclusive of mine workings). Do not report these costs under Categories (2), (3), (4), and (7).

Under Category (7) include all miscellaneous claimed costs such as repairs (other than initial) and maintenance of equipment, sampling and analysis, travel, communication, accounting, office expenses, and the Operator's share of payroll taxes and insurance.

Except for amounts claimed under "fixed unit costs" provisions of the contract, all costs claimed in this voucher must be supported by documentary evidence consisting of: (a) certified copies or transcripts of payrolls which list each employee, wage rate, period of employment, gross earnings, itemized deductions, and net earnings; (b) original or certified copies of invoices, statements of accounts, or purchase orders which indicate items of materials or services, quantities, unit prices, total charges, and payment terms; and (c) certified memoranda of the Operator for such items as depreciation of Operator-owned equipment, unemployment taxes, and employee's liability insurance. The certification may be stated thus, "Certified True Copy (or Transcript)", followed by the signature of the Operator or his agent. One copy of each document should accompany the original of this voucher.

The requirement for submitting documentary evidence of claimed costs may be waived by the OME regional Executive Officer if he determines that it is impracticable for an Operator to submit this material. In any case of waiver of this requirement an "on-site" audit by an OME auditor is mandatory prior to payment of the final Operator's Monthly Voucher.

1/23/68/RMA

RECEIVED
JAN 12 1968

MME FORM 61
SEPT. 1959

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

OPERATOR'S PROGRESS REPORT For Month of December Docket No. 6587

Operator's Name Development Operating Corp Contract No. 14-23-090- 2244

OPERATION	UNITS	FOR OPERATOR'S USE: UNITS THIS MONTH	UNITS TO DATE	COSTS TO DATE	FOR GOVERNMENT USE: APPROVED UNITS THIS MONTH	APPROVED UNITS TO DATE	APPROVED COSTS TO DATE
Drifting	Ft.	85	85	3825.00	— [1]	—	— [1]
Crosscutting	Ft.	119	531	23895.00	119	531	23,895.00
Raising							
Shafts							
Winzes							
Other Underground							
Drilling, Core-Diamond							
Rotary							
Drilling, Non-core-Diamond							
Rotary							
Churn							
Percussion							
Miscellaneous Office X mo.		1	5	200.00	1	5	200.00
Incid Ex. Engr	Ft.	204	616	702.24	119 [2]	351 [2]	400.14 [2]
Roads and Trails							
Stripping							
Trenching							
Test Pitting							
Other Surface Work							
Initial Rehabilitation and Repairs	Rehab. Shaft			7850.00			7,850.00
Rehabilitation of Mine Workings	Rehab. Level			5500.00			5,500.00
New Buildings, Fixtures, etc.							
Operating Equipment Purchases							
Analytical Work							
TOTAL TO DATE (per MME Form 60)				71972.24			37,845.14

REMARKS
Engineering Services under Incidental Expenses was inadverently omitted for November & is claimed herewith

(Continue on back)

REMARKS
[1] There has been no evidence presented to warrant authorization of this drift. May be reinstated if such evidence is received
[2] Prev. accepted 232 ft @ $1.14 = $264.48
accepted here 119 " " = 135.66
351 $400.14
Disallow 85' drift @ $45.00 — 3825.00
85' Incidental @ $1.14 — 96.90
3921.90
RMA

(Continue on back)

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 1-9-68 Operator Development Operating Corp.

Per W. C. Tally Title M'gr

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

I certify that the information above is complete and accurate to the best of my knowledge and belief.

Signature D R Mackey

Title Field Officer, Region I
Government Representative

Date JAN 19 1968

(INSTRUCTIONS ON REVERSE)

REMARKS *(Cont.)*

REMARKS *(Cont.)*

INSTRUCTIONS FOR PREPARING OPERATOR'S PROGRESS REPORT, MME FORM 61

This report is the second of the three ~~parts~~ of the Operator's Monthly Report. Submit the original and ~~four~~ three copies.

The cost for each operation should be the total of all claimed costs attributable to that type of work with two exceptions, namely—operating equipment purchased and analytical work which are stated separately. For example, drifting costs should be the total of all costs chargeable to drifting including supervision, technical services, timbering (if any), etc. Similarly, drilling costs should include the cost of cementing, reaming, core boxes, etc. This procedure of distribution holds whether the contract was written on an actual cost or a unit cost basis, or some combination of the two. Distribute the cost of such general items as supervision, equipment rented, etc. according to relative footages or on some other conventional basis. The item "Initial Rehabilitation and Repairs" covers all rehabilitation and/or repairs other than the rehabilitation of mine workings.

The item titled "Drilling, Non-core Percussion" includes all drilling performed with wagon, jack-hammer, stoper and mounted drills. The several items labelled "Other" are provided to take care of particular exploration operations not specified on this form.

UNITED STATES
DEPARTMENT OF THE INTERIOR
U. S. Geological Survey
Branch of Budget and Finance
Washington, D. C. 20242

ADMINISTRATIVE SUSPENSION STATEMENT

Name and Address of Payee: Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632

Amount Claimed:	Differences (Explained Below)	Amount Approved
$9,657.76	$3,921.90	$5,735.86 $4,301.89 Government Participation
Bu. Voucher No.	Payee's Invoice No.	Period
	Docket # 6587 Contract # 2244	December 1967

EXPLANATION

Disallowed 85' drifting @ $45.00 There has been no evidence presented to warrant authorization of this drift. May be reinstated if such evidence is received.	3,825.00
Disallowed 85' Incidental allowance for engineering @ $1.14 See above	96.90
Total Disallowed	3,921.90

Any reclaim for items deducted must be supported by the original of this statement and submitted to the office shown above.

JDM
Branch of Budget and Finance

2

Development Operating Corp.
P.O. Box 14
Boulder, Montana 59632
1-9-68

Mr. D.R. MacLaren
Field Officer, OME
U.S. Geological Survey
W. 527 Riverside
Spokane, Washington 99204.

Re: OME 6587
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana

Dear Mr. MacLaren:

During the month of December we have driven the West X-Cut, complete as to specifications, to a total distance of 531', a December total of 119'.

Again, no mineralization has been encountered todate. The structure from 481- 531' is most interesting. The dolomite changed in color to a blackish-brown leading to a reverse fault zone, dipping 22 degrees West, from which point a sample has been taken across its 20" width. At 520 we broke into a 20" watercourse, just about dead center with the X-Cut alignment. This last round broke 40 cars of muck as compared with the normal of 20 cars/round. Actually the watercourse is barren white leached dolomite, continuing on & is open for an additional 20', breaking up at a slope to an estimated 20' vertical height above the X-Cut floor.

Feeling that more study was required previous to driving the drift south in the vicinity of the 480 intercept, I decided, in order to keep our crew busy, that we would drive South at the 360' intercept, which measures 346' in from the point of entry from the 500' Level.

"Best showing" is breccia @ 60 ft. ?? 12 mi.

not a "best showing"

We have driven 85' on this 360' intercept, attempting to follow the "mud-seam" structure as to strike. Again no noticeable ore encountered.

Todate we have been able to get into the mine although the surrounding slopes are covered with 2-4' of snow & temperatures vary from 126 to 10 above. Mine temperature is pretyy constant at 42 degrees & the mine water 40 degrees. We continue to hold the water level below the 550' with intermittent pumping.

Respectively submitted,

Robt. C. Tally

RECEIVED
JAN 12 1968
SPOKANE, WASH.

Certified True Copy
Robt. C. Tally

LOG OF WEST X-CUT

412-433'	Blue dolomite to a vertical joint plane (J.P.)
433-445'	Brownish-white dolomite to another vertical P.P.
445-450'	Blue dolomite
450-469'	Parallel mottled yellow dolomite in stripes between blackish dolomite - the stripes dipping 28 degrees E.
469-474'	A solid yellow-black dolomite to a vertical thin mud seam.
474-481'	A thin reverse dip mud seam 26 degrees W in blocky blue dolomite.
481-504'	A 20" fault zone with a reverse dip of 22 Degrees W appears in a blackish-brown dolomite.
504-512'	Blocky blue dolomite.
512-531'	A 20" water course with the same strike as the X-Cut appears in the blue-white dolomite, continuing on beyond the 531', in the same strike & width for another 15' in length & sloped up to a vertical height of about 20'. The water course is broken-up white material with an occasional iron stain.

Certified True Copy
Robt. C. Tacley

LOG OF THE 360' SOUTH DRIFT.

0-21' Blue-white dolomite following the seam, breast high.

21-33' The strike of this seam is not constant, such that the breast high standard is difficult to achieve, with the seam coming down to about 2.0' above the floor & then back up to the back of the drift. White dolomite.

33-52' The strike here is up at the back of W. wall of the drift, opening up to a water course, 4-6" in width, with chunks of soft black material resembling Wad of manganese, in blue-grey dolomite.

52-85' Continued blue-grey dolomite, blocky in character, in which a mud seam, 6" in width, appears, dipping 60 degrees to the S, changing from a blue-white dolomite to blackish color at 85'.

Certified True Copy
Robt. C. Tally

MME FORM 60
SEPT. 1959

RECEIVED DEC 7 1967 via mail U.S. M.E. BUREAU, WASH.

OFFICIAL COPY

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

Docket No. 6587
Contract No. 14-23-090-2244
Contract Amount $ 8194.00
Gov't. Participation % 75 $ 6145.50
Mineral(s) Silver

OPERATOR'S MONTHLY VOUCHER

For Month of November

Operator's Name Development Operating Corp.
Address P.O. Box 14, Boulder, Montana 59632

COST CATEGORIES	FOR OPERATOR'S USE			FOR GOVERNMENT APPROVAL ONLY		
	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE
Fixed Unit Costs and						
(1) Independent Contracts:						
Bulldozing						
Drifting						
Crosscutting	8100.00	10440.00	18540.00			
Drilling						
(2) Personal Services: Engr.						
Supervision & Technical	-	264.48	264.48			
Outside Consultants						
Labor						
(3) Operating Mat'l. & Supplies:						
Timber						
Explosives						
Pipe						
Rail						
Rehab. Shaft		7850.00	7850.00			
Rehab. Level		5500.00	5500.00			
Office Expense	40.00	80.00	120.00			
Aug. Off. Exp.	40.00	-	40.00			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehab. & Repairs:						
Buildings, Fixtures, etc.						
Operating Equipment						
(6) New Buildings, Fixtures, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Analytical Work 4	14.00	-	14.00			
Payroll Taxes						
Employee's Liability Ins.						
TOTALS	8194.00	24134.48	32328.48			

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

Date 12-4-67 *Payee Development Operating Corp.

Per Robt. C. Talley Title Mgr.

* 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.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

(INSTRUCTIONS ON REVERSE)

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

$ 6,135.00 14X0804

Signature [illegible] (Authorized Certifying Officer)

Date DEC 27 1967 Vou. No. 42270

(SEE OTHER SIDE)

Certification by Government Representative:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating an exploration project in accordance with the terms of Contract No. 2244

Signature D P MacLaren Title Field Officer, Region I Date DEC 11 1967

Approved by OME Executive Officer or Alternate:

Signature D P MacLaren Title Field Officer, Region I Date DEC 11 1967

OPERATOR'S MONTHLY REPORT

The Operator, under an Office of Minerals Exploration contract, is required to report monthly to the Government. The report consists of three parts.

FIRST, the Operator's Monthly Voucher on MME Form 60 listing the project costs incurred and claimed by the Operator is the voucher basis for payment of the Government's share of the cost.

SECOND, the Operator's Progress Report on MME Form 61 is a statistical report of the units and cost of of work performed under the contract.

THIRD, the Operator's Narrative Report is a concise description of the work performed, results accomplished, and any unusual situations encountered, illustrated and supported by engineering-geological maps or sketches, drill hole logs, assay reports, etc., as pertinent.

The Operator submits the original and ~~four~~ three copies of each of the three sections of this report to the OME regional Executive Officer at the end of each month during the life of the contract.

PREPARATION OF OPERATOR'S MONTHLY VOUCHER, MME FORM 60

After all applicable spaces are filled in, the Operator or his agent must sign the certification in the lower left corner. Categories (2) through (7) apply to "Actual Cost" contracts only.

Under "Fixed Unit Costs" and Category (1) report, (a) the total fixed unit costs of work performed under contract provisions for contribution by the Government on a basis of "fixed unit costs"; and (b) the claimed costs of work performed on a unit-price basis by independent contractors.

Under Category (2) include the claimed costs of all payrolled and invoiced supervisory, technical, and labor personnel, except the costs for services applicable to Categories (5) and (6).

Under Category (3) include the claimed costs of all project materials and supplies other than those used for work under Categories (5) and (6).

Under Category (4) report claimed rentals on equipment belonging to a third party, claimed payments or obligations for payments on the Operator's purchase of equipment, and claimed depreciation for the use of Operator-owned equipment.

Under Categories (5) and (6) include all claimed costs of labor, supervision, technical services, operating materials and supplies, and all other items used in (5) the initial rehabilitation and repairs of existing buildings, fixtures, installations (exclusive of mine workings), and operating equipment; and (6) the installation or construction of new buildings, fixtures, and fixed improvements (exclusive of mine workings). Do not report these costs under Categories (2), (3), (4), and (7).

Under Category (7) include all miscellaneous claimed costs such as repairs (other than initial) and maintenance of equipment, sampling and analysis, travel, communication, accounting, office expenses, and the Operator's share of payroll taxes and insurance.

Except for amounts claimed under "fixed unit costs" provisions of the contract, all costs claimed in this voucher must be supported by documentary evidence consisting of: (a) certified copies or transcripts of payrolls which list each employee, wage rate, period of employment, gross earnings, itemized deductions, and net earnings; (b) original or certified copies of invoices, statements of accounts, or purchase orders which indicate items of materials or services, quantities, unit prices, total charges, and payment terms; and (c) certified memoranda of the Operator for such items as depreciation of Operator-owned equipment, unemployment taxes, and employee's liability insurance. The certification may be stated thus, "Certified True Copy (or Transcript)" followed by the signature of the Operator or his agent. One copy of each document should accompany the original of this voucher.

The requirement for submitting documentary evidence of claimed costs may be waived by the OME regional Executive Officer if he determines that it is impracticable for an Operator to submit this material. In any case of waiver of this requirement an "on-site" audit by an OME auditor is mandatory prior to payment of the final Operator's Monthly Voucher.

12/15/67/RMS

MME FORM 61
SEPT. 1959

RECEIVED
Via
DEC 7 1967
Air Mail
SPOKANE, WASH.

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

OPERATOR'S PROGRESS REPORT

For Month of November

Docket No. 6587

Operator's Name Development Operating Corp.

Contract No. 14-23-090-2244

OPERATION	UNITS	FOR OPERATOR'S USE: UNITS THIS MONTH	UNITS TO DATE	COSTS TO DATE	FOR GOVERNMENT USE: APPROVED UNITS THIS MONTH	APPROVED UNITS TO DATE	APPROVED COSTS TO DATE
Drifting							
Crosscutting	Ft.	180	412	18540.00	180	412	18,540.00
Raising							
Shafts							
Winzes							
Other Underground							
Drilling, Core-Diamond							
Rotary							
Drilling, Non-core-Diamond							
Rotary							
Churn							
Percussion							
Miscellaneous Office Exp	mo	1	3	120.00	2	4	160.00
August Office Exp.	mo	1	1	40.00			
Roads and Trails							
Surveyor Engr.	Ft	—	232	264.48	—	232	264.48
Trenching							
Test Pitting							
Other Surface Work							
Initial Rehabilitation and Repairs	Mine Shaft			7850.00			7850.00
Rehabilitation of Mine Workings	550' Level			5500.00			5500.00
New Buildings, Fixtures, etc.							
Operating Equipment Purchases							
Analytical Work	4 Samples/assay			14.00			— [1]
TOTAL TO DATE (per MME Form 60)				32328.48			32314.48

REMARKS

(Continue on back)

REMARKS

[1] Samples assayed for silver only not acceptable under contract specifications

(Continue on back)

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 12-4-67 Operator Development Operating Corp

Per Lee C. Tally Title Mgr

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

I certify that the information above is complete and accurate to the best of my knowledge and belief.

Signature D R Mechaley

Title Field Officer, Region 1
Government Representative

Date DEC 11 1967

(INSTRUCTIONS ON REVERSE)

REMARKS *(Cont.)*

REMARKS *(Cont.)*

INSTRUCTIONS FOR PREPARING OPERATOR'S PROGRESS REPORT, MME FORM 61

This report is the second of the three parts of the Operator's Monthly Report. Submit the original and ~~four~~ three copies.

The cost for each operation should be the total of all claimed costs attributable to that type of work with two exceptions, namely—operating equipment purchased and analytical work which are stated separately. For example, drifting costs should be the total of all costs chargeable to drifting including supervision, technical services, timbering (if any), etc. Similarly, drilling costs should include the cost of cementing, reaming, core boxes, etc. This procedure of distribution holds whether the contract was written on an actual cost or a unit cost basis, or some combination of the two. Distribute the cost of such general items as supervision, equipment rented, etc. according to relative footages or on some other conventional basis. The item "Initial Rehabilitation and Repairs" covers all rehabilitation and/or repairs other than the rehabilitation of mine workings.

The item titled "Drilling, Non-core Percussion" includes all drilling performed with wagon, jack-hammer, stoper and mounted drills. The several items labelled "Other" are provided to take care of particular exploration operations not specified on this form.

INT.DUP.,D.C.59- 27162

UNITED STATES
DEPARTMENT OF THE INTERIOR
U. S. Geological Survey
Branch of Budget and Finance
Washington, D. C. 20242

ADMINISTRATIVE SUSPENSION STATEMENT

Name and Address of Payee: Development Operating Corp.
P.O. Box 14
Boulder, Montana 59632

Amount Claimed:	Differences (Explained Below)	Amount Approved
$8,194.00	$14.00	$8180.00 $6135.00 Government Participation
Bu. Voucher No.	Payee's Invoice No.	Period
	Docket # 6587 Contract # 2244	November 1967

EXPLANATION

Disallowed 4 silver samples @ $3.50 ea $14.00
Samples assayed for silver only not acceptable under contract specifications.

Any reclaim for items deducted must be supported by the original of this statement and submitted to the office shown above.

JDM
Branch of Budget and Finance

Development Operating Corp.
P.O. Box 14
Boulder, Montana 59632
12-4-67.

Mr. D.R. MacLaren
Field Officer, OME
U.S. Dept. of Interior
Geological Survey
W. 927 Riverside
Spokane, Washington 99204

Re: OME 6587
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Narrative.

Dear Mr. MacLaren:

During the month of November we have driven 140' of X-cut, complete as to specifications, making a total of 412' as of 12-1-67.

No mineralization has been encountered todate. The dark colors are attributed to manganese, limonite & goethe, staining the white dolomite yellow to black. The ground continues blocky in character with many jointing planes, mostly vertical on the side walls. The rock walls hold up very well & the amount of drip water seems to be diminishing, although this could change at any time.

The samples taken todate are disapointing as to mineral content:

93[illegible] Taken at 51' near the bottom of the N. wall - 0.40 Ag.
93[illegible] Taken at 57' near the bottom of the N. wall - 0.38 Ag.
93[illegible] Taken at 59' across the seam of dark brecciated material - 0.10 Ag.
93[illegible] Taken at 88' across vertical jointing plane, dark stains - 0.24 Ag.

Without more positive information & assuming that we encounter good structure at 462' (480-18') it may be pertinent to drift south (towards the Sophia Orebody) along such structure.

Although we have encountered no apparent ore todate in our 412' of X-cutting, good structure has been encountered at most expected horizons, namely 40, 80, 160, 320' in the form of mud seams with N-S strike & dips varying from 32-41 degrees.

The weather continues cold with about 6-8" of snow on the ground at Elkhorn, temperatures varying from -10 to 30 degrees & so far we have experienced no difficulty getting to & from our workcit.

Respectively submitted,

Robt. E. Tally
Robt. E. Tally

Certified True Copy
Robt. E. Tally

RECEIVED
Via
DEC 7 1967
Air Mail
SPOKANE, W.

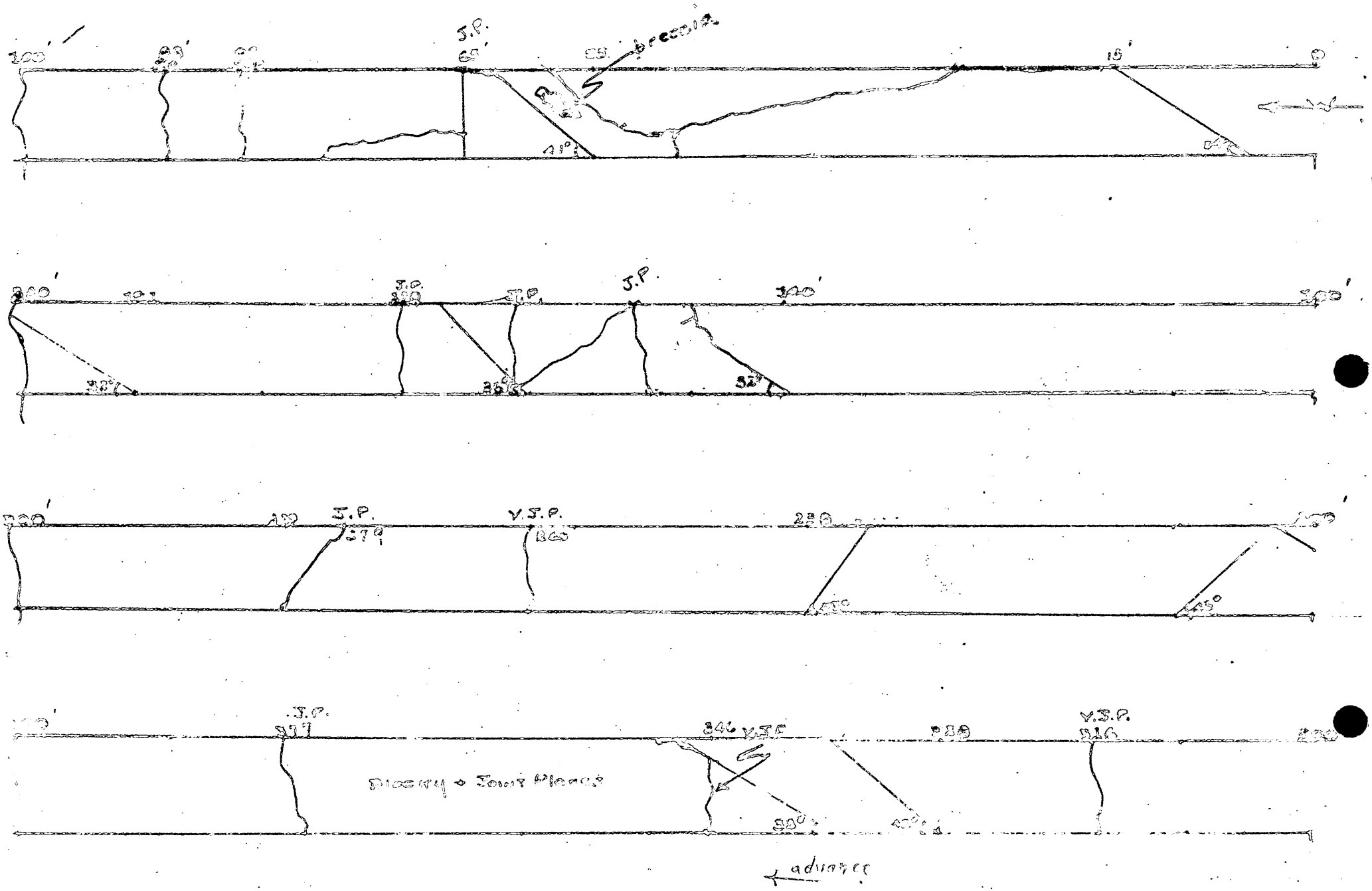
LOG OF WEST X-CUT

222-260'	Blocky white dolomite with joint planes at 238 & 260'
260-270'	Blue dolomite
270-279'	White dolomite
279-322'	Blue-white dolomite with a vertical jointing plane at 316'
322-360'	Blue, white & yellow dolomite with mud seams at 328 & 336' & a jointing plane at 346'
360-400'	White mottled dolomite with a jointing plane at 377' weeping water; blocky ground.
400-412'	Blue & yellowish white dolomite to the face.

Elkhorn Mine
Jefferson County
Boulder, Montana
12-4-67

Robt. E. Tally

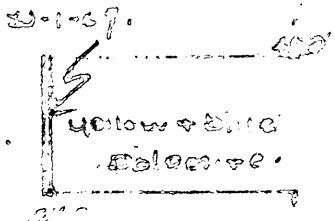
Certified True Copy
Robt. E. Tally
Robt. E. Tally



Section of West X-cut North Wall.

Size: 5 x 7.0' - Dimension in Footwall Dolomite

Scale: 1" = 10.00'



Certified True Copy. S.E. Tailey.

					Au oz./ton	Ag oz./ton									
													11/22/67		
930		Elkhorn				0.40									
933		"				0.38									
935		"				0.10									
936		"				0.24									
		4 Ag determinations @ $3.50 less 15%											total	$11.90	

James T. Lawson

Dennis L. Bailey

Note: This form shall be filled out in duplicate, one copy for Bureau files and one for the project geologist.

MME FORM 6 REFERENCE SLIP

REV. 2-59 OFFICE OF MINERALS EXP. ATION

TO:		DATE	INITIALS
1.	Chief, OME Attn: R. Smith	11/20/67	
	Re: OME-6587 (Silver)		
2.	Development Operating Corp.		
	Elkhorn Mine		
3.	Jefferson County, Montana		
	Contract 2244		
4.	M.L.S.		
	Mary L. Smelser for		
5.	D. R. MacLaren		
FROM:	Fld. Officer, Reg. I		

FOR: Check items for action desired

____ Action	____ Reply for signature of		
____ Approval	____ Investigate	Surname	
____ Comment	____ Recommendations	OFFICIAL Signature	
____ Conference	____ Rewrite	COPY Code	
____ Instructions	X Your information	O. M. E.	

REMARKS:

Thank you for tracing this check for the Operator.

RECEIVED
NOV 22 1967

INITIALS	CODE
bff	120 M
RG	~~110~~
RMA	120 S

INT.-DUP. SEC., WASH., D.C.

M56300-62

P.O. Box 14
Boulder, Montana 59632
12-18-67

OFFICIAL
COPY
O. M. E.
RECEIVED
NOV 22 1967

INITIALS	CODE
	120m
	110
	120S

Mrs. Smelser, Sect.
Don R. MacLaren, Feild Officer OME
U.S. Dept of Interior
Geological Survey
So 157 Howard Street
Spokane, Washington 99204.

Dear Mrs. Smelser:

The voucher for August & Sept. arrived here yesterday; the date of the check is 11-8-67 & there was no post date from Washington nor Boulder, on the envelop.

Thabk you for you help & concern, it is very gratifying.

Yours most sincerely,

B/ Robt. E Tally
Robt. E. Tally
Development Operating Corp.

MME FORM 60
SEPT. 1959

RECEIVED
NOV 7 1967
O.M.E.
WASH.

OFFICE OF MINERALS EXPLORATION
RECEIVED
NOV 7 1967
INTERIOR

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

Docket No. OME 6587
Contract No.
14-23-090- 2244
Contract Amount $8206.78
Gov't. Participation x75 $6155.09
Mineral(s) Silver

OPERATOR'S MONTHLY VOUCHER

For Month of October 1967

Operator's Name Development Operating Corp.
Address P.O. Box 14, Boulder, Montana

COST CATEGORIES	FOR OPERATOR'S USE			FOR GOVERNMENT APPROVAL ONLY		
	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE
Fixed Unit Costs and						
(1) Independent Contracts:						
Bulldozing						
Drifting						
Crosscutting	7965.00	2475.00	10440.00			
Drilling						
(2) Personal Services: Engr.						
Supervision & Technical	201.78	62.70	264.48			
Outside Consultants						
Labor						
(3) Operating Mat'l. & Supplies:						
Timber						
Explosives						
Pipe						
Rail						
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehab. & Repairs:						
Buildings, Fixtures, etc.						
Operating Equipment						
(6) New Buildings, Fixtures, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Analytical Work						
Payroll Taxes						
Employee's Liability Ins.						
Office Expense	40.00	80.00	120.00			
Rehab. Shaft	-	7850.00	7850.00			
Rehab. Level	-	5500.00	5500.00			
TOTALS	8206.78	15967.70	24174.48			

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

Date 11-4-67 *Payee Development Operating Corp

Per Robert C. Tacley Title Mgr.

* 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.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

(INSTRUCTIONS ON REVERSE)

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

$ 6,155.08 14X0804

Signature John
(Authorized Certifying Officer)

Date NOV 17 1967 Vou. No. 83576

(SEE OTHER SIDE)

Certification by Government Representative:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating an exploration project in accordance with the terms of Contract No. 2244

Signature Harold Kirkamo Title Ass't Chief, OME Date 11-14-67

Approved by OME Executive Officer or Alternate:

Signature Harold Kirkamo Title Ass't Chief, OME Date 11-14-67

OPERATOR'S MONTHLY REPORT

The Operator, under an Office of Minerals Exploration contract, is required to report monthly to the Government. The report consists of three parts.

FIRST, the Operator's Monthly Voucher on MME Form 60 listing the project costs incurred and claimed by the Operator is the voucher basis for payment of the Government's share of the cost.

SECOND, the Operator's Progress Report on MME Form 61 is a statistical report of the units and cost of of work performed under the contract.

THIRD, the Operator's Narrative Report is a concise description of the work performed, results accomplished, and any unusual situations encountered, illustrated and supported by engineering-geological maps or sketches, drill hole logs, assay reports, etc., as pertinent.

The Operator submits the original and ~~four~~ three copies of each of the three sections of this report to the OME regional Executive Officer at the end of each month during the life of the contract.

PREPARATION OF OPERATOR'S MONTHLY VOUCHER, MME FORM 60

After all applicable spaces are filled in, the Operator or his agent must sign the certification in the lower left corner. Categories (2) through (7) apply to "Actual Cost" contracts only.

Under "Fixed Unit Costs" and Category (1) report, (a) the total fixed unit costs of work performed under contract provisions for contribution by the Government on a basis of "fixed unit costs"; and (b) the claimed costs of work performed on a unit-price basis by independent contractors.

Under Category (2) include the claimed costs of all payrolled and invoiced supervisory, technical, and labor personnel, except the costs for services applicable to Categories (5) and (6).

Under Category (3) include the claimed costs of all project materials and supplies other than those used for work under Categories (5) and (6).

Under Category (4) report claimed rentals on equipment belonging to a third party, claimed payments or obligations for payments on the Operator's purchase of equipment, and claimed depreciation for the use of Operator-owned equipment.

Under Categories (5) and (6) include all claimed costs of labor, supervision, technical services, operating materials and supplies, and all other items used in (5) the initial rehabilitation and repairs of existing buildings, fixtures, installations (exclusive of mine workings), and operating equipment; and (6) the installation or construction of new buildings, fixtures, and fixed improvements (exclusive of mine workings). Do not report these costs under Categories (2), (3), (4), and (7).

Under Category (7) include all miscellaneous claimed costs such as repairs (other than initial) and maintenance of equipment, sampling and analysis, travel, communication, accounting, office expenses, and the Operator's share of payroll taxes and insurance.

Except for amounts claimed under "fixed unit costs" provisions of the contract, all costs claimed in this voucher must be supported by documentary evidence consisting of: (a) certified copies or transcripts of payrolls which list each employee, wage rate, period of employment, gross earnings, itemized deductions, and net earnings; (b) original or certified copies of invoices, statements of accounts, or purchase orders which indicate items of materials or services, quantities, unit prices, total charges, and payment terms; and (c) certified memoranda of the Operator for such items as depreciation of Operator-owned equipment, unemployment taxes, and employee's liability insurance. The certification may be stated thus, "Certified True Copy (or Transcript)", followed by the signature of the Operator or his agent. One copy of each document should accompany the original of this voucher.

The requirement for submitting documentary evidence of claimed costs may be waived by the OME regional Executive Officer if he determines that it is impracticable for an Operator to submit this material. In any case of waiver of this requirement an "on-site" audit by an OME auditor is mandatory prior to payment of the final Operator's Monthly Voucher.

11/9/67/RMS

MME FORM 61
SEPT. 1959

RECEIVED
NOV 7 1967
SPOKANE, WASH.

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

OPERATOR'S PROGRESS REPORT For Month of October Docket No. 6557

Operator's Name Development Operating Corp. Contract No. 14-23-090-2244

OPERATION	UNITS	FOR OPERATOR'S USE: UNITS THIS MONTH	UNITS TO DATE	COSTS TO DATE	FOR GOVERNMENT USE: APPROVED UNITS THIS MONTH	APPROVED UNITS TO DATE	APPROVED COSTS TO DATE
Drifting							
Crosscutting	Feet	177	232	10440.00	177	232	10,440.00
Raising							
Shafts							
Winzes							
Other Underground							
Drilling, Core-Diamond							
Rotary							
Drilling, Non-core-Diamond							
Rotary							
Churn							
Percussion							
Miscellaneous Surf.	Feet	177	232	264.48	177	232	264.48
Office Expense	No.	1	2	120.00	1	2	80.00 *
Roads and Trails							
Stripping							
Trenching							
Test Pitting							
Other Surface Work							
Initial Rehabilitation and Repairs	Mine Shaft			7850.00			7850.00
Rehabilitation of Mine Workings	55' Level			5500.00			5500.00
New Buildings, Fixtures, etc.							
Operating Equipment Purchases							
Analytical Work							
TOTAL TO DATE *(per MME Form 60)*				24174.48			24,134.48

REMARKS

(Continue on back)

REMARKS

*Office expense not claimed Aug. - $40.00 RMS.

(Continue on back)

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 11-4-67 Operator Development Operating Corp.

Per Robt C. Tally Title Mgr

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

I certify that the information above is complete and accurate to the best of my knowledge and belief.

Signature Harold Kirkham

Title Asst Chief, OME
Government Representative

Date 11-14-67

(INSTRUCTIONS ON REVERSE)

REMARKS *(Cont.)*

REMARKS *(Cont.)*

INSTRUCTIONS FOR PREPARING OPERATOR'S PROGRESS REPORT, MME FORM 61

This report is the second of the three parts of the Operator's Monthly Report. Submit the original and ~~four~~ three copies.

The cost for each operation should be the total of all claimed costs attributable to that type of work with two exceptions, namely—operating equipment purchased and analytical work which are stated separately. For example, drifting costs should be the total of all costs chargeable to drifting including supervision, technical services, timbering (if any), etc. Similarly, drilling costs should include the cost of cementing, reaming, core boxes, etc. This procedure of distribution holds whether the contract was written on an actual cost or a unit cost basis, or some combination of the two. Distribute the cost of such general items as supervision, equipment rented, etc. according to relative footages or on some other conventional basis. The item "Initial Rehabilitation and Repairs" covers all rehabilitation and/or repairs other than the rehabilitation of mine workings.

The item titled "Drilling, Non-core Percussion" includes all drilling performed with wagon, jack-hammer, stoper and mounted drills. The several items labelled "Other" are provided to take care of particular exploration operations not specified on this form.

Development Operating Corp.
P.O. Box 14
Boulder, Montana 59632
11-4-67.

Mr. D.R. MacLaren
Field Officer, OME
U.S. Dept. of Interior
Geological Survey
So. 157 Howard Street
Spokane, Washington 99204

Re: OME 6587
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Narrative.

Dear Mr. Mac Laren:

During the month of October we have driven 177' of X-cut, minimum size 5 x 7', complete as to rail, air & water pipe & vent tube. The total as completed to 11-1-67 is 232.0'

The channel samples taken in September were not submitted because the area is not considered significantly mineralized.

The X-cut continues in dolomite, varying in color from pure white, light brown, yellow, grey & blue, mottled & speckled in places with black inclusions, sometimes changing to a runny brown when associated with seams, as if from leaching.

Samples from assaying are being taken across the mineralized zones at 51-55', 55-64' 80-88' & at any other location where mineralization justifies. We should be near the possible 230' ore intercept, if any, at 248' in early November. The hanging wall of the main shale-dolomite contact is 18' east of the start of the X-cut, west. Nothing startling appears at 178' (160 + 18') although this area will be washed down again & more closely examined. Actually our expectations of ore are for the 360 & 480' intercepts.
The ground breaks good & the number of holes drilled varies from 17-20, blasting 16-19, depending upon the character of the ground. The dolomite varies in hardness from the soft white to a hard vitreous appearing silicified grey. A small amount of water weeps from an occasional hole, as drilled, when encountering a slip, mudseam or vug. It is not serious todate & we use gel. type explosives when encountered. A three hole burn-out round has been effectively used todate. We do have an occasional missed hole due to freezing of the prill explosives, but are careful not to have the holes too close together at the bottom of the round, the usual cause of "freezing". Encounters of slips, water-course or gouge also cause bootlegs. We have averaged 4.75'/ shift worked

advance or 9.5'/two shift work day & have drilled & blasted a 6' round each shift worked todate.

Our equipment has been supplemented with a 12-B Mucking Machine, a Mancha Battery Locomotive with a spare set of batteries, a charging panel with generator & a blower type electric driven fan complete with 450' of 12" vent-tube.

The weather for October was mostly clear & cold, with temperatures varying from the 40's to the high 20's, with occasional rain showers & snow flurries, often accompanied with high winds.

Respectively submitted,

Robt. E. Tally

Robt. E. Tally
Boulder, Montana
11-4-67.

RECEIVED
NOV 7 1967
U. M. E.
SPOKANE, WASH.

LOG OF WEST X-CUT.

0-14:	Grey Dolomite
14-23'	A 0-4" mineralized seam crosses the grey dolomite, dipping 45 degrees east.
23-37'	Grey dolomite
37-51'	Grey dolomite with brown mottled stains.
51-55'	The same cut by a brownish black material, varying in thickness from 2-3' on the bottom of the north wall.
55-64'	A talcy seam 6-12" thick, changing to a brown-black colored breciated material, dipping 35 degrees E cuts the dolomite.
64-80'	Blocky grey dolomite.
80-88'	Dashed vertical lines of black material in the dolomite which in turn is mottled Black-brown in places.
88-100'	Yellow dolomite with brown stains.
100-135	Blocky grey dolomite
135-145	Brown & black specks appearing in the dolomite.
145-150	White dolomite with brown stains appearing adjacent to slips or planes in the blocky dolomite.
150-159	Brown-black specks in the dolomite.
159-166	Yellow dolomite with a 2" seam dipping 20 degrees E. RCT.
166-184	Yellow dolomite
184-190	Blue dolomite
190-203	Talcy seam, 0-1" thickness, dipping 32 degrees E.
203-232	Blue dolomite to the face.

Boulder Montana
11-4-67.

Robt C. Tally

ME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
11/13/67	RMSmith	120
11/13/67	Kuhens	120
"	JTuson	110
		220
		120M

NOV 13 1967

Memorandum

To: Mary L. Smelser, OME Region I

From: Roscoe M. Smith

Subject: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Enclosed are the Field Officer's copies of forms 60 and 61 for October and of Mr. MacLaren's voucher work sheet. I have filled them out and added a note that office expense for ~~October~~ August was not paid because it was not claimed. Mr. Talley may add it to a future voucher if he wishes to claim it. Only those items under "Monthly Total", are considered to be claimed. Please explain to Operator.

Roscoe M. Smith

Enclosures

cc: Director's Reading File
Division File
Economic Geology File
OME Docket
OME Reading File
Mr. Smith
130

RSmith/bsl 11/13/67

23263

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Roscoe Smith

DATE: 11/7/67

FROM : m.l.s.

SUBJECT: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

COPY
C. M. E.
RECEIVED
9 1967
INITIALS | CODE
130
120 S
110

Attached are the MME Forms 60 and 61 for October, a copy of the Operator's letter and Mr. MacLaren's voucher work sheet. I called Mr. Tally and hope covered everything brot up in his letter.

Please return our copy of the Vouchers + narrative. Thanks —

C O P Y C O P Y

11-4-67

Dear Don:

Would it be possible for me to type the original of narrative & other written reports, other than Form 60 & 61, & have the additional 4 copies duplicated on either M M M or Zerox Duplicators?

To date we have received no payment of vouchers submitted. I know that tis type of thing works slowly & in the meantime we are placed at a disadvantage financially.

I would appreciate knowing of any way I could assist the prompt processing of this account from this end. I have learned the hard way of some things not to do.

Kindest personal regards

/s/ BOB

R. E. TALLY

MME FORM 60
SEPT. 1959

RECEIVED
OCT 9 1967
O.M.E.

OFFICIAL COPY
O. M. E.
RECEIVED
NOV 1967
INITIALS

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

Docket No. ~~OME 6587~~
Contract No.
14-23-090- ~~2244~~
Contract Amount $ ~~15967.70~~
Gov't. Participation % ~~75~~ $ ~~11975.78~~
Mineral(s) ~~Silver~~

OPERATOR'S MONTHLY VOUCHER

For Month of ~~Aug. & Sept~~

Operator's Name ~~Development Operating Corp.~~
Address ~~P.O. Box 14, Boulder, Montana 59632~~

COST CATEGORIES	FOR OPERATOR'S USE			FOR GOVERNMENT APPROVAL ONLY		
	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE	MONTHLY TOTAL	PREVIOUSLY REPORTED	TOTALS TO DATE
Fixed Unit Costs and						
(1) Independent Contracts:						
Bulldozing						
Drifting			LCT			
Crosscutting 55.0'	2475.00	-	2475.00	LCT	~~447~~	
Drilling						
(2) Personal Services: Engr.						
Supervision & Technical	62.70	-	62.70			
Outside Consultants						
Labor						
(3) Operating Mat'l. & Supplies:						
Timber						
Explosives						
Pipe						
Rail						
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehab. & Repairs:						
Buildings, Fixtures, etc.						
Operating Equipment						
(6) New Buildings, Fixtures, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Analytical Work						
Payroll Taxes						
Employee's Liability Ins.			LCT			
Office Expense	40.00	40.00	80.00	LCT		
Rehab. Shaft	7850.00	-	7850.00			
Rehab. 550' Lev.	5500.00	LCT -	5500.00			
TOTALS	15927.70	40.00	15967.70	LCT		

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

Date 10-2-67 *Payee ~~Development Operating Corp.~~

Per L.C.T. Tally Title M'gr.

* 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.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

(INSTRUCTIONS ON REVERSE)

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

$ 11,945.77 14X0804

Signature [illegible]
(Authorized Certifying Officer)

Date NOV 7 1967 Vou. No. 83392

(SEE OTHER SIDE)

Certification by Government Representative:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating an exploration project in accordance with the terms of Contract No. 2244

Signature D R Macharen Title Field Officer, Region I Date OCT 24 1967

Approved by OME Executive Officer or Alternate:

Signature D R Macharen Title Field Officer, Region I Date OCT 24 1967

OPERATOR'S MONTHLY REPORT

The Operator, under an Office of Minerals Exploration contract, is required to report monthly to the Government. The report consists of three parts.

FIRST, the Operator's Monthly Voucher on MME Form 60 listing the project costs incurred and claimed by the Operator is the voucher basis for payment of the Government's share of the cost.

SECOND, the Operator's Progress Report on MME Form 61 is a statistical report of the units and cost of of work performed under the contract.

THIRD, the Operator's Narrative Report is a concise description of the work performed, results accomplished, and any unusual situations encountered, illustrated and supported by engineering-geological maps or sketches, drill hole logs, assay reports, etc., as pertinent.

The Operator submits the original and ~~four~~ three copies of each of the three sections of this report to the OME regional Executive Officer at the end of each month during the life of the contract.

PREPARATION OF OPERATOR'S MONTHLY VOUCHER, MME FORM 60

After all applicable spaces are filled in, the Operator or his agent must sign the certification in the lower left corner. Categories (2) through (7) apply to "Actual Cost" contracts only.

Under "Fixed Unit Costs" and Category (1) report, (a) the total fixed unit costs of work performed under contract provisions for contribution by the Government on a basis of "fixed unit costs"; and (b) the claimed costs of work performed on a unit-price basis by independent contractors.

Under Category (2) include the claimed costs of all payrolled and invoiced supervisory, technical, and labor personnel, except the costs for services applicable to Categories (5) and (6).

Under Category (3) include the claimed costs of all project materials and supplies other than those used for work under Categories (5) and (6).

Under Category (4) report claimed rentals on equipment belonging to a third party, claimed payments or obligations for payments on the Operator's purchase of equipment, and claimed depreciation for the use of Operator-owned equipment.

Under Categories (5) and (6) include all claimed costs of labor, supervision, technical services, operating materials and supplies, and all other items used in (5) the initial rehabilitation and repairs of existing buildings, fixtures, installations (exclusive of mine workings), and operating equipment; and (6) the installation or construction of new buildings, fixtures, and fixed improvements (exclusive of mine workings). Do not report these costs under Categories (2), (3), (4), and (7).

Under Category (7) include all miscellaneous claimed costs such as repairs (other than initial) and maintenance of equipment, sampling and analysis, travel, communication, accounting, office expenses, and the Operator's share of payroll taxes and insurance.

Except for amounts claimed under "fixed unit costs" provisions of the contract, all costs claimed in this voucher must be supported by documentary evidence consisting of: (a) certified copies or transcripts of payrolls which list each employee, wage rate, period of employment, gross earnings, itemized deductions, and net earnings; (b) original or certified copies of invoices, statements of accounts, or purchase orders which indicate items of materials or services, quantities, unit prices, total charges, and payment terms; and (c) certified memoranda of the Operator for such items as depreciation of Operator-owned equipment, unemployment taxes, and employee's liability insurance. The certification may be stated thus, "Certified True Copy (or Transcript)", followed by the signature of the Operator or his agent. One copy of each document should accompany the original of this voucher.

The requirement for submitting documentary evidence of claimed costs may be waived by the OME regional Executive Officer if he determines that it is impracticable for an Operator to submit this material. In any case of waiver of this requirement an "on-site" audit by an OME auditor is mandatory prior to payment of the final Operator's Monthly Voucher.

10/31/67/R20S

MME FORM 61
SEPT. 1959

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

OPERATOR'S PROGRESS REPORT For Month of August & Sept. Docket No. OME 6587

Operator's Name Development Operating Corp. Contract No. 14-23-090-2244

OPERATION	UNITS	FOR OPERATOR'S USE: UNITS THIS MONTH	UNITS TO DATE	COSTS TO DATE	FOR GOVERNMENT USE: APPROVED UNITS THIS MONTH	APPROVED UNITS TO DATE	APPROVED COSTS TO DATE
Drifting							
Crosscutting	55'	55'	55'	$2475.00	55'	55'	2,475.00
Raising							
Shafts							
Winzes							
Other Underground							
Drilling, Core-Diamond							
Rotary							
Drilling, Non-core-Diamond							
Rotary							
Churn							
Percussion							
Miscellaneous Engineer	55'	55'	55'	62.70	55'	55'	62.70
Office Expense	2	1	2	80.00	1	2	80.00 L
Roads and Trails							
Stripping							
Trenching							
Test Pitting							
Other Surface Work							
Initial Rehabilitation and Repairs							
Rehabilitation of Mine Workings		Mine Shaft		7850.00			7850.00
New Buildings, Fixtures, etc.		550' Level		5500.00			5500.00
Operating Equipment Purchases							
Analytical Work							
TOTAL TO DATE (per MME Form 60)				15967.70			15967.70

REMARKS

(Continue on back)

REMARKS
L See note L on attached MME-61 for Aug

(Continue on back)

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 10-2-67 Operator Development Operating Corp.

Per Lee P. Tally Title M'gr.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

I certify that the information above is complete and accurate to the best of my knowledge and belief.

Signature [illegible]

Title Field Officer, Region II
Government Representative

Date OCT 24 1967

(INSTRUCTIONS ON REVERSE)

REMARKS *(Cont.)*

REMARKS *(Cont.)*

INSTRUCTIONS FOR PREPARING OPERATOR'S PROGRESS REPORT, MME FORM 61

This report is the second of the three parts of the Operator's Monthly Report. Submit the original and ~~four~~ three copies.

The cost for each operation should be the total of all claimed costs attributable to that type of work with two exceptions, namely—operating equipment purchased and analytical work which are stated separately. For example, drifting costs should be the total of all costs chargeable to drifting including supervision, technical services, timbering (if any), etc. Similarly, drilling costs should include the cost of cementing, reaming, core boxes, etc. This procedure of distribution holds whether the contract was written on an actual cost or a unit cost basis, or some combination of the two. Distribute the cost of such general items as supervision, equipment rented, etc. according to relative footages or on some other conventional basis. The item "Initial Rehabilitation and Repairs" covers all rehabilitation and/or repairs other than the rehabilitation of mine workings.

The item titled "Drilling, Non-core Percussion" includes all drilling performed with wagon, jack-hammer, stoper and mounted drills. The several items labelled "Other" are provided to take care of particular exploration operations not specified on this form.

10/31/67/RMS

MME FORM 61
SEPT. 1959

RECEIVED
SEP 11 1967
O. M. E.
SPOKANE, WASH.

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

OPERATOR'S PROGRESS REPORT For Month of ~~August~~ Docket No.

Operator's Name ~~Development Operating Corp.~~ Contract No. 14-23-090 6587-Silver

OPERATION	UNITS	FOR OPERATOR'S USE: UNITS THIS MONTH	UNITS TO DATE	COSTS TO DATE	FOR GOVERNMENT USE: APPROVED UNITS THIS MONTH	APPROVED UNITS TO DATE	APPROVED COSTS TO DATE
Drifting							
Crosscutting							
Raising							
Shafts							
Winzes							
Other Underground							
Drilling, Core-Diamond							
Rotary							
Drilling, Non-core-Diamond							
Rotary							
Churn							
Percussion							
Miscellaneous							
Office		-1	-	- 40.00	1	—	$ 40.00
Roads and Trails							
Stripping							
Trenching							
Test Pitting							
Other Surface Work							
Initial Rehabilitation and Repairs							
Rehabilitation of Mine Workings Elkhorn Shaft				4695.68			— 1
New Buildings, Fixtures, etc.							
Operating Equipment Purchases							
Analytical Work							
TOTAL TO DATE *(per MME Form 60)*				—			$ 40.00 2

REMARKS

253' of Rehab. has been completed in the Elkhorn Shaft - no units complete

(Continue on back)

REMARKS

1 The completed job is the work unit. Will be approved when completed

2 No MME Form 60 accompanied this progress report. Approved $40.00 will be included next mo. in MME Form 60 to which this will be attached

(Continue on back)

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 908067 Operator Development Operating Corp.

Per Robt. E. Tally Title M'gr.

A willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction is a criminal offense. (U.S. Code, Title 18, Sec. 1001.)

I certify that the information above is complete and accurate to the best of my knowledge and belief.

Signature D P McLaren

Title Field Officer, Region II
Government Representative

Date OCT 24 1967

(INSTRUCTIONS ON REVERSE)

REMARKS (Cont.)

REMARKS (Cont.)

INSTRUCTIONS FOR PREPARING OPERATOR'S PROGRESS REPORT, MME FORM 61

This report is the second of the three ~~parts~~ of the Operator's Monthly Report. Submit the original and ~~four~~ three copies.

The cost for each operation should be the total of all claimed costs attributable to that type of work with two exceptions, namely—operating equipment purchased and analytical work which are stated separately. For example, drifting costs should be the total of all costs chargeable to drifting including supervision, technical services, timbering (if any), etc. Similarly, drilling costs should include the cost of cementing, reaming, core boxes, etc. This procedure of distribution holds whether the contract was written on an actual cost or a unit cost basis, or some combination of the two. Distribute the cost of such general items as supervision, equipment rented, etc. according to relative footages or on some other conventional basis. The item "Initial Rehabilitation and Repairs" covers all rehabilitation and/or repairs other than the rehabilitation of mine workings.

The item titled "Drilling, Non-core Percussion" includes all drilling performed with wagon, jack-hammer, stoper and mounted drills. The several items labelled "Other" are provided to take care of particular exploration operations not specified on this form.

Development Operating Corp.
P.O. Box 14
Boulder, Montana 59632
10-2-67.

Mr. D.R. MacLaren
Field Officer O.M.E.
U.S. Department of Interior
Geological Survey
So. 157 Howard Street
Spokane, Washington 99204

Re: OME 6587 Silver
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Narrative - Geology-Structure

Dear Mr. MacLaren:

In the month of September we have completed the rehabilitation program on the Elkhorn Shaft & the 550' Level in every detail as to opening, clearing, timbering, bridging, track, pipe, lighting, telephone & bell cord communication. The shaft varied in incline from 32-86 degrees. The total distance from the collar to the decking of the station on the 550' Level measured 551.67'. The 550' Level measures 565' from the center line of the shaft to the face at the south. The West X-cut was started from a center line point 517' south of Elkhorn Shaft on the 550' Level. Fifty-five feet of X-cut was completed with a minimum size of 5 x 7' cross section, Complete as to rail, water & air pipe. We started mucking with a slusher & are now using the mucking machine. The total 55' was channel sampled on the north wall about 3.5' above the floor & samples sacked & split for 5.0' intervals.

The weather continues very good with occasional showers.

It was good to accompany Mr. MacLaren on his mine inspection tour of the Elkhorn on Wednesday, Sept. 27th, instant.

Assay certificates with sketch of X-cut, location of samples taken, along with geological formations will accompany the next report, at which time it will have considerable more meaning.

The cross-cut is being driven in a westerly direction, normal to the N-S strike of the main orebody, as outlined on the underground workings map, originally submitted. It is driven in the footwall, under the main workings, in the dolomite, which is soft in character, white in color, when not mineralized.

Twelve feet from the portal of the x-cut a small seam of talcy mineralized material is in evidence, varying in thickness from 1-2", rusty brown to bluish grey in color, dipping 40 degrees to the east & apparently parallel to the main contact of the shale & the dolomite. This vein is connected west on the north wall by a mud seam, varying in thickness from 0-2" highly mineralized in places, to a dark mineralized ore zone at the face, a distance of 43'. This ore zone is just coming into the picture & the next 2-3 rounds along with the assays from the samples taken could be most interesting. This ore varies in thickness, on the face from 2-7' south to north & is overlainwith a broken brownish appearing rock. The use of the term ore here is supplied by the old timers that claim to know the ore. We will see.

Respectively submitted.

Robt. E. Tally

Robt. E. Tally

RECEIVED
OCT 9 1967
O. M. E.
SPOKANE, WASH.

OME

OFFICIAL COPY
O. M. E.
RECEIVED
OCT 12 1967
INITIALS | CODE
1130
1120
1120
RMS 1205

GEOLOGICAL SURVEY
So. 157 Howard Street
Spokane, Washington 99204
October 9, 1967

Mr. Robert E. Tally
Manager
Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632

Re: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana

Dear Mr. Tally:

We are returning all copies of MME Form 61, Operator's Progress Report, because the original copy is made out in pencil. The original should be in ink or typed. As the MME Form 60 is typed, possibly you mailed us your copy of MME Form 61.

We are also returning all copies of MME Form 60 so that you may initial several altered figures. Any alteration on either of these forms should be initialed.

The narrative report is acceptable--in fact it is most informative as well as interesting. We will hold it until we receive the MME Forms 60 and 61 with the corrections indicated.

I am looking forward to my next visit--though I cannot yet say when that will be--and hope by then to see lots of ore.

Sincerely yours,

D. R. MacLaren
Field Officer, OME
Region I

Enclosures

DRMacLaren/mls
cc: OME

Director's Reading File

GEOLOGICAL SURVEY
So. 157 Howard Street
Spokane, Washington 99204
September 18, 1967

OFFICIAL COPY
G. M. M.
RECEIVED
SEP 2 1967
INITIALS CODE
gla 150
fff 120 M
RD 110
HK 130
(Smith)

Mr. Robert E. Tally
Manager
Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632

Re: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana

Dear Mr. Tally:

Enclosed are the original and three copies of proposed Amendment No. 1 (one page), to the subject contract, signed for the Government by the Chief, Office of Minerals Exploration, Geological Survey.

If the proposed amendment is satisfactory to you, please sign all four copies, retain the Operator's copy, and return the other copies to this office.

If the amendment is not satisfactory, please return all copies unsigned to this office with a statement of your proposed changes for consideration.

Sincerely yours,

D. R. MacLaren
Field Officer, OME
Region I

Enclosures

MLSmelser/mls

cc: OME

Director's Reading File

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
9/26		110
9/26	[illegible]	220
9/27	[illegible]	120 M

SEP 26 1967

Mr. M. Brock Evans
Northwest Conservation Representative
4534 1/2 University Way NE
Seattle, Washington 98105

Re: OME-6587 (silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana

Dear Mr. Evans:

A copy of your letter of September 19, 1967, to our Spokane, Washington office, requesting information on the exploration and mine operations under the subject contract has been referred to this office.

The property to be explored comprises a group of patented and unpatented claims in Secs. 11 and 14, T. 6 N., R. 3 W., Elkhorn (unorganized) mining district and Townsite, Jefferson County, Montana. We do not have a map availabe showing the property and other prospecting operations in the area or ownership of the surrounding lands.

Possibly, the State agency listed below could furnish information on any other activity in the area of the Elkhorn mine and where to obtain a claim map of the area:

Montana Bureau of Mines and Geology, Montana College of Mineral Science and Technology, Butte, Montana 59701.

For information on the exploration and mining operations of the Development Operating Corporation, it is suggested that you write to:

Development Operating Corporation, P.O. Box 14, Boulder, Montana 59632.

Sincerely yours,

FRANK E. JOHNSON

Frank E. Johnson
Chief, Office of
Minerals Exploration

cc: Director's reading file
Division file
Economic Geology file
OME file
OME reading file

FEJohnson/bih 9/26/67

23263

M. Brock Evans
Northwest Conservation Representative
4534 1/2 University Way NE
Seattle, Washington 98105

MME FORM 6 REFERENCE SLIP
REV. 2-59 OFFICE OF MINERALS EXPLORATION

TO:	DATE	INITIALS
1. Chief, OME	9/22/67	
2. Re: OME-6587 (Silver) Development Operating Corp.		
3. Elkhorn Mine Jefferson County, Montana		
4. Mary L. Smelser for		
5. D. R. MacLaren		
FROM: Field Officer, Reg. I		

FOR: Check items for action desired

X Action ____ Reply for signature of E. O. M.
____ Approval ____ Investigate
____ Comment ____ Recommendations
____ Conference ____ Rewrite
____ Instructions ____ Your information

Surname
Signature
____ File

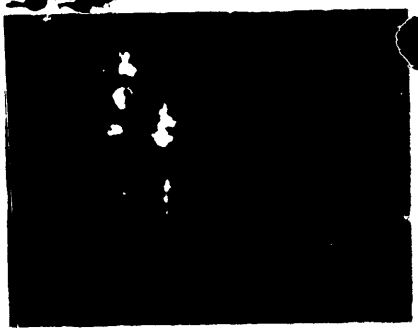
OFFICIAL COPY
RECEIVED
SEP 22 1967

INITIALS	CODE
	130
BH	120
	110
	120
(Smith)	

REMARKS:

For your reply.

INT.-DUP. SEC., WASH., D.C. M56300-62



by Ansel Adams in *This Is the American Earth*

SIERRA CLUB

Mills Tower, San Francisco 4

September 19, 1967

United States Geological Survey Region 1
South 157 Howard Street
Spokane, Washington 99204

Dear Sirs:

A recent press release of United States Geological Survey indicated that you have contracted to assist the Development Operating Corporation of Boulder, Montana, to explore for silver at its Elkhorn mine in Jefferson County, Montana.

I would appreciate receiving some more information about this particular exploration and mine operation. Specifically, could you furnish me with a map indicating the approximate site of both the mine and any other prospecting operations, and also the nature of ownership of the surrounding lands?

Thank you very much.

Very truly yours,

(s) M. Brock Evans

M. Brock Evans

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
9/13	Kirkemo	120
"	Johnson	120
9/14	Kildgaard	110
9/14	[illegible]	220
		110
		220

120M

AIRMAIL

SEP 15 1967

Memorandum

SEP 15 1967

TO: Field Officer, Region I

From: Chief, Office of Minerals Exploration

Subject: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana

Enclosed are the original and three copies of proposed Amendment No. 1 (one page), to the subject contract, signed for the Government. An extra copy of the amendment is also enclosed for field use.

If the proposed amendment is satisfactory to you and the Operator, all four copies should be signed by a duly authorized representative of the Operator and distributed in the usual manner.

If any part of the proposed amendment does not have your approval or that of the Operator, the original and all copies are to be returned to this office together with the proposed changes for consideration.

FRANK E. JOHNSON (glc)

Frank E. Johnson

Enclosures

cc: Director's Reading File
Division File
Economic Geology File
OME Docket
OME Reading File
Mr. Smith
130

BLongbsl 9-13-67

23263

MME FORM 6 REFERENCE SLIP

REV. 2 OFFICE OF MINERALS EXPLORATION

	DATE	INITIALS
TO: Chief, OME	9/11/67	
1. Re: OME-6587 (Silver)		
2. Development Operating Corp.		
3. Elkhorn Mine		
Jefferson County, Montana		
Contract 2244		
4. D. R. MacLaren		
5.		
FROM: Fld. Officer, Reg. I		

OFFICIAL COPY
O. M. E.
RECEIVED
SEP 13 1967

INITIALS	CODE
	130
	120
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FOR: Check items for action desired

____ Action	____ Reply for signature of		____ Surname
____ Approval	____ Investigate		____ Signature
____ Comment	____ Recommendations		____ File
____ Conference	____ Rewrite		
____ Instructions	X Your information		

REMARKS: Operator's Narrative Report for month of August 1967. No forms, MME 60 and 61, included.

M56300-62

INT.-DUP. SEC., WASH., D.C.

Development Operating Corp.
P.O. Box 14
Boulder, Montana 59632
9-8-67.

Mr. D.R. MscLaren
Field Officer, OME
U.S. Dept. of Interior
Geological Survey
So. 157 Howard Street
Spokane, Washington 99204

Re: OME-6587 Silver
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Narrative.

Dear Mr. MacLaren:

We started work on July 20th 1967 with a few men which consisted of inspecting the shafts & levels, making things generally safe, checking the pumping installation, which had been holding the water level at 575, outlining the work to be done, acquiring a crew, getting supplies & generally workwise.

Work on the contract actually started 8-5-67 rehabilitating the Elkhorn Shaft from the 147' below the collar of the shaft. As of 9-1-67, we had completed work down to 400', including sills, track, pipe, electrical services, etc. or a total of 253' feet. Timbering , as outlined in the original proposal was completed to this interval. We worked a crew of 9 men, exclusive of watchman & myself, two shifts per day & five days per week.

In as much as the rehabilitation work in the Elkhorn Shaft & on the 550' Level are considered preliminary to the main exploration program of cross-cutting, driftinh & raising & are set up as a complete unit, no vouchers are submitted at this time for this work, until completed.

The weather continues beautiful, warm in the day time & cool at night. This is the nicest time of the year in Montana. The country is dry & most of the Forests closed because of the fire hazard along with the saw mills & all surface mining operations. Anaconda Copper Co. operations in Butte & Anaconda are closed since 7-15-67 due to the strike. Both of the items have a direct effect on our operations in as much as we purchased timbers & many supplies from these sources.

RECEIVED
SEP 1 1 1967

Respectively submitted,
Robt. E. Tally
Robt. E. Tally M'gr.

MME FORM 6
REV. 2-59

REFERENCE SLIP
OFFICE OF MINERALS EXPLORATION

TO: Chief, OME

	DATE	INITIALS
1. Re: OME-6587 (Silver)	9/11/67	
2. Development Operating Corp.		
3. Elkhorn Mine Jefferson County, Montana		
4. Contract 2244		
5. D. R. MacLaren		

FROM: Fld. Officer, Reg. I

OFFICIAL COPY
O. M. E.
RECEIVED
SEP 13 1967

FOR: Check items for action desired

X Action
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___ Investigate
___ Recommendations
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___ Your information

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REMARKS: Discussed this by telephone with Roscoe Smith -- believe amendment has been prepared covering this.

Taken care of in Am. No. 1 being sent to R-I today gla

INT.-DUP. SEC., WASH., D.C.

M56300-62

Development Operating Corp.
P.O. Box 14
Boulder, Montana 59632

Mr. D.R. MacLaren
Field Officer, OME
U.S. Dept. of Interior
Geological Survey
So. 157 Howard Street
Spokane, Washington 99204

Re: OME 6587-Silver
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana.
Varience in Specs.

Dear Mr. MacLaren:

I have found it almost virtually impossible to secure 16-pound rail for the track work in our program. For this reason I am requesting a variance of mine rail specification of not less than 16-pound size, as outlined on page 1 of Exhibit A of the Exploration Contract. If granted, I will make every effort to secure & place 16-pound rail for the continued future work. In the interim, if granted, the lighter rail is available, conforms in size & weight to that in the Air Shaft & the Elkhorn Shaft down to 147'.

Thank you so very much for your kind consideration in this matter.

Most sincerely Yours,

Robt. E. Tally M'gr.

RECEIVED
SEP 11 1967
O.M.E.
SPOKANE, WASH.

MME FORM 6
REV. 2-59

REFERENCE SLIP
OFFICE OF MINERALS EXPLORATION

TO:	DATE	INITIALS
1. ~~Assoc. Sol.--MR, Rm. 6554~~ ~~Through Rm. 6042~~		
2. Mr. Smith, Rm./4459 G-67-2177.3192		
3. INTERIOR DEPT.		
4. SEP 8 - 1967		
5. SOLICITOR		
FROM: Chief, OME		

FOR: Check items for action desired

____ Action	____ Reply for signature of ____	____ Surname
____ Approval	____ Investigate	____ Signature
____ Comment	____ Recommendations	____ File
____ Conference	____ Rewrite	
Instructions	Your information	

REMARKS:

FROM SOLICITOR
SEP 12 1967
FOR SIGNATURE

RECEIVED
SEP 11 1967
Division of Mineral Resources
and Genenral Legal Services

M56300-62

INT.-DUP. SEC., WASH., D.C.

DRAFT 9/6/67 RMSmith/gla

To Legal 9/7

RMA 120
HR 120
on leave 110
120M

EXPLORATION CONTRACT
DEVELOPMENT OPERATING CORP.
OME-6587

AMENDMENT NO. 1

It is agreed this _____ day of _____, 196~~8~~7, between the United States of America, acting through the Department of the Interior, U. S. Geological Survey, hereinafter called the "Government," and Development Operating Corp., hereinafter called the "Operator," that Exploration Contract 2244 (OME-6587), dated August 4, 1967, is amended effective the date of the contract as follows:

In Exhibit A,

1. Under the heading General Provisions, the second paragraph is revised to read as follows:

"Mine rails shall be not less than 12-pound size, air lines not less than 2-inch diameter, water lines not less than 1-inch diameter, and vent lines not less than 12-inch diameter."

2. Under the heading Description of the Work, the first paragraph [as modified with pen and ink and initialed by R. E. Tally for the Operator and by D. E. MacLaren for the Government] is revised to read as follows:

?

"The initial work shall consist of rehabilitating the Elkhorn main shaft and 550-foot level south drift. Thereafter, at any time during the life of the contract, and with prior approval of the Government confirmed in writing,

the Operator may construct a head frame and compressor house at the collar of the Elkhorn main shaft and install all appurtenant equipment."

This amendment shall not be construed to increase the estimated total cost of the contract, the aggregate amount which the Government may be required to contribute, the amount of any item designated as maximum, nor the fixed unit cost of any item of work.

Executed in quadruplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By_____
Chief, Office of Minerals Exploration
U. S. Geological Survey

DEVELOPMENT OPERATING CORP.

By_____

Title_____

GEOLOGICAL SURVEY
So. 157 Howard Street
Spokane, Washington 99204

OFFICIAL COPY
O. M. E.
RECEIVED
AUG 31 1967

INITIALS	CODE
	120
	110
RMB	120

Mr. Robert E. Tally
Manager
Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632

Re: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana

Dear Mr. Tally:

We are enclosing a three-month supply of Operator's Monthly Voucher and Progress Report, MME Forms 60 and 61. The original and three copies of the completed report forms as well as the narrative, maps, assays, and all technical data, should be submitted for each month in which costs have been incurred under the contract. However, in the event that you do not wish to submit a voucher for any month, the narrative report for the work done in that month is required. Delay in processing can be avoided if reports are submitted promptly to this office.

Also enclosed are three copies of Standard Form 38, entitled "Notice of Nondiscrimination in Employment." In accordance with Executive Order 11246, which is Exhibit B of your contract, you should complete one copy and send it to any labor union that may be involved in your OME contract work and should post one or more copies in conspicuous places available to employees or applicants for employment. The enclosed poster should be kept exhibited in a conspicuous place available to both employees and applicants for employment.

We would appreciate your advising us when the OME contract work has started.

Sincerely yours,

D. R. MacLaren
Field Officer, OME
Region I

Enclosures

MLSmelser/mls
cc: OME

Director's Reading File

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
GEOLOGICAL SURVEY
So. 157 Howard Street
Spokane, Washington 99204
August 28, 1967

OFFICIAL COPY
O. M. E.
RECEIVED
AUG 31 1967

INITIALS	CODE
glu	120 M
	110
	120 S

Memorandum

To: Chief, Office of Minerals Exploration

From: Field Officer, Region I

Subject: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana
Contract 2244

Enclosed are the Government and Budget and Finance's copies of the above-cited contract.

On August 10, 1967, Mr. Robert E. Tally, general manager for the Operator, telephoned the Spokane office to ask that the first paragraph under Description of the Work (Exhibit A, page 2) be liberalized to permit rather than required erection of a headframe and compressor house, as these would not be necessary for this project and he would prefer not to install them unless a discovery should make additional work from a deeper level desirable.

This was discussed with the Branch Chief the same day and it was agreed, in order not to delay the start of the work, that the word "shall" would be lined out and the word "may" substituted therefor, and that the change would be initialled by Mr. Tally and the Field Officer. This would render the contract valid and an amendment, if deemed necessary, would not hold up the work.

Further consideration by the Field Officer of this change indicated that if a discovery were made, the surface facilities could then be installed. However, since they are not necessary for this project, their later installation would, in fact, be preparation for a second application which might not be approved.

Therefore, after explaining this to Tally and stating that if a second application for deeper work should be approved, these items could be part of a new or amended contract, he was advised to line out the words from "of erecting a headframe," to and including "all appurtenant equipment."

The executed contract with this deletion was received August 15, 1967, but the deletion had not been initialled on Budget and Finance's copy. This was returned for initialling the same day and was received August 28, 1967.

As no corresponding changes in costs were made, an amendment will probably be necessary.

Discuss with Legal

D. R. MacLaren

D. R. MacLaren

Enclosures

OFFICIAL COPY
O. M. E.
RECEIVED
AUG 9 1967

INITIALS	CODE
gla	120 M
[illegible]	110
RMS	120 S

GEOLOGICAL SURVEY
So. 157 Howard Street
Spokane, Washington 99204
August 7, 1967

Mr. Robert E. Tally
Manager
Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632

Re: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana

Dear Mr. Tally:

Enclosed are the original and three copies of a proposed contract to explore the subject property. The contract consists of MME Form 51 (five pages), Annex I (two pages), a Lien and Subordination Agreements, Exhibit A (three pages), Exhibit B (one page), and two maps (figs. 1 and 2). The date for commencement of the work should be inserted in Article 1(a) of the contract. All copies of the contract have been signed by the Acting Director for the Government.

You or whoever will be in charge of carrying out the project work under this contract are urged to read carefully all the specifications set forth in Exhibit A. Without prior Government approval subsequently confirmed in writing, the Government may refuse to contribute to the cost of any work that does not conform to those specifications. Your attention is specifically directed to Article 10 and Exhibit B. Appropriate forms to meet the compliance requirements will be sent with forms for reporting monthly progress and vouchering.

If the terms and conditions are satisfactory, sign all copies, keep the Operator's copy, and return the other copies to this office.

If any part of the proposed contract is not satisfactory, please return all copies unsigned to this office with a statement of your proposed changes for consideration.

The 7 percent interest accrues from the date on which the individual payments are made by the Government and like the principal is payable from royalty on production.

Sincerely yours,

D. R. MacLaren
Field Officer, OME
Region I

Enclosures

HESmelser/mls
cc: OME
Director's Reading File

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
8/2/67	P McSmith	120
"	[illegible]	120
"	[illegible]	110
8/2	[illegible]	220
8/3	[illegible]	
	[illegible]	
		110
8/4	cac	220

120M

AIRMAIL

Memorandum

To: Field Officer, Region I

From: Chief, Office of Minerals Exploration

Subject: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana

Enclosed are the original and three copies of a proposed contract to explore the subject property. The contract consists of MME Form 51 (five pages), Annex I (two pages), a Lien and Subordination Agreements, Exhibit A (three pages), Exhibit B (one page), and two maps (Figs. 1 and 2). The date for commencement of the work should be inserted. An extra unsigned copy of the contract is enclosed for field use.

If the proposed contract is satisfactory to you and the Applicant, all four copies should be signed by an authorized representative of the Applicant. Thereafter, please distribute the copies in the usual manner.

Please advise the Applicant that the 7 percent interest accrues from the dates on which the individual payments are made by the Government and like the principal is repayable from royalty on production.

If any part of the proposed contract does not have your approval or that of the Applicant and cannot be altered within your delegated authority, the original and all copies are to be returned to this office together with the proposed changes for consideration.

FRANK E. JOHNSON

(RA)

Frank E. Johnson

Enclosures

cc: Director's Reading File
Division File
Economic Geology File
OME Docket
OME Reading File
Mr. Smith
130

GLAult/a 8-2-67

23263

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
8/2/67	RM Smith	120
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		110
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		120M

AIRMAIL

Mr. Robert E. Tally
Manager
Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632

AUG 2 1967

Re: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana

Dear Mr. Tally:

Please accept our apology for not acknowledging receipt of your letter of July 11, 1967. A contract is now in the final stage of preparation and will be mailed in the next few days to our Regional Office for approval and transmittal to you.

Sincerely yours,

FRANK E. JOHNSON

Frank E. Johnson
Chief, Office of
Minerals Exploration

cc: Director's Reading File
Division File
Economic Geology File
OME Docket
OME Reading File
OME Region I w/cy incoming letter
Mr. Smith

RMSmith/gla 8-2-67

23263

OFFICIAL COPY
O. M. E.
RECEIVED
AUG 2 1967
INITIALS CODE
gla 120 M
110
120 S

Development Operating Corp.
P.O.Box 14
Boulder, Montana 59632
7-31-67.

U.S. Dept. of Interior
Geological Survey - OME
Washington 25, D.C.

Re: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana.

Gentelemn:

Will you kindly acknowledge receipt of our letter of July 11th, instant, accepting your terms of contract on the above Exploration Loan.

My immediate comcern is due to misdirection of past mail. I realize that that these matters take time, but in the interim want to know that we are in direct communications.

Thank you most kindly,

Robt. E. Tally, Mgr.
Robt. E. Tally.

MME FORM 6 REFERENCE SLIP
REV. 2 OFFICE OF MINERALS EXPLORATION

TO:	DATE	INITIALS
1. ~~Assoc. Sol. - MR, Room 6554 (Through Rm. 6042)~~		
2. Mr. Smith, Rm. 4459		
3.		
4.		
5.		
FROM: Chief, OME		

RECEIVED
JUL 26 1967
Division of Mineral Resources
General Legal Services

FOR: Check items for action desired

____ Action ____ Reply for signature of _____
____ Approval ____ Investigate ____ Surname
____ Comment ____ Recommendations ____ Signature
____ Conference ____ Rewrite ____ File
____ Instructions ____ Your information

REMARKS:

INTERIOR DEPT.
JUL 26 1967
SOLICITOR

67-2177.3192

INT.-DUP. SEC., WASH., D.C. M56300-62

DRAFT 7/19/67
RMSmith/gla

MME Form 51
July 1965

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
U. S. Geological Survey

to Legal 7/25

RMS 120
HK 120
JBR ~~110~~
120M

EXPLORATION CONTRACT
(Short Form)

Docket	Commodity	Contract No.	County	State
OME -6587	Silver		Jefferson	Montana

It is agreed _____ (Date), between the United States of America, acting through the Department of the Interior, U. S. Geological Survey, hereinafter called the "Government," and

Development Operating Corp., a Montana corporation

_____,

whose mailing address is **P. O. Box 14, Boulder, Montana 59632**, hereinafter called the "Operator," as follows:

ARTICLE I. Authority and scope.--(a) This contract, entered into under the authority of Public Law 701, 85th Cong., 2d sess. (72 Stat. 700; 30 U.S.C. § 641 - 646), consists of this form, the attached Annex I (land description), Exhibit A (work and costs), and the maps and documents listed. The work is a search for new or unexplored deposits of the commodity designated above. The Operator shall begin the work on or before _____ (Date), and, subject to the provisions of Article 7 and Exhibit A, shall complete the work within **18** months from the date of the contract.

(b) The description of the work and the fixed cost for each unit of work to be performed (per foot of drilling, per foot of drifting, per hour of operations, etc.) are hereby agreed upon as specified in Exhibit A. The estimated total cost of the work is $**90,000.00**. The Government will contribute **75** percent of the total fixed unit costs of the work performed, not in excess of $**67,500.00** in accordance with the provisions of Articles 4 and 5.

(c) Interest computation.--Simple interest at the rate of _____ percent shall accrue from the dates Federal funds are made available until the period specified for payment of royalty expires, or until the amount of Federal funds contributed is fully repaid with interest.

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

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

See Annex I

(b) The Subordination Agreement of the holder of any claim, lien, or encumbrance listed above and (if the Operator does not hold the legal title) the Lien Agreement of any holder of the legal title of the land (lessor, seller, optionor, etc.) are attached as follows:

See Annex I

(c) The Operator shall preserve and maintain his right, title, or interest in the land and his right to the possession thereof for the purposes of this contract, and shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of this contract. The Operator shall neither transfer, convey, nor surrender the land nor any right, title, or interest therein, nor permit nor suffer any claim, lien, or encumbrance thereon, without expressly referring to and providing in the instrument of conveyance, lien, or encumbrance for the preservation of the Government's right to a royalty on production and liens for the payment thereof. Two true copies of such instrument shall be furnished to the Government. If the Government's rights to royalty as provided in Article 6 have been terminated, the provisions of this paragraph (c) shall become inapplicable.

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

(b) Government may inspect.--The Operator shall consult with and inform the Government on all phases of the work as it progresses. The Government may enter at all reasonable times to inspect the work under the contract and production operations during the period that royalty is payable to the Government. The Operator shall provide the Government with all reasonable means of access for such inspections.

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

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

(b) Monthly reports.--The Operator shall provide the Government with four copies of monthly reports in three sections as follows:

(1) Operator's Monthly Voucher claiming costs for work performed;

(2) Operator's Progress Report showing the number of units of the various types of work performed; and

(3) a narrative report of the work performed during the reporting period, including adequate engineering-geological maps or sketches, drill hole logs and locations, and assay reports on samples taken concurrently with advance in mineralized ground.

(Forms for reporting under (1) and (2) above will be provided by the Government.)

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

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

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

ARTICLE 6. Repayment by Operator.--(a) Certification.--If the Government considers that mineral or metal production from the land covered by the contract may be possible as a result of the exploration work, it shall so certify in writing to the Operator at any time not later than six months after a sufficient final report and final accounting (see Article 5) have been furnished.

(b) Royalty on production.--The Operator, whether or not the producer (for example, if the Operator either transfers or does not retain his interest in the land), shall pay to the Government a royalty on all minerals and metals mined or produced from the land as follows:

(1) irrespective of any certification of possible production--from the date of the contract until the lapse of the time within which the Government may issue such certification or until the total net amount contributed by the Government is fully repaid with interest, whichever occurs first; or

(2) if the Government issues a certification of possible production--for a period of ten years from the date of the contract or until the total net amount contributed by the Government is fully repaid with interest, whichever occurs first.

(c) Payment of royalty.--(1) The Government's royalty shall be five percent of the gross proceeds (including any bonuses, premiums, allowances, or other benefits) from the production sold, in the form sold (ore, concentrate, metal, or equivalent), at the point of delivery (the f.o.b. point); except, that charges of the buyer arising in the regular course of business and shown as deductions on the buyer's settlement sheets (such as treatment processes performed by the buyer, sampling and assaying to determine the value of the production sold, and freight payable by the buyer to a carrier (not the Operator or producer)), shall be allowed as deductions in arriving at the "gross proceeds" as that term is used herein. No costs of the Operator or producer are deductible in arriving at the "gross proceeds" as that term is here used.

The term "treatment processes" means those processes (such as milling, concentrating, smelting, refining, or equivalent, but excluding fabricating or manufacturing) applied to the crude ore or other production after it is extracted from the ground to put it into a commercially marketable form.

(2) The Government's royalty shall be computed and paid currently upon each lot sold, held, or used in integrated operations, as the case may be.

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

(e) Lien for payment.--To secure the payment of royalty (see Article 6(b)), the Operator hereby grants to the Government a lien upon his interest in the land and upon any production of minerals and metals therefrom until the royalty claim is extinguished by lapse of time or is fully paid.

(f) Notice to purchasers.--The Operator or producer shall give notice of the Government's claim for royalty to any purchaser of the production, and shall authorize and direct such purchaser to pay the royalty directly to the Government and to furnish the Government with copies of the settlement sheets. If the records of any production and sales or other disposition of production, whether the production is by the Operator or by others, are not made available to the Government, the amount of the royalty may be estimated by the Government, and this estimate shall be final and binding upon the Operator or producer.

(g) No obligation to produce.--Nothing in this contract shall be construed as imposing any obligation on the Operator or the Operator's successor in interest to engage in any production operations.

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

ARTICLE 7. Termination of the Government's Obligations.--(a) If the Government determines that operations at any time have failed to achieve anticipated results and further work is not justified, the Government may give the Operator written notice thereof, and thereupon:

(1) the Government shall be free of all obligation to pay on account of units of work not then performed; and

(2) the Operator shall be free of all obligation to prosecute the work other than such as may be necessary and incidental to final accounting and reporting.

(b) If the Government determines that the Operator is in default under the terms of the contract, the Government may give the Operator written notice of such default with a specification of reasonable time within which the default must be cured; and if the Operator fails to cure such default as required, thereupon:

(1) the Government shall be relieved of all obligation to pay on account of units of work not performed when the notice was given, and

(2) the Operator shall be free of all obligation to prosecute the work other than such as may be necessary and incidental to final accounting and reporting.

The Government may also avail itself of any other remedy the law may provide for breach of contract, including the right to rescind the contract and to demand repayment of all moneys contributed by the Government under the contract.

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

(d) The determinations of the Government are subject to appeal under Article 11.

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

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

ARTICLE 10. Nondiscrimination in Employment.--The provisions respecting nondiscrimination in employment which are required by section 301 of Executive Order 10925, dated March 6, 1961, as amended and supplemented, are attached hereto as Exhibit B and are hereby incorporated in and made a part of this contract.

ARTICLE 11. Disputes.--Any dispute arising under this contract which is not disposed of by agreement shall be decided by the Director, U. S. Geological Survey, who shall reduce his decision to writing and mail or otherwise furnish a copy thereof to the Operator. The decision of the Director, U. S. Geological Survey, shall be final and conclusive unless, within 30 days from the date of receipt of such copy, the Operator mails or otherwise furnishes to the Director, U. S. Geological Survey, a written appeal addressed to the Secretary of the Interior. The decision of the Secretary or his duly authorized representative for the determination of such appeals shall be final and conclusive unless determined by a court of competent jurisdiction to have been fraudulent, or capricious or arbitrary, or so grossly erroneous as necessarily to imply bad faith, or not supported by substantial evidence.

The term "Director, U. S. Geological Survey," as used herein includes his duly authorized representative.

ARTICLE 12. Work Hours Act of 1962 - Overtime Compensation.--This contract, to the extent that it is of a character specified in the Work Hours Act of 1962 (Public Law 87-581, 76 Stat. 357-360) and is not covered by the Walsh-Healey Public Contracts Act (41 U.S.C. 35-45), is subject to the following provisions and to all other provisions and exceptions of said Work Hours Act of 1962.

(a) Overtime requirements.--No Operator or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any laborer or mechanic to be employed on such work in excess of eight hours in any calendar day or in excess of forty hours in any workweek unless such laborer or mechanic receives compensation at a rate of not less than one and one-half times his basic rate of pay for all hours worked in excess of eight hours in any such calendar day or in excess of forty hours in any such workweek, as the case may be.

(b) Violations; liability for unpaid wages; liquidated damages.--In the event of any violation of the clause set forth in subparagraph (a) of this paragraph, the Operator and any subcontractor responsible therefor shall be liable to any affected employee for his unpaid wages. In addition, such Operator and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed, with respect to each individual laborer or mechanic employed in violation of the clause set forth in subparagraph (a) of this paragraph, in the sum of $10 for each calendar day on which such employee was required or permitted to work in excess of eight hours or in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in subparagraph (a) of this paragraph.

(c) Withholding for unpaid wages and liquidated damages.--The U. S. Geological Survey may withhold or cause to be withheld, from any moneys payable on account of work performed by the Operator or subcontractor, such sums as may administratively be determined to be necessary to satisfy any liabilities of such Operator or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (b) of this paragraph.

ARTICLE 13. Copeland (Anti-Kickback) Act--Nonrebate of wages.--The regulations of the Secretary of Labor applicable to contractors and subcontractors (29 CFR, Part 3), made pursuant to the Copeland Act, as amended (40 U. S. C. 276c) and to aid in the enforcement of the Anti-Kickback Act (18 U. S. C. 874) are made a part of this contract by reference. The Operator will comply with these regulations and any amendments or modifications thereof and will be responsible for the submission of affidavits required of independent contractors thereunder. The foregoing shall apply except as the Secretary of Labor may specifically provide for reasonable limitations, variations, tolerances, and exemptions.

ARTICLE 14. Changes and added provisions.--

Executed in quadruplicate the day and year first above written.

DEVELOPMENT OPERATING CORP.
(Operator)

By

Title

THE UNITED STATES OF AMERICA

By

Director, U. S. Geological Survey

I, _____ (Name), certify that I am the _____ secretary of the corporation named as Operator herein; that _____ (Name), who signed this contract on behalf of the Operator, was then _____ (Title) of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

CORPORATE SEAL

EXPLORATION CONTRACT
DEVELOPMENT OPERATING CORP.
OME-6587

ANNEX I

The land, including all rights thereto, referred to in Article 2 of the contract consists of five patented lode mining claims, three patented millsite claims, two unpatented millsite claims, and two unpatented lode mining claims, in secs. 11 and 14, T. 6 N., R. 3 W., MPB&M, Elkhorn (unorganized) mining district and Townsite, Jefferson County, Montana. It is shown on Fig. 1 entitled, "Claim map . . . Development Operating Corporation, Elkhorn Mine," attached and made part hereof.

The patented lode mining claims are as follows:

Name	Patent No.	U. S. Survey No.
A. M. Holter	15347	1374
Hardin	18553	2523-A
Silver Star	19766	2689-A
James R. Keene	28704	1890
Sophia	23222	3882

The patented millsite claims are as follows:

Name	Patent No.	U. S. Survey No.
Hardin Millsite	18553	2523-B
Silver Star Millsite	19766	2689-B
Elkhorn Millsite	20448	2516

The unpatented millsite and lode mining claims are recorded in the office of the Jefferson County Clerk and Recorder, Boulder, Montana, as follows:

Name	Book	Page
Silver Dollar No. 1 Millsite	53	7
Silver Dollar No. 2 Millsite	53	8
Elkhorn Fraction No. 1 (included in James R. Keene)		
Elkhorn Fraction No. 2 (included in Hardin)		

The Operator is the owner of the unpatented claims and is in possession of the patented land under the terms of a Lease dated April 20, 1966, from Laura I. Walker, Charles S. Youlden and Martha Ann Youlden, and Anker B. Henningsen, the owners.

A Lien and Subordination Agreements executed by the owners March 13, 1967, is attached and made part hereof.

EXPLORATION CONTRACT
DEVELOPMENT OPERATING CORP.
OME-6587

EXHIBIT A

The purpose of the project is to explore by crosscutting, drifting, and raising on the 530-foot level of the Elkhorn mine for silver-bearing ore bodies in and along three or more silicified fracture zones ("contacts") which are about parallel with and as much as 480 feet in the footwall of the Elkhorn vein (hanging-wall ore bodies, Elkhorn-Red Lion contact) in Pilgrim dolomite (Cemetery limestone) of Cambrian age.

General Provisions

All drifts, crosscuts, and raises shall be not less than 5 by 7 feet in cross section and shall be timbered as necessary. Drift and raise sets shall be of not less than 8- by 8-inch timber, or equivalent round timber. Raises shall be timbered to provide a chute and manway with lagging on the chute side and ladders on the manway side.

Mine rails shall be not less than 16-pound size, air lines not less than 2-inch diameter, ~~and~~ water lines not less than 1-inch diameter, and vent lines not less than 12-inch diameter.

All significantly mineralized areas traversed by the drifts, crosscuts, or raises shall be sampled normal to the trends of the deposits at intervals not exceeding 5 feet. In addition, a representative bulk sample may be taken of each round broken, but no such sample shall represent more than 5 linear feet of workings.

All samples, from whatever source, shall be split as necessary and one split assayed. The Operator shall store one split of each sample in a suitable container properly labeled.

Stored samples shall be made available for Government inspection and possible use, and may be disposed of with prior Government approval.

All splits of samples for assay shall be analyzed for gold and silver, and for lead and/or zinc as warranted.

True copies of assay certificates and maps or sketches showing the work completed, the location, width, and assay value of all samples assayed, and the geological formations and structures traversed by the workings shall be furnished monthly to the Government.

The Operator shall provide such equipment, materials, power, supervision, labor, and technical services as may be required to perform the work in a satisfactory manner.

The location, direction, and extent of each work item shall be subject to Government approval.

Description of the Work

The initial work shall consist of erecting a headframe and compressor house at the collar of the Elkhorn main shaft, installing all appurtenant equipment, and of rehabilitating the Elkhorn main shaft and 550-foot level south drift to operating condition.

After the initial work is completed, a crosscut shall be driven approximately due west from a point in the 550-foot level

south drift approximately 500 feet south of the main shaft. It is anticipated that mineral showings will be intersected by the crosscut at the 230-, 360-, and 480-foot "contacts." It is estimated that 460 feet of crosscutting will be required to intersect the 480-foot "contact."

Drifts shall be driven northerly and/or southerly on the best showings in the crosscut. It is estimated that 1,040 feet of drifting will be required to explore the mineral showings.

Raises may be driven to explore or further delinate ore bodies found by crosscutting or drifting. It is estimated that 100 feet of raising may be required.

The approximate location of the crosscut and the provisional locations of the drifts are ~~indicated~~ shown in red on Fig. 2 entitled, "Proposed exploration, Elkhorn mine," attached and made part hereof.

Estimated Costs of the Work 1/

Fixed Unit Costs

Constructing headframe, including installation of complete hoisting equipment 2/	$ 500.00
Constructing compressor house, including installation of compressed air facilities 2/	250.00
Rehabilitating main shaft 2/	7,850.00
Rehabilitating 550-foot level drift 2/	5,500.00
Crosscutting and drifting, including timbering, 1,500 feet @ $45.00/foot	67,500.00

Raising, including timbering,		
100 feet @ $47.00/foot		4,700.00
Assaying,		
Gold and Silver,	200 samples @ $3.50/sample	700.00
Lead	140 samples @ $2.50/sample	350.00
Zinc	140 samples @ $2.50/sample	350.00
Office expense, 12 months @ $40.00/month		480.00
Incidental allowance for engineering for each foot of crosscutting, drifting, and raising completed,		
1,600 feet @ $1.14/foot (rounded)		1,820.00
Total Estimated Fixed Unit Costs		$90,000.00
Government Participation @ 75%		$67,500.00

1/ The Government retains no equity in any of the equipment or materials used.

2/ The unit of work is the completed job.

1721 East Mountain Street
Pasadena, California 91104
7-11-67.

OFFICIAL
COPY
O. M. E.
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JUL 14 1967
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U.S. Department of Interior
Geological Survey - OME
Washington 25, D.C.

re: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson, County, Montana.

Gentlemen:

The Development Operating Corporation has agreed to accept your proposed contract & awaits further action on your part.

Kindly address any mail to our Boulder, Montana address at P.O. Box 14, Boulder, Montana 59632 where I will be in residence as of next week.

Sincerely Yours,

Robt. E. Tally

Robt. E. Tally, Mgr.
Development Operating Corp.
P.O. Box 14
Boulder, Montana 59632.

Copy to OME Region I (7/19/67)

1721 East Mountain Street
Pasadena, California 91104
6-29-67.

U.S. Dept. of Interior
Geological Survey-OME
Washington, D.C. 20242

Attention Mr. Frank E. Johnson, Chief
Office of Minerals Exploration.

Re: OME-6587 (Silver)
-Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana.

Dear Sir:

This will serve to acknowledge receipt of your proposal for an exploration program on the above property.

This proposal is being seriously studied & we will arrive at a decision in the very near future & will advise you accordingly.

Sincerely Yours,
Robt. E. Tally
Robt. E. Tally
Mining Engineer

JUL 8 1967
120 M
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Re: the forwarding address written on the envelope by P.O.:

Applicant's letter May 1, 1967, written by Robert E. Tally, Mining Engineer, bears address:

1721 East Mountain Street (not 721)
Pasadena, California 91104

Brace

Phone McLaren 6/19
send to Pasadena.

Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
3/23/67	FM Smith	120
5/24/67	Kirkbemo	120
		110
		220
		120M

AIRMAIL

Development Operating Corp.
P. O. Box 14
Boulder, Montana 59632

resent 6/19/67 MAY 26 1967
To 1721 East Macentlaire St.
Pasadena, Calif. 91104

Re: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana

Gentlemen:

Your application for financial assistance in exploring the referenced mine and other data, including a Lease and a Lien and Subordination Agreements which you submitted to our Regional Office, have been reviewed.

The data available to us indicates that a project of crosscutting, drifting, and raising on the 550 level of the mine meets all the requirements of the OME regulations except for part of the proposed rehabilitation. The OME does not participate in reopening old mines. In this instance, however, where the rehabilitation is prerequisite to the exploration, the costs are allowable to the extent they contribute solely to the search for new deposits. On this basis, rehabilitation of the Main shaft can be allowed at an arbitrary proportion of 50 percent and rehabilitation of the 550 level at 100 percent. The costs of constructing the headframe and compressor house are also allowable at 50 percent, in which case the Government would retain no interest in the salvage value.

We are able to offer you a fixed unit cost contract containing the following units and estimated costs, but before we prepare such a contract we would appreciate being informed whether or not it would be acceptable to you.

Construct headframe (50% salvage)	$ 500.00
Construct compressor house (50% salvage)	250.00
Rehabilitate Main shaft (50% exploratory)	7,850.00
Rehabilitate 550 level (100% exploratory)	5,500.00
Crosscutting and drifting, including timbering 1500 feet @ $45.00/foot	67,500.00
Raising, including timbering 100 feet @ $47.00/foot	4,700.00
Assaying: 200 gold-silver @ $3.50	700.00
140 lead @ $2.50	350.00
140 zinc @ $2.50	350.00

23263

Office expense 12 months @ $40.00/month	$ 480.00
Incidental allowance for engineering, mapping, sampling, (labor, materials and supplies) for each foot of drifting and raising, 1600 feet @ $1.14/foot	1,820.00
	$90,000.00

We shall delay further action on the proposed contract until we receive your reply.

Sincerely yours,

FRANK E. JOHNSON

Frank E. Johnson
Chief, Office of
Minerals Exploration

cc: Director's Reading File
Division File
Economic Geology File
OME Docket
OME Reading File
OME Region I
Mr. Smith

RMSmith/gla

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
GEOLOGICAL SURVEY
So. 157 Howard Street
Spokane, Washington 99204
May 18, 1967

OFFICIAL COPY
O. M. E.
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MAY 22 1967
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Memorandum

To: Roscoe M. Smith

From: Field Officer, Region I

Subject: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana

In line with our telephone conversations of May 16 and 18, 1967, there are tabulated below further estimates of the potential size of ore bodies that could be found by the recommended project, and several changes in the estimated project costs that might reduce the percentage of the total costs allowed for rehabilitation.

Reserves.--During the period 1910-1912, two ore bodies found in the footwall have been partially described by Bowden as comprising one that was mined from the 1650 to below the 2250 level and one on the 1550 level that was mined for a length of 300 feet beyond the 40-foot "contact." No suggestion of the magnitude of the other dimensions are given for either ore body. However, average dimensions of 40 feet one way and 20 feet the other seem conservative for ore bodies 600 feet (1650-2250 levels) and 300 feet (1550 level) high or long. Also 12 cubic feet per ton is believed to be conservative. On this limited factual data an estimate of tonnage contained in each of these ore bodies is:

1650 to 2250 level: $\frac{600 \times 40 \times 20}{12} = 40{,}000$ tons

1550 level: $\frac{300 \times 40 \times 20}{12} = 20{,}000$ tons

The 16,000 tons cited on page 3 of my May 11th memorandum is purely arbitrary and is considered as a conservative minimum amount of ore having a good chance of discovery. There is potentially an equally good chance of discovering in one or more bodies, as much as 25,000 tons. Similarly, the chosen potential grade of 15 ounces silver per ton and not more than 3 percent lead and 3 percent zinc are conservative estimates based in part on the footwall production recorded by

Roby and King, summarized on pages 12 and 13 of my memorandum, and, in part, on drift and stope samples taken by King and Walker, summarized on page 3.

Not taken into consideration were the better drill hole sample assays tabulated on page 11. Their weighted average indicates a grade of 13.14 ounces silver per ton, 1.53 percent lead, and 5.77 percent zinc over a width of 4.6 feet. Of the 10 assays listed 3 or 30 percent contain 21.7, 25.3, and 58.8 ounces silver per ton, only 2 contain as much as 3.03 and 4.20 percent lead, and 6 contain respectively 3.10, 3.48, 5.40, 5.50, 7.57, and 8.66 percent zinc. With the exception of zinc these averages are in the order of the grades used on page 3. However, in the group of samples taken by King and Walker 13 out of 53 assays contain more than 25 ounces silver per ton and average 54 ounces over a width of 2.2 feet. Significantly, 11 of the 13 assays were of samples taken on the 80-foot "contact" where most of the mining in the footwall above the 550 level has been done.

Considering these scattered assays, it is not unreasonable to assume that the maximum average grade that could be expected would be 20 ounces silver per ton, 3 percent lead and 5 percent zinc.

Thus, it is concluded that there is a good chance of finding ore ranging from the tonnage, grade, and value given on page 3 to as much as 25,000 tons containing 500,000 ounces silver worth $640,000.00, 1,500,000 pounds lead worth $195,000.00, and 2,500,000 pounds zinc worth $300,000.00. Such a discovery would be worth some $1,135,000.00.

Costs.--As tabulated on page 24, shaft and drift rehabilitation make up 22.89 percent of the recommended costs. If the two surface installations are each reduced 50 percent for salvage adjustment, the total cost will be reduced to $89,661.60, of which rehabilitation will make up 23 percent.

Reducing the price of the surface installations 50 percent, arbitrarily reducing shaft rehabilitation $700.00 and leaving the 550 rehabilitation unchanged, the total cost will be $88,961.60, of which rehabilitation will comprise 22.48 percent.

Consider the applicant's estimates on pages 12, 13, 14, and 20 of the application:

P. 12 - 1.	Holding water at 550 level $1\frac{1}{2}$ mos	$ 916.50
P. 13 - Recap.	Do.	1,404.00
P. 14 -	423 feet shaft rehab. at $28.50/ft	12,054.00

On the assumption that he has included in the rehabilitation cost all items of cost except those for holding water at 550-foot level and those for a watchman, which are now added, and taking his lower figure for holding water at the 550 level, his estimate for the shaft rehabilitation becomes $13,189.70.

P. 20 - The applicant's estimated cost to rehabilitate 360 feet of drift on the 550 level is $10.35 per foot. His map shows 490 feet. Using his unit cost and allowing for holding water below the level and a watchman, his total cost for this item of rehabilitation comes to $5,548.49. Using his figures for rehabilitation and the reduced cost for surface installations, the total estimated cost would be $87,699.79, of which the cost of rehabilitation will make up 21.4 percent.

If the last estimated costs of rehabilitation are reduced to full thousands or $13,000.00 and $5,000.00 respectively, the total cost will become $86,961.16, of which rehabilitation costs will make up 20.69 percent.

The only way I can find to bring the rehabilitation costs below 20 percent is to make the assumption that the applicant's totals shown on his pages 14 and 20 include provision for the cost of holding the water level below the 550 level and cost of a watchman. Although such an assumption does not appear to be valid, it is no more invalid than an arbitrary reduction in the estimated costs. Based on this assumption and rounding the rehabilitation cost figures, a recommended cost "area" is:

Construct head frame - 1 job	$ 500.00
Construct compressor house-shop - 1 job	250.00
Rehabilitate Main shaft - 1 job	12,000.00
Rehabilitate 550 level - 1 job	5,000.00
1,510 feet crosscut, drift, and/or raise at $44.21/ft	66,757.00
75 feet raise dividers at $2.06/ft	154.50
Assays	1,300.00
Total	$85,961.50

Rehabilitation costs comprise 19.78 percent of this total cost. It could be reduced to 19.5 percent and the toal cost increased to $87,154.50 if a unit cost of $45.00 were provided for crosscutting, drifting, and raising.

D. R. MacLaren

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
5/17	RM Smith	
5/17/67	Nishamo	

AIRMAIL

Memorandum

MAY 17 1967

To: Field Officer, Region I

From: Chief, Office of Minerals Exploration

Subject: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana

Please refer to your Field Examination Report of May 11, 1967, in which an OME contract for exploration on the 550 level of the subject mine is recommended.

We concur in your conclusions that an exploration project is warranted, but from the data presently available to us it appears that the costs of the project are not justified by or commensurate with the estimated value of the discoveries that might be made by the proposed work.

It is evident of course that either or both of two modifications might reconcile these factors.

1. The estimated costs include construction of a headframe and compressor house, initial unwatering of the mine, and rehabilitation of the main shaft. These items are necessary to the exploration but the OME does not participate in reopening old mines. A limited amount of rehabilitation contributing more directly to the exploration, such as rehabilitation of the 550 level, is allowable. Would the Applicant be interested in a contract with these reductions?

2. The estimated value of the ore that might be found by the proposed work is conservative, and very properly so. However, a dollar value is placed on the minimum tonnage and grade, but the possible maximum range in grade is not spelled out, although considerably higher grades are indicated in the table on page 13.

Please let us have the benefit of your interpretation of the upper limits of tonnage and grade that might be found. Please give us your views also on the possibility of additional discoveries from an increase in the recommended drifting.

Although the Elkhorn Fractions Nos. 1 and 2 are within other claims, please indicate the Book and Page where they are recorded. Does the Applicant own these unpatented Fractions?

FRANK E. JOHNSON

Frank E. Johnson

cc: Director's Reading File
Division File
Econ. Geol. File
Mr. Smith

OME Docket
OME Reading File
130
RMSmith/mm (5/17/67)

23263

OME

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
So. 157 Howard Street
Spokane, Washington 99204

MAY 11 1967

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gla | 130
RWD | 120
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Memorandum

To: Chief, Office of Minerals Exploration

From: Field Officer, Region I

Subject: Field Examination Report
OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana

INTRODUCTION

Development Operating Corporation applied for OME aid to explore for silver ore bodies in the footwall zone of the Elkhorn mine in Jefferson County, Montana. The proposed program consists of dewatering the mine from the 550 level to below the 1050 level, rehabilitating the main shaft between the 200 and 1050 levels, rehabilitating the 550 and 1050 levels and, on each of these levels, crosscutting and drifting. The applicant estimates that this proposal will cost $260,000.00, of which the Government's share would be 75 percent or $195,000.00.

The examiner met Robert E. Tally, Manager, and David D. Walker, son of one of the property owners, at Boulder on March 7, 1967. Walker is presently on the Anaconda engineering staff and is helping the applicant on a part time basis. About an hour was spent in Boulder discussing the historical background and the geologic setting, while snow of the previous evening was being plowed from the access road. The mine was then visited and about 3½ hours were spent underground. During the afternoon of March 8, 1967, about 1½ hours were spent with Mr. Tally discussing the acceptability of a limited program, providing one could be justified, and the costs.

SUMMARY

The main Elkhorn ore body occurs in a zone about 40 feet wide in Pilgrim dolomite at the contact between the dolomite and the overlying shaley beds of the Red Lion formation.

ON-SITE REPORT

Ore deposition is controlled by two minor flexures whose axes diverge below the 650 level; above the 650 level the flexures overlap forming one relatively broad arch. Within the 40-foot zone there are replacement bodies in the dolomite that do not in all cases extend to the hanging wall. Ore has been mined in this zone from the surface nearly to the 2300 level. Complete production figures are not available, but between 1875 and 1910 the hanging-wall zone has produced at least $9,750,000.00 mostly in silver. Production from 1902 - 1909, inclusive, is reported to have been 130,979 tons yielding 4,474 ounces gold, 2,764,106 ounces silver, and 3,267,214 pounds lead.

In 1910 new ore bodies were found at distances of 80 and 160 feet horizontally from the hanging-wall contact on the 1650 level and were mined to below the 2250 level. On the 1550 level another footwall ore body was found to extend for 300 feet from the 40-foot "contact" which, up to that time had been considered to be the limit of the ore zone. Other ore bodies of lesser size were found on the deeper mine levels and one was found on the 450 level along the 80-foot "contact." During the period 1910 through 1912 production from the footwall ore bodies is reported to have been 126,593 tons yielding 3,398 ounces gold, 1,985,435 ounces silver, and 3,658,625 pounds lead.

In 1929 the Sophia shaft was sunk vertically to a depth of 110 feet. Between 1945 and 1951 the 360-foot "contact" which was opened by the Sophia shaft produced about 7,000 tons of ore having an average grade of 0.0178 ounce gold and 11.1 ounces silver per ton, 12.15 percent lead, and 2.55 percent zinc. According to the applicant, about 100 tons of this material was rejected. Roby accounts for shipments totalling 6,810 tons, but his settlement figures combine ore and tailings in each shipment and cannot be used for grade determination.

A crosscut from the Sophia 110 level, driven easterly to northeasterly exposes a thin-bedded zone of dolomite that strikes N. 5° W. and dips 40° E. It is believed to be the 230-foot "contact." Three samples cut in this zone by King had an average assay value of 14.04 ounces silver and 0.29 percent lead over a width of 3 feet.

Combined assays of samples taken by Walker and King from stopes and level exposures along the 80-, 230-, and 360-foot contacts indicate a minimum average grade for each as follows:

Contact zone (feet)	Av. width (feet)	Oz/T Ag	Percent Pb
80	3.6	17.34	1.87
230	3.2	8.72	0.22
360	6.8	6.06	0.65
Average FW	4.4	11.43	1.13

Most of these samples were taken from stope walls and do not reflect the value of the ore mined--only what was left.

Most of the available assays of drill hole samples are not of ore grade, but at least four intercepts show ore-grade material of minable widths.

CONCLUSIONS AND RECOMMENDATIONS

It is concluded that there is a good chance of finding replacement ore bodies up to 460 feet into the footwall beds, measured horizontally from the main Elkhorn hanging wall. Although the ore will contain values in lead and zinc, it is further concluded that the principal values will be in silver.

The potential tonnage and grade of ore that might be found is difficult to estimate because of the apparently slight stratigraphic and compositional variations that influence the size and location of the replacement bodies. However, it is concluded that there is a good chance of finding at least 16,000 tons of ore with an average grade of not less than 15 ounces silver per ton, nor more than 3 percent lead, and 3 percent zinc. Whether this is found in one large or several smaller ore bodies, the metal content would be in the order of 240,000 ounces silver worth $309,600.00, 960,000 pounds lead worth, at $0.13 per pound, $124,800.00, and 960,000 pounds zinc worth, at $0.14 per pound, $134,400.00. It is not beyond the realm of probability that considerably more than 16,000 tons of similar grade exist in the footwall above the 550 level.

Meas. Ind. Inf.

as much as 20 oz

as much as 25,000 tons

It is recommended that exploration on the 550 level only be considered at this time and that a contract be prepared for this purpose.

but 9 pts pb
$30,000

See 5/18/67
640,000
195,000
300,000
1,135,000
.05
56,750.00

309,600
124,800
134,400
568,800
.05
28,440.00

Max Govt. Part.
60,000

PROPERTY, LOCATION, AND ACCESSIBILITY

The applicant controls by lease eight patented lode claims and mill sites, and by right of location two unpatented claim fractions. They are shown on figure 1 as follows:

Patented

Claim Name	Survey No.	Patent No.
A. M. Holter Lode	1374	15347
Hardin Lode	2523-A	18553
Hardin Mill Site	2523-B	18553
Silver Star Lode	2689-A	19766
Silver Star Mill Site	2689-B	19766
James R. Keene Lode	1890	28704
Sophia Lode	3882	23222
Elkhorn Mill Site	2516	20448

Unpatented

Claim Name	Book	Page
Silver Dollar No. 1 Mill Site	53	7
Silver Dollar No. 2 Mill Site	53	8

A property map that accompanied the application also shows the Elkhorn Fraction No. 1 entirely within the James R. Keene Lode Claim and the Elkhorn Fraction No. 2 entirely within the Hardin Lode Claim. The lease by virtue of which the applicant controls the patented claims gives for each claim a Survey Number. As a patent survey does not assure the issuance of a patent, the Bureau of Land Management office in Billings was requested to furnish the respective patent numbers. The Sophia patent is based on Survey No. 3882 which appears in the lease as Lot No. 3882. BLM has no record of Survey No. 2878 from this area.

The claims are in secs. 11 and 14, T. 6 N., R. 3 W. P.M., about 19 road miles from the town of Boulder, Montana. To reach the property from Boulder, follow State Highway 281 southeasterly for about 9 miles. Here turn left off the paved highway and follow a generally good gravel county road for about 10 miles to the property. During the winter months the roads can be kept open except during and for a few hours after snowstorms. Year-round operation is feasible.

The property has been developed through three shafts, the main Elkhorn shaft, the Air shaft, and the Sophia shaft. The main shaft was driven at an incline of about 32° to the 1050 level below which

it steepens to about 45°. Just above the 1050 level it crosses the northeast side line of the James R. Keane Claim, an exterior boundary of the applicant's claim group (fig. 1). The southeast drift on the 1050 level is outside the applicant's claims for about 250 feet at which point it enters the Hardin Claim.

The Air shaft was driven at an incline of about 40° to the 270 level and is connected through a winze to the top of a stope above the 450 level; all are in good condition and contain the pump water column. This shaft could also serve as passage for air and water lines required for the exploration and as an emergency escape way.

The Sophia shaft was put down vertically to the Sophia 110 level, which is about 60 feet above the Elkhorn 400 level. It is inaccessible from about 35 to 70 feet and is bulkheaded off at the 110 level.

At the main shaft a small structure houses an electric hoist, but it is too small to serve the needs of an operating shaft. A structure only slightly larger houses an electric hoist, a telephone connected with the 450 level and some shop facilities.

In the old Elkhorn townsite there remain 20 to 30 houses several of which could serve as living quarters for personnel that would prefer not to live in Boulder.

GEOLOGY

The geology of Elkhorn District and the Elkhorn mine has been described by many writers. Among them are:

Weed, W. H., 1901, Geology and ore deposits of the Elkhorn Mining District, Jefferson County, Montana: U. S. Geol. Survey 22d Ann. Rept., pt. 2, p. 399-550.

Knopf, Adolph, 1913, Ore deposits of the Helena Mining Region: U. S. Geol. Survey Bull. 527.

Pardee, J. T., and Schrader, F. C., 1933, Metalliferous deposits of the greater Helena Mining Region: U. S. Geol. Survey Bull. 842.

Klepper, M. R., Weeks, R. A., and Ruppel, E. T., 1957, Geology of the southern Elkhorn mountains, Jefferson and Broadwater Counties, Montana: U. S. Geol. Survey Prof. Paper 292, p. 62-64.

Roby, R. N., et al., 1960, Mines and mineral deposits (except fuels) Jefferson County, Montana: Montana Bur. of Mines and Geology Bull. 16, p. 59 and 111.

Two reports, one by Rowland King prepared in 1938 and one by W. H. Swayne prepared in 1945, accompany the application. Together they present an excellent summary of the earlier reports. Therefore, this section will be limited to a brief description of the geologic setting followed by a discussion of what was seen during the examination.

Rocks in the area comprise dolomites, limestones and shales of Cambrian and Devonian age which have been folded and intruded by diorite and gabbro of probable upper Cretaceous age. The sedimentary beds strike nearly north and dip 35°-50° easterly. The rocks with which the ore deposits are related are the Pilgrim dolomite and the overlying shale or argillite of the Red Lion formation (Klepper, 1957, p. 63). Within the Elkhorn property the general attitude of the beds is disturbed by folding of the Red Lion shale and the dolomite beds below it. Minor fracturing and faulting that probably resulted from the folding developed breccia zones and minor planes of slippage in the dolomite. There has been no major faulting in the immediate mine area, but Klepper (1957, p. 63) mentions a major fault, the Tacoma Gulch fault, to the west and southwest of the property that possibly provided a major channelway for mineralizing solutions from a relatively deep source.

In the Elkhorn mine there are two minor but broad folds or flexures along the dolomite-shale contact. Their respective "crests" diverge down the dip of the contact, the northerly one striking about N. 30° E. down to the 950 level where it swings to about N. 50° E. and the southerly one striking about N. 60° E. down to the 1450 level where it swings to nearly due east. In the levels above the 650 the two folds tend to coalesce forming one relatively broad arch. It is in these folds and the disturbed dolomite beneath them that the Elkhorn ore bodies were deposited.

Weed (1901, p. 477-492) recognizes two general types of ore. Siliceous ore forms an almost continuous tabular replacement deposit in the dolomite at and below the folds in the contact. This is called the hanging-wall zone. Nonsiliceous ore forms irregular-shaped bodies and pods at lower stratigraphic horizons collectively called footwall "contact" zones. The footwall ore bodies are called chamber deposits by Weed, but he makes it clear that they are replacement bodies in the dolomite and are not cave fillings. The chamber concept results from the size and shape of the stopes. He also states that he saw no mineralization along the hanging-wall contact except under the minor folds or arched flexures.

Primary ore minerals are argentiferous galena, some argentiferous tetrahedrite, sphalerite and pyrite in a gangue of unreplaced particles of dolomite. The zinc content of the ore is said to

increase with depth particularly below the 1350 level. Oxidation products are native silver, cerrusite, calamine, malachite, cerargerite, and limonite. Oxidation extends to a considerable depth in the hanging-wall zone, but in the footwall zones it is slight even near the surface. Except for small silica-filled seams, the dolomite shows little alteration due to ore deposition.

In addition to the hanging-wall contact, several other "contacts" have been found since about 1910. The most prominent have been at about 80 feet, 230 feet, 360 feet and possibly 480 feet, measured horizontally, from the hanging wall. Only the first three were seen during the examination. Each of the "contacts" appear to be thin-bedded shale layers within the dolomite or the thin-bedded silicified dolomite.

Zones of crushing and brecciation of the dolomite are also said to have been receptive to some of the footwall ore bodies, however, none were seen by the examiner. That such zones exist is indicated by many of the drill log notations, but only hole BU-13 records interesting assay values from breccia zones. In this hole two samples of brecciated dolomite, taken between depths of 142.9-146.6 feet, have a combined grade of 7.17 ounces silver per ton, 0.1 percent lead and 0.1 percent zinc; one of them assayed 21.7 ounces silver per ton, 0.4 percent lead, and 0.2 percent zinc over a width of 1 foot. Another sample from this hole, indicates a breccia zone containing 25.3 ounces silver per ton, 1.0 percent lead, and 2.6 percent zinc over a width of 3.1 feet.

The hanging-wall ore zone is reported to have an average width of 8 feet in the upper levels and to reach a maximum width of 40 feet on the 1450 level. Originally, the footwall of the main ore zone was considered to be a "contact" about 40 feet horizontally from the hanging-wall contact. From Weed's account and from statements attributed to Josie Bowden, manager during the period 1901-1912, there are many irregular-shaped bodies and lenses found within this 40-foot interval separated entirely from the main hanging-wall ore or connected to it by narrow to knifelike seams. These had apparently been found and mined between 1875-1910.

While he was assembling data for his report, King (1938) received a letter from Bowden from which he quotes (p. 20-21). By June 1910, Longmaid, the operator during Bowden's tenure as manager, had mined all available ore in the old workings and was about to close down. Before doing so, Bowden decided to explore the footwall beyond the 40-foot "contact." He was successful in finding several ore bodies along and/or crossing "contacts" at 80 feet and 160 feet measured horizontally from the hanging-wall contact; one such ore body found on the 1650 level was mined to below the 2250 level. Another, found on the 1550 level extended from the 40-foot contact for 300 feet,

essentially to the 360-foot "contact." Other bodies of lesser size were found on the deeper levels and along the 80-foot "contact" on the 450 level. As a result of these discoveries, Bowden was able to continue operating until the latter part of 1912, all production during this period coming from footwall ore bodies associated with the 80-, 160-, 230-, and close to the 360-foot "contacts."

In 1929 the Sophia shaft was put down vertically to a depth of 115 feet. Workings from the 110 level opened up an ore body on the 360-foot "contact." This was stoped for an average strike length of about 30 feet, a thickness of about 12 feet, and an inclined height of about 155 feet.

During the examination the mine was entered through the main Elkhorn shaft which had been reopened to just below the 200 level and is tightly timbered for the first 150 feet (pl. 1). The shaft is bulkheaded about 20-25 feet below the 200 level and contains considerable muck from the end of the timber to the bulkhead. Timbering will be required in parts of the shaft between 220 and 360 feet where stopes have broken into the shaft from the southeasterly side and from below. Leaving the shaft at the 200 level we proceeded through continuous stoping to the 450 level. The stope has an average width of about 8 feet, but in some places is as much as 15 feet wide and in others is about 6 feet wide, estimated across the dip. From about 10 feet below the bulkhead to the 350 level ore was stoped to the shaft leaving no pillar on the southerly side; from the 350 to the 450 level the shaft is protected by pillars on both sides. Although there was ample evidence of fairly recent spalling of rock from the hanging wall, the ground appears to have stood up well during the many years the mine has been idle. Now stulls, some of them up to 2 feet in diameter, which support the backs, are pretty well rotted.

Coming down through the main stopes, openings could be seen in the footwall that were said to be crosscuts leading to other stopes on the 40-foot contact. Because of the rotting stulls and evidence the* that were beginning to take weight, these stopes were not entered. They are shown on plate 2.

From about 140 to 350 feet southerly from the shaft the 450 level has been pretty much stoped through. Stulls with lagging and narrow rock shelves along the footwall comprise the passage way. About 270 feet from the shaft a crosscut little more than 3 feet wide leads to a small stope about 20 feet from the hanging-wall contact. It is about 45 feet long, 8 feet across and 25 feet high. The smoothness of the stope walls and the lack of noticeable mineralization attest to the careful mining done by Bowden. He is said to have remarked that close assaying was the only safe means of determining ore limits as the ore often could not be detected by eye.

*backs

About 45 feet southerly from the entrance to the stope just described, a 5' x 7' crosscut leads westerly from the hanging-wall zone to the 80-foot "contact" zone. From the end of the crosscut a raise has been kept open to the Sophia 110 level (pl. 2). Stoping in this area was done by Bowden in the 1910-1912 period. The stopes were partly bulkheaded off from the raise and were not entered. About half way to the 110 level the raise was steepened and left the stope in order to connect with the level.

On the Sophia 110 level, about 45 feet southerly from the raise through a small opening in the lagged east wall a stope could be seen dipping about 50° to the west. To date this is the only known westerly dipping ore body. It is about 20 to 40 feet long, striking northerly, and at a dip height of about 15 feet it rolls to the east or joins a flat-lying stope about 40 feet long from north to south, 20 feet wide from east to west and 12 to 15 feet high.

About 170 feet southerly from the raise the 110 level turns to a southwesterly bearing. A band of thin-bedded silicified dolomite about 5 feet thick was seen from 15 to 20 feet westerly from the turn. Except for some iron oxide streaks no metallic minerals could be found. It can only be supposed that this represents the 80-foot "contact," no other evidence of which was seen on the 110 level. About 170 feet southwesterly from the turn the level swings to a bearing of approximately S. 20° W.

The first few feet of this drift section exposed another zone of thin-bedded and somewhat silicified dolomite that has an apparent strike of N. 5° W. and a dip of about 40° E. This zone was followed northerly for about 12 feet by a spur drift; two short raises that connect 10 feet above the level were driven on it. One sample taken from the top of the raises by Walker and five taken along the northerly spur drift by King range in grade from 0.15 ounce silver per ton across 9.5 feet to 19.5 ounces silver per ton across 2.5 feet and from trace lead across 9.5 feet to 0.5 percent lead across 4.0 feet. The six samples have an average grade of 5.28 ounces silver per ton and 0.16 percent lead. The three highest samples taken adjacently and representing an ore length of 6-8 feet have an average grade of 14.04 ounces silver per ton and 0.29 percent lead over an average width of 3.0 feet. This is the 230-foot "contact" from which some minor stoping was done from the Sophia 20 level (pl. 2). There is no record of the tonnage and grade of the stoped ore. Nothing was seen that might indicate the existence of a "contact" between the 80 and 230 zones.

Proceeding westerly the Sophia shaft was found to be bulkheaded on and above the level. Stopes on the 360-foot "contact" were seen from the 110 level but were not entered because of their steepness. The general strike of the stopes is about N. 10° W. and the dip is

is about 40° E. No easily identifiable zone of thin-bedded silicified dolomite such as was seen at the 230 "contact" was seen in this area. Apparently, the mineralizing solutions moved along bedding planes replacing the more receptive parts of the dolomite beds.

From the Sophia shaft, we returned to the 450 level retracing our course along the 110 level and down the raise on the 80-foot "contact." About 35 feet southerly from the crosscut on the 450 level we entered a small stope, crawled through a raise at the top coming out at the bottom of the Air shaft, through which we returned to the surface.

Accompanying the application are logs of 34 diamond drill holes, the locations of which, except for ES-1, are shown on the applicant's map: "Plan of Diamond Drill Holes, 1" = 30', 1955." Of these logs, 18 pertain to holes drilled in the area it is proposed to explore and are shown on plate 1. The drilling was done during 1954-1955 by Mentor Exploration Co., Ltd., of Toronto, Canada. This company was also interested in the Basin Jib mine located about 9 miles south of Boulder, Montana, and was said to be rapidly losing interest in the drilling program to the extent that sludge samples were not assayed (application, p. 2).

Inspection of the logs bears out the applicant's statement on page 2 of his narrative: "Logs with assay results, when finally acquired were of a negative nature, insofar as outlining any major deposits of ore is concerned." He cites the prime drill contractor, "a mining engineer of good professional standing," as stating that good ore was encountered in almost every hole he drilled. He also cites the miner who helped split the core, and who was familiar with the ore having worked in the mine for many years, as saying that "in many holes broken core was not recognized as ore and was not assayed." These parenthetical remarks of the applicant cannot be checked directly, but a review of the 34 logs indicates that from 9 holes no samples were taken, only 1 sample was taken from each of 4 holes, and only 2 were taken from each of 3 holes. A total of 132 samples were taken; however, about 80 percent showed only very low values.

In order to determine which were the most promising core intercepts, excluding those from the hanging-wall contact, the following arbitrary specifications were selected: sample length at least 1 foot, silver assay at least 10 ounces per ton, lead at least 3 percent, and zinc at least 3 percent. Any assay that met at least two of these specifications was considered; if two or more adjacent samples met the specifications, they were averaged. The results were:

Hole No.	Core interval	Width (feet)	Ounces/Ton Ag	Percent Pb	Percent Zn
1	59-64	5.0	13.60	0.50	1.60
4(a)	75-78.4	3.4	58.80	4.20	0.84
(b)	134-140	6.0	13.11	3.03	7.57
(b')	134-153	19.0	6.48	1.21	8.66
5	211.8-213	1.2	8.46	1.90	5.50
7	94.5-96.7	2.2	6.00	1.90	5.40
13(a)	145.6-146.6	1.0	21.70	0.40	0.20
(b)	158.2-161.3	3.1	25.30	1.00	2.60
14	248.5-253.2	4.7	1.30	0.36	3.48
17	113.4-113.7	0.3	13.40	1.60	3.10

These intercepts are shown on plate 1, projected vertically to the plane of the map. Also on plate 1, the 230 and 360 "contacts" are shown projected along their respective strikes on the Sophia 110 level.

Plate 3 is a vertical section through the center line of the proposed crosscut and shows the 230 and 360 "contacts" projected along strikes of N. 5° W. and N. 10° W. respectively. Also shown are the 10 ore intercepts listed above; those in holes 13 and 17 projected along a N. 5° W. strike, all others along a N. 10° W. strike and are shown at their respective altitudes. Allowing for changes in strike and dip of the beds and for the fact that the drill holes might have wandered a little (they were not surveyed) these hole intercepts tend to fall within four general zones. To check this a bit further, nine more mineralized intercepts with width and grade indicated, and the outline of the applicant's section A-A' - 1" = 20' were projected to the section, the latter being traced without reduction in scale.

Hole 6 cut 1.7 feet of below ore-grade material within the apparent limits of the 80-foot "contact" zone but hole 9 in the same zone showed only a trace silver, lead, and zinc. Three other holes that might have given additional data within this zone are hole 16 from which no sample assays are reported, hole 18 which was drilled vertically to a depth of only 12 feet not leaving the hanging-wall zone, and hole 8 which was drilled vertically to a depth of only 9.5 feet, still within the hanging-wall zone.

The 230-foot "contact" projected, along with intercepts in holes 12, 13, 15, and 17 indicate that the 230-foot "contact" is favorable for ore deposition from the 110 level to well below the 550 level.

The 360-foot contact and stoping projected, along with holes 2, 4, 7, and possibly 32 appear to fall within the same zone considered to be the 360-foot "contact" zone.

Holes 1, 4, 5, 14, and 20, along with a stope outline projected appear to fall within one rather wide zone which includes the best drill hole showing: 6.0 feet averaging 13.11 ounces per ton in silver, 3.03 percent lead, and 7.57 percent zinc or 19.0 feet averaging 6.48 ounces silver per ton, 1.21 percent lead, and 8.66 percent zinc. Hole 11 cut a narrow low-grade stringer stratigraphically below the zone, and may or may not represent the 480-foot contact.

PRODUCTION

Weed (1901, p. 414-415) gives the total production from 1875 through 1900 as yielding 8,513.486 ounces gold, 8,922,362 ounces silver and 3,952,784 pounds of lead but unfortunately does not give the tonnage of ore from which this came. Roby (1960, p. 111) gives the total production from 1902 through 1952 as yielding 11,504 ounces gold, 5,860,389 ounces silver, 10,004,780 pounds lead, and 2,839,742 pounds zinc, but his total tonnage from which this production came includes ore, mill tailings and dumps. The entire production from 1875 through 1952 is 20,017.486 ounces gold, 14,782,751 ounces silver, 13,957,564 pounds lead, and 2,839,742 pounds zinc.

All the production reported by Weed came from the hanging-wall zone about 40 feet wide. Production from the footwall, within the meaning of this report, or stratigraphically below the 40-foot "contact" started in June 1910 and continued, under Bowden's management until the shut down in 1912. Weed's figures are insufficient to permit grade determinations, but from Roby's figures, an approximation can be made. However, it must be assumed for this purpose that all ore produced from 1902 through 1909 came from the hanging wall, and all production from 1910 through 1912 came from the footwall ore bodies. There was some mining included in the 1910 figures.

Based on this premise, during 1902-1909 production of hanging-wall ore was:

Ton ore	Ounces Gold	Ounces Silver	Pounds Lead	Ounces/Ton Gold	Ounces/Ton Silver	Percent Lead
130,979	4,474	2,764,106	3,267,214	0.03	21.10	1.25

and production of footwall ore was:

126,593	3,398	1,985,435	3,658,625	0.03	15.68	1.44

The above footwall ore was mined from several stopes below the 1050 level and from one, on the 80-foot "contact," above the 450 level.

Since 1929 there has been some ore mined through the Sophia shaft from the 230-foot "contact" above the 110 level and from the 360-foot contact above and below the 110 level. The production figures are confusing. Roby (1960, p. 111) accounts for 6,673 tons of newly mined ore during the years 1942, and 1943-1951, inclusive, but in each case his reported recovery is for ore and dump material or ore and tailings combined. This precludes calculation of ore grade. However, he states on page 59: "The Sophia is credited with an individual production of 137 tons ore from which 6 ounces gold, 3,740 ounces silver, 25 pounds copper, and 5,479 pounds zinc were recovered--for 7 years between 1915 and 1942." This indicates a grade of 0.04 ounce gold and 27.30 ounces silver per ton, and 1.99 percent zinc.

Referring to the period 1945-1951, the applicant states on page 3: "Shipments of approximately 7,000 tons were made in this time to the Helena Smelter, the settlement sheets of which show an average metal content of 0.0178 oz. Au; 11.10 oz. Ag; 12.15% Pb; 2.55% Zn . . . Some 100 tons of these shipments resulted in rejection."

King (1938, p. 1) says that the average grade of the ore mined from the footwall from 1910-1912 was about 0.025 ounces gold, 19.6 ounces silver and from 2 to 3 percent lead. Elsewhere King reports production in terms of dollar value of gross and net returns and computes the ounces silver per ton.

For purposes of comparison, the above production is tabulated:

			Ounces/Ton		Percent	
Year	Source	Wall	Gold	Silver	Lead	Zinc
1902-1909	Roby	Hanging	0.03	21.10	1.25	Not given
1910-1912	"	Foot	0.03	15.68	1.44	" "
" "	King	"	0.025	19.60	2.0 to 3.0	" "
1915-1942	Roby	Sophia	0.04	27.30	Not given	1.99
1945-1951	Applicant	"	0.0178	11.10	12.15	2.55
Av. level-stope	Roby & King	FW		11.43	1.13	

The figures of Roby and King are in close agreement in view of the fact that some hanging-wall ore is included in Roby's figures for the first half of 1910. For the period 1915-1942 I suspect Roby's figures include some hand-sorted high grade. Except for lead, the

applicant's figures are more nearly in line with the grades of samples cut by King and Walker on the 230-foot "contact," 110 level, and in the stopes.

CONCLUSIONS

Reviewing what has been said by Weed, Knopf, and others including Bowden, and the drilling results, such as they are, plus what was seen during the inspection, it is concluded that the concept of ore deposition in fairly close association with specific "contacts" at distances of 80, 160, 240, 360, and possibly 480 feet measured horizontally from the hanging-wall contact is at best an over-simplification.

It is undoubtedly a fact that true bedding plane contacts tend to offer channelways along which ore-forming solutions have migrated and, where slight stratigraphic and compositional variations are favorable, have formed replacement ore bodies. It is also true that minor fracture planes, joints and brecciated zones beneath the ore-controlling folds offer channelways for the passage of ore-forming solutions. These two features have resulted in the formation of ore bodies of irregular shape and size at various places in the footwall within a horizontal distance of at least 360 feet from the hanging wall. Some have been tabular bodies in general paralleling the strike and dip of the bedding, but in at least one instance, cutting across the beds; some have been pipelike extending from the horizontal to the vertical; some have been chamberlike and even a series of chambers connected by knifelike seams; many have eventually been traced along narrow to knifelike seams back to the main hanging wall. Thus, while bedding contacts may tend to concentrate replacement bodies more or less into zones, it is concluded that this does not preclude the chance of ore deposition controlled by other planes of weakness, whether bedding, joints or brecciated areas occurring anywhere within the limits of the folds along the main contact at distances up to 400 feet horizontally into the footwall dolomite. 480

Finally, it is concluded that there is a good chance of finding ore bodies in the footwall of the Elkhorn mine. Ore bodies, or leads to ore bodies may be expected in the 80-foot, 230-foot, 360-foot, and the 480-foot ore zones broadly indicated on plate 3. Based on the drilling, the strongest showings are in the 480-foot zone where hole 4 exposed 6 feet that assayed 13.11 ounces silver per ton, 3.03 percent lead, and 7.57 percent zinc, and hole 1 exposed 5.0 feet that assayed 13.60 ounces silver per ton, 0.50 percent lead, and 1.60 percent zinc. Other good showings are in the 360-foot zone where hole 4 exposed 3.4 feet that assayed 58.80 ounces silver per ton, 4.20 percent lead, and 0.84 percent zinc, and in the 230-foot zone where hole 13 exposed 3.1 feet that assayed 25.30 ounces silver per ton, 1.00 percent lead, and 2.60 percent zinc.

On the 110 level promise is shown for the 230-foot zone by three samples cut by King which had an average assay of 14.04 ounces silver per ton and 0.29 percent lead over a width of 3 feet.

RECOMMENDATIONS

The applicant proposes to rehabilitate the Elkhorn main shaft to the 1050 level and to prepare the 550 and 1050 levels for access to and haulage from exploratory crosscuts and drifts to be driven in the footwall at each level. However, he also proposes to await completion of the exploration from the 550 level before starting that on the 1050. If exploration from the 550 level should not be as successful as it is expected to be, no work would be done from the 1050 level. In this event, the rehabilitation of the shaft below the 550 level and the rehabilitation of the 1050 level would have been an unnecessary expense. Also it appears that part of the 1050 level is on land not controlled by the applicant. It is therefore recommended that no work below the 550 level be considered at this time. An application for additional funds or a new contract can be considered if the recommended project is successful and additional land is acquired.

The applicant proposes to move the pumping facilities from the Air shaft to the Main shaft. The present arrangement is satisfactory and should not interfere with the recommended exploration.

Because of the unpredictable location and attitude of the replacement bodies, the specifications must be reasonably loose. To accomplish this, the following program is recommended:

1. Rehabilitate the Main shaft to the 550-foot level by cleaning out, timbering where necessary, and installing rail, air and water lines.

2. Rehabilitate the 550-foot level by bridging across open stopes, bringing to grade, and laying rail and pipe.

3. From near coordinates 5280N - 5400E drive a crosscut at least 460 feet due west.

4. After completion of the crosscut, on each of the most promising showings, not to exceed three, drift northerly and/or southerly not *exceed 300 feet or a total of 900 feet.

5. In the event that narrow seams containing high silver values are found to cross any of the drifts, they may be followed for up to 30 feet by drifts or raises. For this, an additional maximum of 150 feet of drifting and/or raising should be provided.

*to

6. In the crosscut, each 5 feet shall be sampled by cutting horizontal channels. Samples may be taken from either wall but should represent in effect one continuous channel the length of the crosscut. Drifts and raises shall be sampled at 4- to 6-foot intervals by cutting channels across the face after each round. Each sample shall be assayed for gold and silver, and where their presence is visible, for lead and/or zinc.

The total number of units involved are:

Shaft and level rehabilitation	1 each
Drifting, crosscutting, and raising	1,510 feet
Assaying - Gold and silver	200 assays
- Lead and/or zinc	120 assays

COSTS

Mr. Tally has kept fairly complete records of cost and cost distribution for the work done to date in the shaft. These were available during a discussion of costs. The applicant's estimates of $28.50 per foot for shaft rehabilitation, and $32.00 per foot for drifting and crosscutting are low because they do not include supervisory costs and allowance for certain items of equipment. His estimate of $10.35 per foot for 550 level rehabilitation is not out of line. Because of his fairly complete cost records, the following estimates will use much of his basic data.

In these estimates a cost per foot for the three types of work will be shown, but it is recommended that a contract allow lump sums for the rehabilitation and construction jobs.

The mine is in an area that invites many fisherman, hunters, campers, and other transients, among whom many have been destructive and looters. It is therefore recommended that provision for a watchman as described on page 24 of the application be retained.

SHAFT REHABILITATION

Rehabilitate 423 feet of shaft; estimated average rate of advance 10 feet per day of two shifts or 5 feet per shift. Time required 86 shifts or 43 days; at 22 days per month, 1.9 say 2 months. Note: Collar to 550 level is 570 feet; no rail or pipe has been installed; shaft has been retimbered for 147 feet, leaving 423 feet to be rehabilitated.

1. Independent Contracts — None

2. Labor and Supervision (per shift)

2 miners at $24/day	$ 48.00
1 helper at $20.80/day	20.80
1 hoistman at $24/day	24.00
½ supervisor-foreman at $30/day	15.00
1/3 watchman at $6.64/day	2.21
	$110.01
FICA and other insurance at 16.9%	18.59
Total	$128.60

At 5 feet per shift — $25.72/ft

3. Operating Materials and Supplies

Air line, 2" w/fittings	
600 ft at $0.60/ft	$ 180.00
(less 50% - no salvage)	
Water line, 1" w/fittings	
600 ft at $0.40	120.00
(less 50% - no salvage)	
Rail, 20#, 1,140 ft at $400/T	760.00
(less 50% - no salvage)	
Fish plates, spikes, etc.,	
at $0.54/ft	307.80
Power including pumping costs	2,447.50
Timber, 11,750 bf at $65/M	
plus 10% for blocks, wedges, etc.	840.12
Total	$4,655.42

At 423 feet of rehabilitation — $11.00/ft

4. Operating Equipment

Furnished by applicant	Present fair market value	Monthly deprec.
1 50 HP elect. hoist	$3,000.00	$50.00
1 2MVR centrif. pump	1,600.00	26.67
1 7.5 HP G-D slusher and scraper	750.00	12.50
		$89.17

For 2 months: $178.34 at 423 feet rehabilitation — $0.42/ft

5. — None

6. New Structures

1 Headframe	$1,000.00
1 Wood frame compressor house-shop	500.00
	$1,500.00

At 423 feet rehabilitation ($3.55/ft)

7. Miscellaneous None

Total shaft rehabilitation $37.14/ft

At 423 feet rehabilitation $15,710.22, say $15,700.00

550 LEVEL REHABILITATION

Bridge across old stopes, bring to grade, lay rail and pipe in 490 feet of drift. Note that the applicant's estimate which he gives on page 20 is based on 360 feet but that the proposed location of his exploratory crosscut as shown on his map is 490 feet from the shaft. It is estimated that 14 days of 2 shifts or 28 shifts will be required. At 22 days or 44 shifts per month, estimated time required is 0.63 months. Estimated average rate of advance 35 feet per day or 17.5, say 18 feet per shift.

1. Independent Contracts None

2. Labor and Supervision (per shift)

2 miners at $24/day	$ 48.00
1 helper at $20.80/day	20.80
1 hoistman at $24/day	24.00
½ supervisor-foreman at $30/day	15.00
1/3 watchman at $6.63	2.21
	$110.01
FICA and other insurance at 16.9%	18.59
Total	$128.60

At 18 feet per shift $7.14/ft

3. Operating Materials and Supplies

Air line, 2" w/fittings	
490 ft at $0.60/ft	$ 147.00
(less 50% - no salvage)	
Water line, 1" w/fittings	
490 ft at $0.40/ft	98.00
(less 50% - no salvage)	
Rail, 20#, 1,000 ft at $400/T	666.00
(less 50% - no salvage)	
Fish plates, spikes, etc.,	
at $0.54/ft	270.00
Power including pumping costs	600.00
Timber	194.40
Total	$1,975.40

At 490 feet rehabilitation $4.03/ft

4. Operating Equipment

Furnished by applicant	Present fair market value	Monthly deprec.
1 50 HP elect. hoist	$3,000.00	$50.00
1 2MVR centrif. pump	1,600.00	26.67
1 7.5 HP G-D slusher and scraper	750.00	12.50
		$89.17

For 0.63 months $56.18 at 490 feet rehabilitation $0.11/ft

5., 6., and 7 None

Total level rehabilitation $11.28/ft

At 490 feet rehabilitation $5,527.20, say $5,500.00

DRIFTING, CROSSCUTTING AND RAISING

Fifteen hundred and ten feet drifting, crosscutting, and/or raising, 5' x 7' in section; raises may be divided into manway and ore pass by stulls and lagging if long enough to be necessary. Rate of advance: 5 feet per shift, 2 shifts or 10 feet per day; 22 days or 220 feet per month; time required 6.8, say 7 months. Estimate 18 holes per 5-foot round. Explosive data (From Atlas Sales, Spokane): 0.8 pound per foot of hole; 108 feet of holes 85 percent filled or 91.8 feet of hole will use 73.44 pounds ammonium nitrate. Delivered price in 1 ton lots, $10.00 per cwt.

1. Independent Contracts — None

2. Labor and Supervision (per shift)

2 miners at $24/day	$ 48.00
1 hoistman at $24/day	24.00
1 helper at $20.80/day	20.80
1 supervisor-engineer-geologist-foreman at $30.00/day	30.00
1/3 watchman at $6.64	2.21
	$125.01
FICA and other insurance at 16.9%	21.13
Total	$146.14

At 5 feet advance per shift — $29.23/ft

3. Operating Materials and Supplies (per 5-foot round)

Ammonium nitrate prills 70 lbs at $10/cwt	$ 7.00
Powder, 11 lbs, at $22.90/cwt	2.52
Caps, 18, at $0.03 each	0.54
Fuse, 150 ft, at $0.02/ft	3.00
Air line, 2" w/fittings 1,450 ft at $0.60/ft (less 50% - no salvage)	1.44
Water line, 1" w/fittings 1,450 ft at $0.40/ft (less 50% - no salvage)	0.96
Air hose, 1" w/fittings 350 ft at $0.57/ft	0.66
Water hose, 1" w/fittings 350 ft at $0.28/ft	0.32
Vent line, 12", 1,400 ft at $1.60/ft (less 50% - no salvage)	3.71
Rail, 20#, 3,000 ft at $400/ton (less 50% - no salvage)	6.62

3. Operating Materials and Supplies (per 5-foot round) cont'd.

Fish plates, spikes, etc. at $0.54/ft	$ 2.68
Ties, 500 each at $0.50	0.83
Power including pumping costs	25.45
Steel, 1 replaced/300 ft at $13.50 each, 108 ft/round	4.86
Bits, 1 replaced/300 ft at $4.80 each, 108 ft/round	1.73
Small tools, repair parts, etc. at $0.50/ft	2.50
Total	$64.82

At 5 feet per round $12.96/ft

4. Operating Equipment

Furnished by applicant	Present fair market value	Monthly deprec.
1 350 cfm compressor	$8,000.00	$ 133.33
1 50 HP electric hoist	3,000.00	50.00
1 15 HP vent fan	500.00	8.33
1 2MVR centrifugal pump	1,600.00	26.67
1 Air receiver tank	300.00	5.00
2 JR-38C Jackleg drills	2,630.00	43.83
1 drill air leader	50.00	0.83
1 12 M mucker	4,000.00	66.67
1 401 air trammer	4,000.00	66.67
6 mine cars	600.00	10.00
Miscl. wiring, switches, fixtures	1,500.00	25.00
		$ 436.33
At 7 months		$3,054.31

At 1,510 feet drifting, etc. $2.02/ft

5. and 6. None

7. Miscellaneous

200 samples assayed as follows:		
200 for gold and silver at $3.50 ea	$700.00	
120 for lead at $2.50 ea	300.00	
120 for zinc at $2.50 ea	300.00	$1,300.00

Total drifting, crosscutting, and/or raising $44.21/ft

TIMBERING

It is estimated that no timbering will be required in crosscuts and drifts. The amount of raising cannot be estimated although some is possible. Raises 10-15 feet high should not require timber, but it is possible that one or more raises more than 15 feet high might be required and some provision for dividers should be made as a safety measure. The following estimate is bases on a possible total of 75 feet of divided raise and on the need for stulls at 5-foot intervals to which 2"x10"x5' lagging will be nailed.

It is estimated that 2 men should be able to stand, block and lag nine stulls or 45 feet per shift, requiring 1.5 shifts.

1. Independent Contracts — None

2. Labor and Supervision

2 miners at $24/day	$48.00
FICA and other insurance at 16.9%	8.11
Total	$56.11

At 45 feet per shift — $1.25/ft

3. Operating Materials and Supplies

15 stulls 4"x6"x5'	= 150 bf
84 lagging 2"x10"x5'	= 700 bf
	850 bf
at $65/M	$55.25
Plus 10% wedges, nails, etc.	5.52
	$60.77

At 75 feet of timber — $0.81/ft

Total for timber — $2.06/ft

RECAPITULATION

Construct new headframe - 1 job 50% salv.	$ 1,000.00
Construct frame compressor house-shop, 1 job "	500.00
Rehabilitate Main shaft - 1 job 50% ?	15,700.00
Rehabilitate 550 level - 1 job 100%	5,500.00
1,510 feet crosscut, drift and/or raise at $44.21/ft $45.00	66,757.10
75 feet raise dividers at $2.06/ft	154.50
Assays	1,300.00
office expense, maps etc	
Total cost of recommended project	$90,911.60
Government's share at 75 percent	$68,183.70

COMMENTS

Unfortunately, the above-estimated cost for rehabilitation makes up 23.3 percent of the total estimated cost. I have gone over the estimates and cannot see where they can be materially reduced. The cost of pumping is continuous and should, I believe, properly be prorated in the cost of each item. However, if its proportionate share were removed from the costs of shaft and level rehabilitation and were charged entirely to the cost of exploration, rehabilitation would make up 20.9 percent of the total cost of the project. If this were done, the recapitulation would be:

Construct new headframe	$ 1,000.00
Construct compressor house-shop	500.00
Rehabilitate Main shaft	13,912.50
Rehabilitate 550 level	5,049.55
1,510 feet crosscut, drift and/or raise at $45.16/ft	68,993.05
75 feet raise dividers at $2.06/ft	154.50
Assays	1,300.00
Total cost of recommended project	$90,911.60
Government's contribution at 75%	$68,183.70

It is not believed that it is proper to make this adjustment, but it is recommended that 23.3 percent of the estimated cost of the project for rehabilitation be accepted and that the applicant's estimate of $10.35 per foot for 550 level rehabilitation be accepted in lieu of the above estimate of $11.25 per foot.

The recommended costs are:

Construct headframe - 1 job	$ 1,000.00
Construct compressor house-shop - 1 job	500.00
Rehabilitate Main shaft - 1 job	15,700.00
Rehabilitate 550 level	5,000.00
1,510 feet crosscut, drift, and/or raise at $44.21/ft	66,757.10
75 feet raise dividers at $2.06/ft	154.50
Assays	1,300.00
Total cost of recommended project	$90,411.60
Government participation at 75 percent	$67,808.70

D. R. MacLaren

D. R. MacLaren

Enclosures
Distribution:
OME
USGS(SRO)
Docket
MacLaren

Ome

1721 East Mountain Street
Pasadena, California 91104
5-6-67.

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O. M. E.
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MAY 10 1967
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JR | 110 m
RMS | 120 f

Mr. D.R. MacLaren, Field Engineer OME
U.S. Dept. Of Interior
Geological Survey
So. 157 Howard Street
Spokane, Washington 99204

Dear Mr. MacLaren:

Re OME-6587 (Silver)
Elkhorn Mine
Jefferson, County, Montana

The following is the information requested by you on the fractions filed upon by the Development Operating Corp:

Silver Dollar Mill Site No. 1 Bk. 53 Lodes Pg. 7

Silver Dollar Mill Site No. 2 Bk. 53 Lodes Pg. 8

Records of Jefferson County, Montana.

Very truly Yours,

Robt E. Tally

Robt. E. Tally
Mining Engineer
Development Operating Corp.
P.O. Box 14
Boulder, Montana 59632.

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MAY 8 1967
Air Mail

MME FORM 6
REV. 2-59

REFERENCE SLIP

OFFICE OF MINERALS EXPLORATION

	DATE	INITIALS
TO: Chief, OME	5/3/67	
1. Re: OME-6587 (Silver)		
2. Development Operating Corp.		
Elkhorn Mine		
3. Jefferson County, Montana		
4.		
5. D. R. MacLaren		
FROM: Fld. Officer, Reg. I		

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MAY 5 1967

INITIALS	CODE
	110
	110
	1208

FOR: Check items for action desired

____ Action ____ Reply for signature of ____
____ Approval ____ Investigate ____ Surname
____ Comment ____ Recommendations ____ Signature
____ Conference ____ Rewrite ____ File
____ Instructions X Your information

REMARKS:

In reply to our letter to the applicant of 4/26/67.

INT.-DUP. SEC., WASH., D.C.

M56300-62

1721 East Mountain Street
Pasadena, California, 91104
4-14-67.

Mr. D.R. MacLarin, Field Officer. O.M.E.
U.S. Dept. of Interior
Geological Survey
So. 157 Howard Street
Spokane, Washington, 99204

Dear Mr. MacLarin:

Attached hereto, please find two copies each of Lein & Subordination Agreements & The Lease, as requested by your organization. If there is anything further that we can do to complete our part of this application, kindly let me know.

Kindest personal regards & we are looking forward to hearing from you & possibly seeing you in the not too distant future.

Yours very truly,

Robt. E. Tally

Robt. E. Tally
Development Operating Corp.
P.O. Box 14
Boulder, Montana 59632

Encl: 2 copies Lease
5 copies lien & Subordination Agreement.

RECEIVED
APR 17 1967
O.M.E.
SPOKANE, WASH.

MME FORM 6 REFERENCE SLIP
REV. 2-59 OFFICE OF MINERALS EXPLORATION

TO:		DATE	INITIALS
1.	Chief, OME	3/1/67	
2.	Re: OME-6587 (Silver) Development Operating Corp.		
3.	Elkhorn Mine Jefferson County, Montana		
4.	D. R. MacLaren		
5.			
FROM:	Fld. Officer, Reg. I		

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FOR: Check items for action desired

____ Action ____ Reply for signature of
____ Approval ____ Investigate ____ Surname
____ Comment ____ Recommendations ____ Signature
____ Conference ____ Rewrite ____ File
____ Instructions X Your information

REMARKS:

In reply to my letter of 2/23/67.

INT.-DUP. SEC., WASH., D.C. M56300-62

1721 East Mountain Street
Pasadena, California 91104
2-27-67.

Mr. D.R. MacLarin, Field Officer, O.M.E.
U.S. Dept. of Interior
Geological Survey
So 157 Howard Street
Spokane, Washington 99204

Dear Mr. MacLaren:

I will be most happy to meet you at the Diamond S. Ranch Hotel just a few miles south of Boulder, Montana on Tuesday, March seventh between 8:00-8:30 A.M. preparatory to talking over our application & making an inspection of the Elkhorn Mine.

Yours very truly,

Robt. E. Tally

Robt. E. Tally, M'gr.
Development Operating Corp.
P.O. Box 14
Boulder, Montana.

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SPOKANE, WASH.

OMe

1721 East Mountain Street
Pasadena, California 91104
1-17-67.

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U.S. Dept. of Interior
Office of Minerals Exploration
Geological Survey
So. 157 Howard Street
Spokane, Washington 99204

Attention of : Mr. D.R. MacLaren, Field Officer, Region 1.

Dear Mr. MacLaren:

Re: OME 6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana

As of December 1966 we have curbed our operations at the Elkhorn Mine, but continue to hold the water below the 550' Level. In other words we are operating the pump; the mine is open to that level; there is plenty of snow on the ground, but access to the mine is open.

In the event that you or your crew plan on making an inspection of the property in the immediate future, I would appreciate your letting me know at the above address, so that I can arrange to be there, in order to be of any assistance possible.

In the event that additional information is required please contact me at this address for more prompt attention.

Yours very truly,

Robt E. Tally

Robt. E. Tally. Mgr.

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JAN 19 1967
Air Mail
O.K.
SPOKANE, WASH.

GEOLOGICAL SURVEY
So. 157 Howard Street
Spokane, Washington 99204
February 23, 1967

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FEB 27 1967

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	110
	120 S

Air Mail

Mr. Robt. E. Tally, Manager
Development Operating Corp.
1721 East Mountain Street
Pasadena, California 91104

Re: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana

Dear Mr. Tally:

The night of March 6 I will be at the Main Motel, 910 N. Last Chance Gulch, Helena, and expect to visit the Elkhorn mine the following day.

As there are several points to be clarified, I hope that you will be able to be present. In the event that you will be unable to meet me, perhaps Dave Walker or Mr. Lindblom would be available.

Kindly advise me whom I should meet and designate a meeting place either in Boulder, at say 8:00 or 8:30 a.m., or in Helena.

Sincerely yours,

D. R. MacLaren
Field Officer, OME
Region I

DRMacLaren/mls

cc: OME

Director's Reading File

1721 East Mountain Street
Pasadena, California 91104
5-1-67.

Mr. D.R. MacLaren, Field Officer OME
U.S. Dept. of Interior
Geological Survey
So. 157 Howard Street
Spokane, Washington 99204

Re: OME-6587(Silver)
Elkhorn Mine
Jefferson County, Montana.

Dear Mr. MacLaren:

Thank you for your letter of April 26th, regarding the two claim fractions & that unnamed block of ground shown on your tracing of the Mentor Claim Map, in red .

These fractions were open ground & Development Operating Corp. filed on them, recording them on July 22, 1966, as mill sites. These filings were made for nuisance value only, to keep others off the property. It is doubtful that surface or near-surface mineralization of sufficient quality or quanity would be encountered to make them legal lode claims. No surface discovery work has ever been done on these fractions & of course the underground workings from patented calims does not apply for assessment work on non-patented claims. I do not have the book & page numbers of these filings & recordings with me but am requesting them today & will forward them to you as soon as possible.

The lower half of Fraction No. 2 is covered by Hardin MS 2523 A, as shown by enclosed plat.

The unnamed ground in question as shown in your tracing is part of the St. Patrick & Relief Patented Claims, under separate outside ownership.

The Elkhorn Shaft has a slope angle of -32 degrees to water level, about 20' below the 550' Level & there are no ownership conflicts on the first phase or stage of the proposed exploration from the 550' Level, some 500' to the south of the Elkorn Shaft Station. We are not interested in exploration in the immediate vicinity of the old Elkhorn Mine Workings, but rather in the virgin ground to the south, virtically below the A.M. Holter Claim.

In accordance to Montana Mining Law, we have extra-lateral rights on that small portion of ground in the vicinity of the Elkhorn Shaft, & again the exploration work is vertically below the Hardin Claim. (1050' level)

Would it not be possible & feasible to take the first stage of the proposed exploration program separate from the second on the 1050' Level ? In any case the second stage would only be definietly considered & approved once the first stage exploration work from the 550' Level proved up to justify the second stage. This would give us time to satisfy government rules & regulations & if necessary, to obtain an easement from the owners of one or both the St Patricks & Relief Claims.

In the interim, we are under considerable expense & about reached that point where we need to know where we are going, without any intent of pushing the matter.

Please call upon us if there is any way that we can possibly clear up any question that may arise or remains unanswered,

Most sincerely yours,

Robt. E. Tally

Robt. E. Tally
Mining Engineer
Development Operating Corp.
P.O. Box 14
Boulder, Montana 59632.

RECEIVED
MAY 3 1967
O.M.E.
SPOKANE, WASH.

MILL SITE LOCATION NOTICE

Notice is hereby given that I, R. A. Lindblom, employed as engineer by and acting as agent for Development Operating Corporation, lessee of the A.M.Holter, James R. Keene and other patented lode claims in the Elkhorn Mining District, have this day of July 22, 1966, located approximately 0.55 acres of land to be known as the Silver Dollar No. 1 MILL SITE, situate in the Elkhorn Mining District in Section 14, T 6 N, R 3 W, Montana Principal Meridian, County of Jefferson, State of Montana, and described as follows:-

> Beginningat Corner No. 1, identical with Corner No. 1 of the James R. Keene lode claim, Patent No. 28704, thence N 35° E, approximately218 feet along the southeast endline of the James R. Keene claim to Corner No. 2; thence S 25° W, approximately 361 feet to Corner No. 3, a point on the east sideline of the A. M. Holter claim, this sideline of the Silver Dollar No, 1 being in part identical with the northwest boundary of the Elkhorn Mill Site, Patent No. 20448; thence N 31° W, approximately 344 feet, along the east sideline of the A. M. Holter claim, Patent No. 15347, to Corner No. 4, this point being also on the southwest sideline of the James R. Keene claim; thence S 58° E, approximately 250 feet along the southwest sideline of the James R. Keene claim to Corner No. 1, the point of beginning.

Name of this mill site is the Silver Dollar No. 1.

R. A. Lindblom, Locator, acting as agent and on behalf of the Development Operating Corporation, a Montana corporation.

MILL SITE LOCATION NOTICE

Notice is hereby given that I, R.A.Lindblom, employed as engineer by and acting as agent for the Development Operating Corporation, lessee of the A.M.Holter, James R. Keene and other patented mining claims in the Elkhorn Mining District, have this day of July 22, 1966 located approximately 0.47 acres of land to be known as the SILVER DOLLAR NO. 2 MLLL SITE, situate in section 14, T 6 N, R 3 W of the Montana Principal Meridian, in the Elkhorn Mining District, County of Jefferson, State of Montana and described as follows;-

> Beginning at Corner No. 1, a point on the east sideline of the A.M.Holter claim, Patent No. 15347, lying approximately 90 feet N 31° W from the southeast Corner No. 4 of the A.M. Holter claim; thence N 31° W, approximately 212 feet along t the east sideline of the A.M.Holter claim to Corner NO. 2; thence N 41° E, approximately 205 feet along the southeast boundary of the Elkhorn Mill Site, Patent No. 20448, to Corner No. 3; thence S 4° W, approximately 338 feet along the west sideline of the Hardin claim, Patent No. 18553 to Corner No. 1, the point of beginning.

Name of this mill site is the SILVER DOLLAR No. 2.

R. A. Lindblom, Locator, acting as agent and on behalf of the Development Operating Corporation, a Montana corporation.

GEOLOGICAL SURVEY
So. 157 Howard Street
Spokane, Washington 99204
April 26, 1967

GEOLOGICAL SURVEY
APR 28 1967
LETTERS COLL
170 W
110
120 S

AIRMAIL

Mr. Robert E. Tally
Development Operating Corp.
1721 East Mountain Street
Pasadena, California 91104

Re: OME-6587 (Silver)
Elkhorn Mine
Jefferson County, Montana

Dear Mr. Tally:

The enclosed sketch of the claims pertinent to the Elkhorn mine was traced from the claim map which accompanied your OME application. On it I have outlined in red two claim fractions and one unnamed block of ground of which I can find no reference in the lease.

Presumably, Elkhorn Fraction No. 1 was located to cover open ground near the southeast corner of the James R. Keene, the Elkhorn Fraction No 2 was located to cover open ground near the southeast corner of A. M. Holter, and the unnamed block of ground was located to fill an open area bounded by Elkhorn M.S., Hardin, Relief, St. Patrick, and James R. Keene claims.

If these three fractions are owned by Development Operating Corporation by right of location, we will need the missing name as well as the book and page on which each location is recorded. If they were located by others, we will need in addition to the book and page on which they are recorded two copies of the document by which Development Operating Corporation acquired its right to them and appropriate Lien and Subordination Agreements.

As soon as I hear from you, I will send you the Lien and Subordination forms if they are necessary.

Sincerely yours,

D. R. MacLaren
Field Officer, OME
Region I

Enclosure
cc: Mr. Robert E. Tally
P. O. Box 14
Boulder, Montana 59632

DRMacLaren/mls
cc: OME w/cpy enclosure
Director's Reading File

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
1/6/67	RM Smith	120
1/6/67	Ikeborne	120
		110
1/9	cae	220
		120M

To: Field Officer, Region I

From: Chief, Office of Minerals Exploration

Subject: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana

The undated application, received December 27, 1966, is referred to Region I for review, a field examination if you consider it necessary, and recommendations.

Although the application is well documented, we have several questions relating to the geologic probability of a significant discovery, and, if you recommend a contract, several others on the allowable work and costs.

The purpose of the proposed project is to explore for silver-lead-gold-copper ore on the 550 level and, if warranted, on the 1050 level of the Elkhorn (Holter) mine, first by crosscutting westward from the east-dipping upper contact of the Pilgrim dolomite (Cemetery limestone) which is the locus of the two largest ore shoots in the mine and in the district, and then by drifting north and south along each of three fracture zones marked by thin strata of shale called "contacts" which are known to be mineralized elsewhere in the mine.

Ore bodies were mined along "contacts" at horizontal distances of 40, 80, and 230 feet from the upper (hanging wall) contact of the dolomite with the overlying Red Lion formation (Dry Creek shale) or Elkhorn hornstone). Other "footwall" ore bodies, however, were mined along fracture zones at right angles to the contacts, and ". . . the largest footwall stope extended horizontally into the footwall dolomite for 300 feet directly below the old hanging wall stopes." Still other footwall ore bodies were vertical pipes and ". . . many were tabular at right angles to the hanging wall contact." Other mineralized "contacts" are known at distances from the upper contact of 150 feet (140-160), 340, 360, and 480 feet. All of these are exposed in the footwall (Sophia) workings except the last one at 480 feet, which is exposed only by drill holes.

23263

The footwall deposits pinch and swell along the strike and down the dip. Consequently, ". . . whenever a knifeblade of ore can be found, it pays to follow it up and develop it, as it often leads to another lense of ore."

Considering that the proposed drifting is designed to explore "contacts" at 230, 360, and 480 feet, and that the largest footwall stopes were at right angles to the "contacts," we wonder if the proposed work will adequately explore the area. Considering that the footwall stopes are not mapped, we wonder whether the area to be explored is already explored, and considering that the sizes of the lenses along the "contacts" are not mentioned, we question the basis for the implied inference that a discovery would be commensurate with the cost.

If you recommend a contract, please let us have your comments on the advisability and eligibility of the proposed work on the 1050 level. Since this work would be a repetition of the crosscutting and drifting on the 550 level, should it be classed as prospecting, exploration, or development?

It appears from the application that rehabilitation is now in progress and that some additional amount would be done before a contract could be prepared. We would not approve an extensive rehabilitation project, but we could approve as much as 20 percent of the total costs where it is necessary to perform the exploration. In any event, the cost estimate should be updated to exclude any rehabilitation already completed.

The Applicant's cost estimate should be revised in accordance with our procedures. For example, equipment owned by the Applicant should be depreciated; materials, such as pipe and track, should be discounted 50 percent for salvage value; facilities, such as existing buildings, should not be included; and contingencies are not allowable costs.

Also, if you recommend a contract, please request the Applicant to furnish a true copy of the lease and five copies each of Lien and Subordination Agreements signed by the three owners. According to the bank letters in the application, these agreements can be obtained.

FRANK E. JOHNSON

Frank E. Johnson

cc: Director's Reading File
Division File
Economic Geology File
OME Docket
OME Reading File
Mr. Smith
130

RMSmith/gla 1-6-67

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
1/6	RM Smith	
1/6/67	Kirkham	

Development Operating Corp.
P. O. Box 14
Boulder, Montana

Re: OME-6587 (Silver)
Development Operating Corp.
Elkhorn Mine
Jefferson County, Montana

Gentlemen:

Your application for assistance in exploring the referenced mine has been reviewed by the Washington, D. C. office and referred to Mr. D. R. MacLaren, Field Officer, Office of Minerals Exploration, Region I, U. S. Geological Survey, South 157 Howard Street, Spokane, Washington 99204.

The Regional Office will notify you if additional information is needed.

Sincerely yours,

FRANK E. JOHNSON

Frank E. Johnson
Chief, Office of
Minerals Exploration

cc: Director's Reading File
Division File
Economic Geology File
OME Docket
OME Reading File
Region I
R. M. Smith

RMSmith/mm (1/6/67)

23263

December 27, 1966

Development Operating Corp.
P. O. Box 14
Boulder, Montana

Subject: OME-6587

Gentlemen:

Your application for exploration assistance, undated, submitted to our office at Spokane, Washington, has been assigned Docket No. OME-6587.

Please identify all future correspondence relating to your application by this docket number.

Sincerely yours,

Frank E. Johnson
Chief, Office of
Minerals Exploration

Copy to Region I

Old Lodge Hall in Elkhorn, Montana.

Scene near shaft collar, Elkorn mine.

Elkorn, Montana from mine dump.

Looking north toward Elkhorn Peak from near shaft collar--Elkhorn mine.

Shaft collar area at Elkhorn mine, looking southeast. Note that the mine cars are in the same position as they were in 1976, indicating there has been no mining activity since that time.

General view of village of Elkhorn looking south from near shaft of Elkhorn mine.

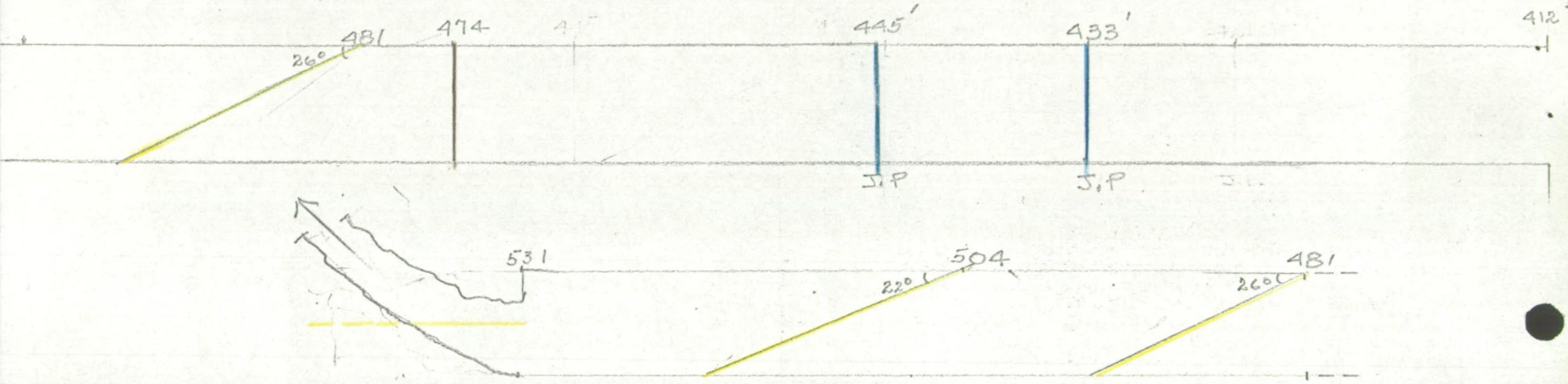
General view of shaft collar area, Elkhorn mine.

ELKHORN
1603
TOWNSITE
SOPHIA
1906
WM HOLTER
1874
SOLITONE FORE
1890
JAMES P. KEENE
1906
KLONDIKE
ST. PATRICK
SILVER
STAR
HARDIN MS
SILVER STAR MS
HARDIN MS
RELIC
DUNS
24
23

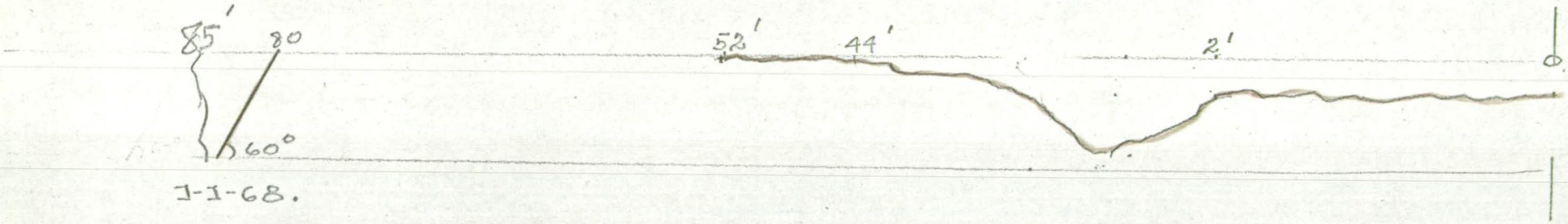
OME-6587
Development Operating Corp.

Progress Plan
Elkhorn Mine
Scale 1" = 100

Certified True Copy.
Robt. C. Taely.



W. X-CUT. N. WALL.



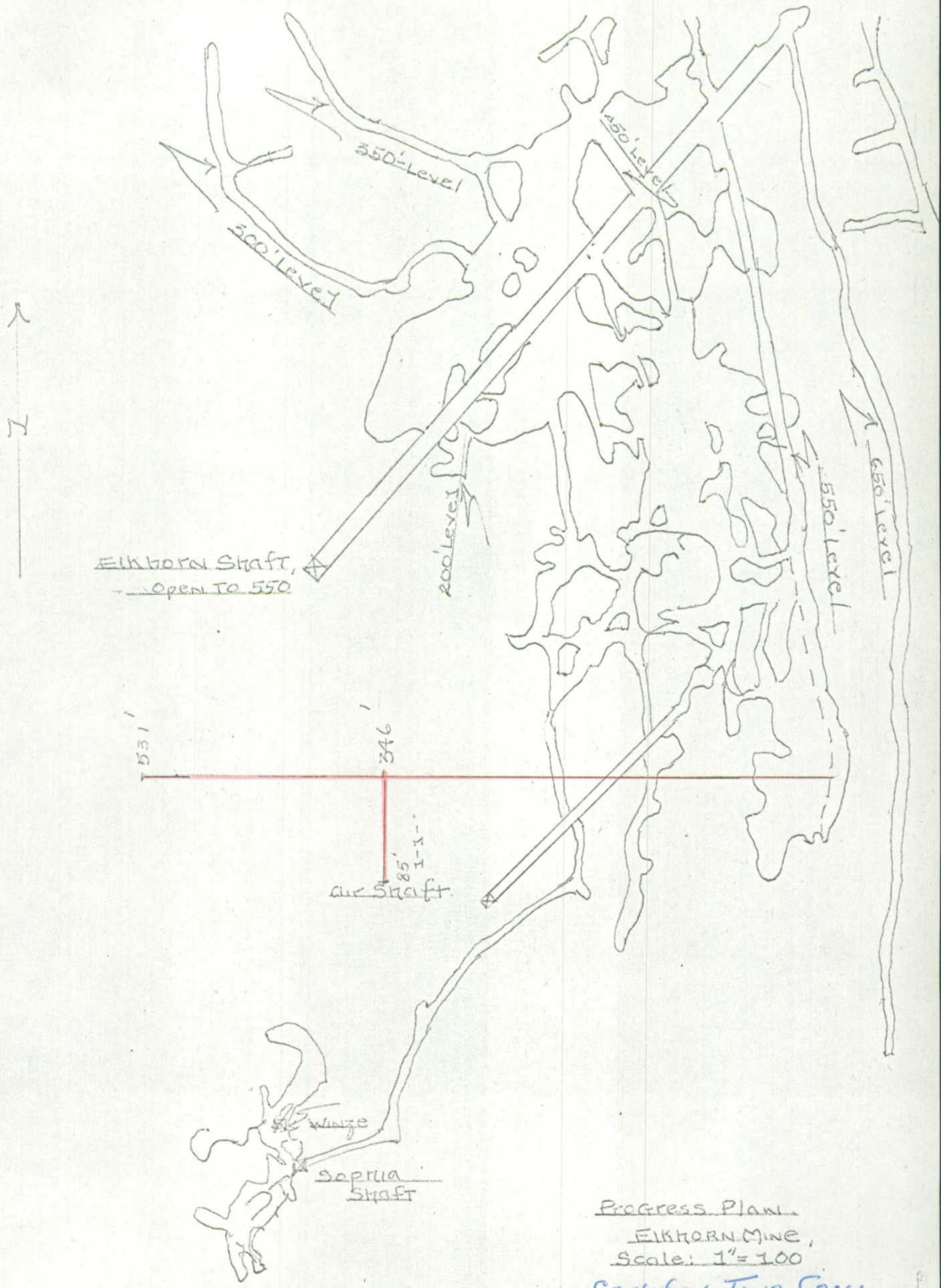
1-1-68.

So. Drift - W. Wall.

SCALE: 1" = 10.0'

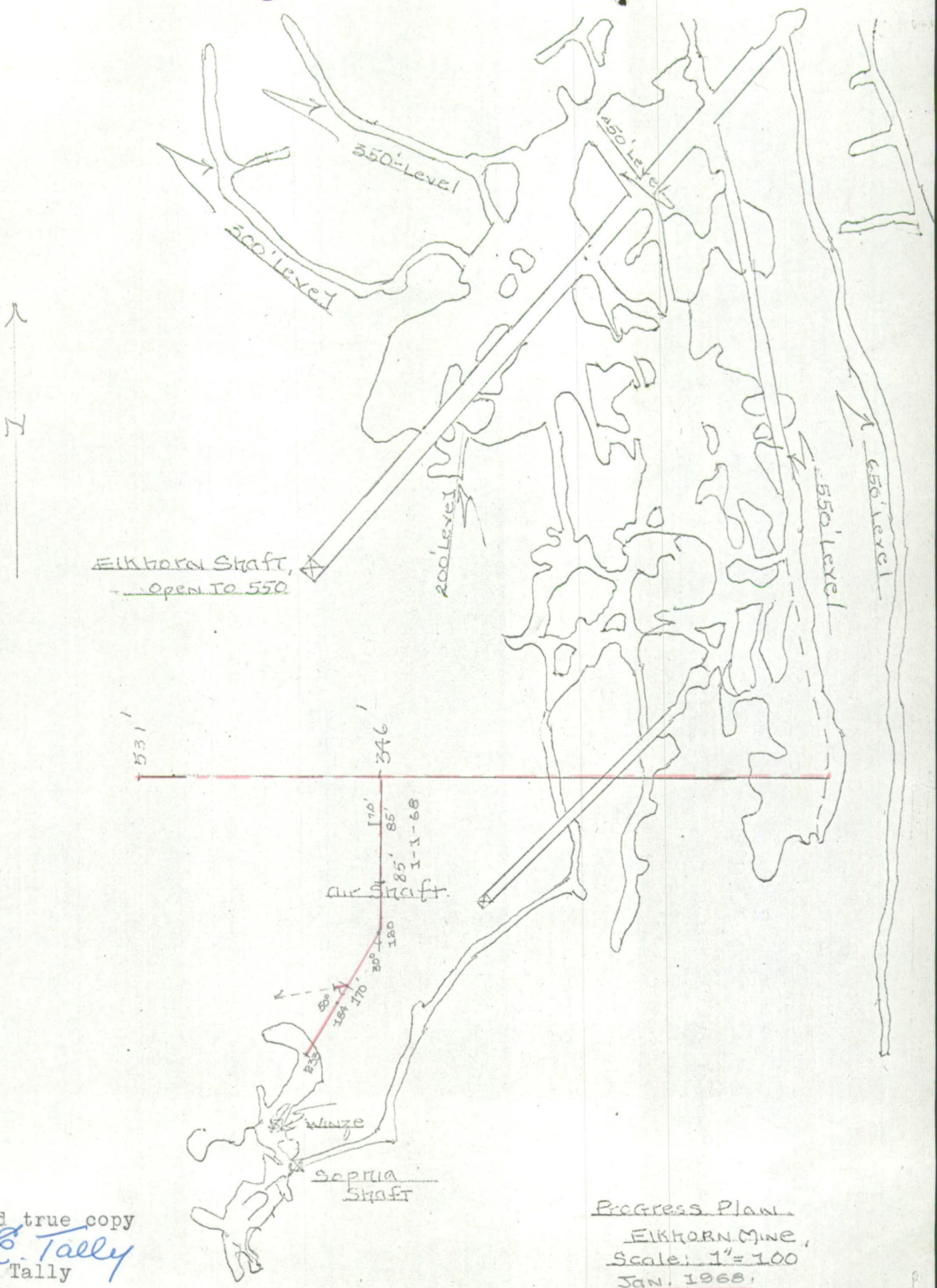
1-9-68

Certified True Copy
Robt. E. Tally



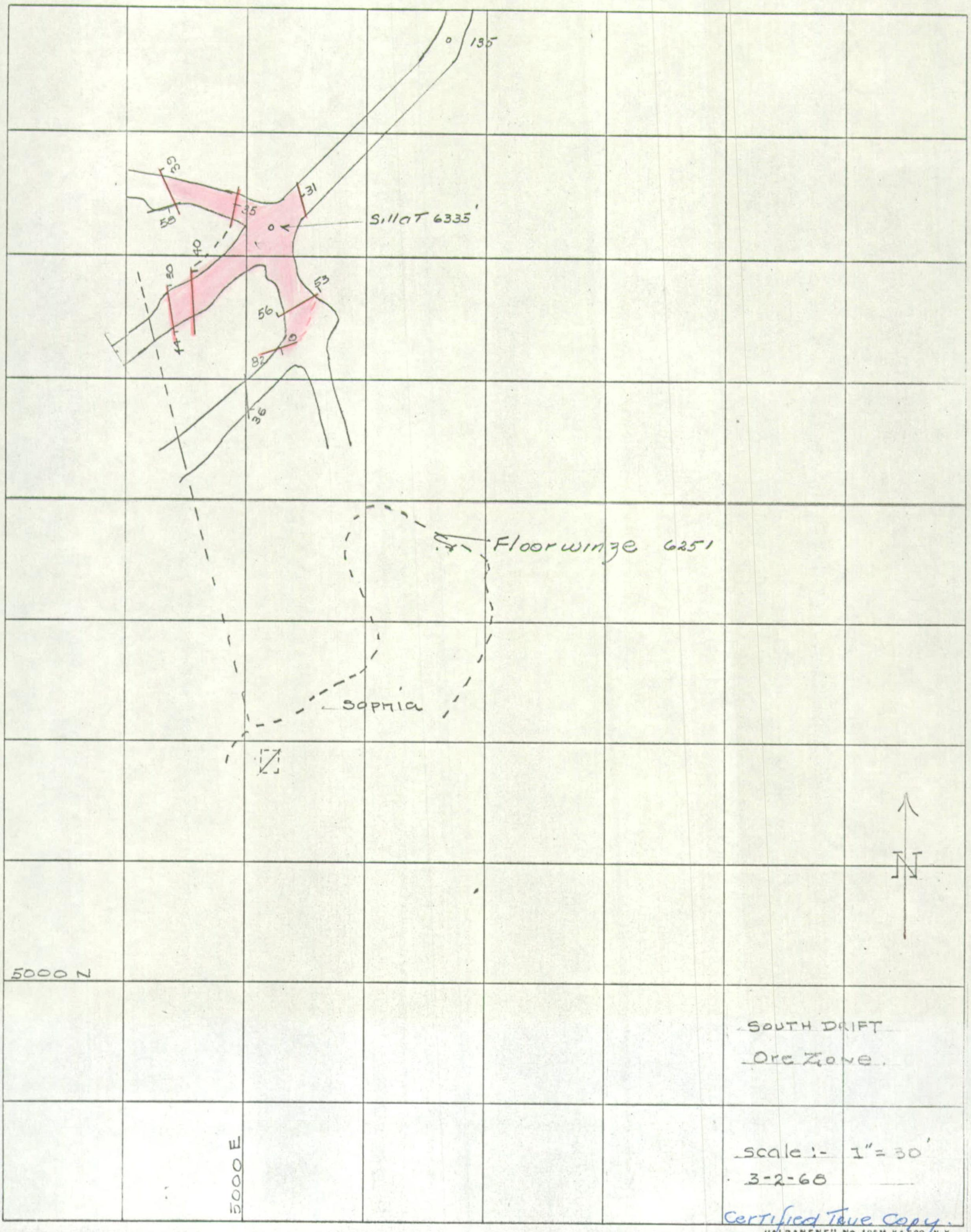
Progress Plan.
Elkhorn Mine,
Scale: 1" = 100

Certified True Copy
Robert C. Talley



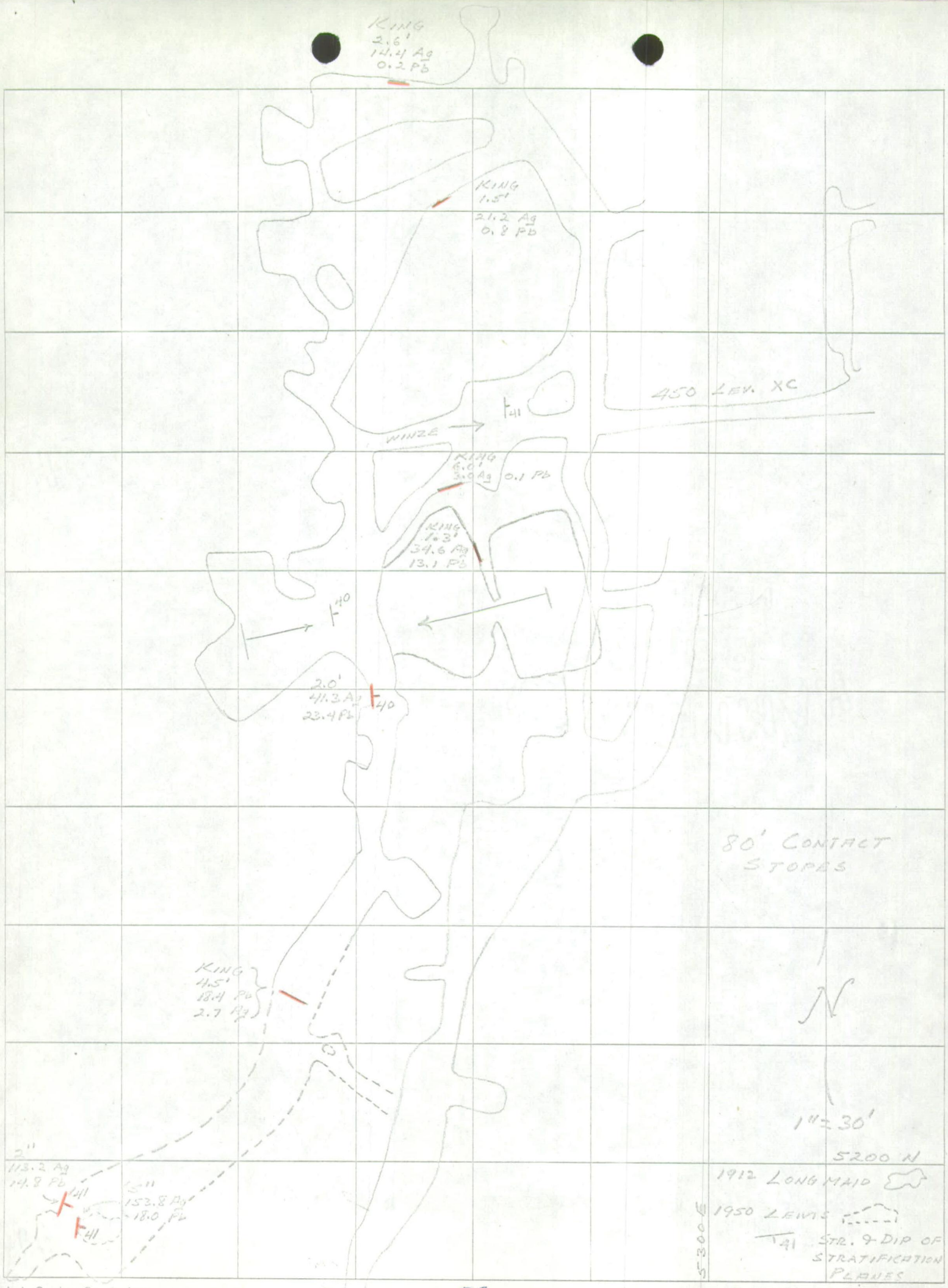
Progress Plan.
Elkhorn Mine,
Scale: 1" = 100
Jan. 1968.

Certified true copy
Robt. E. Tally
Robt. E. Tally

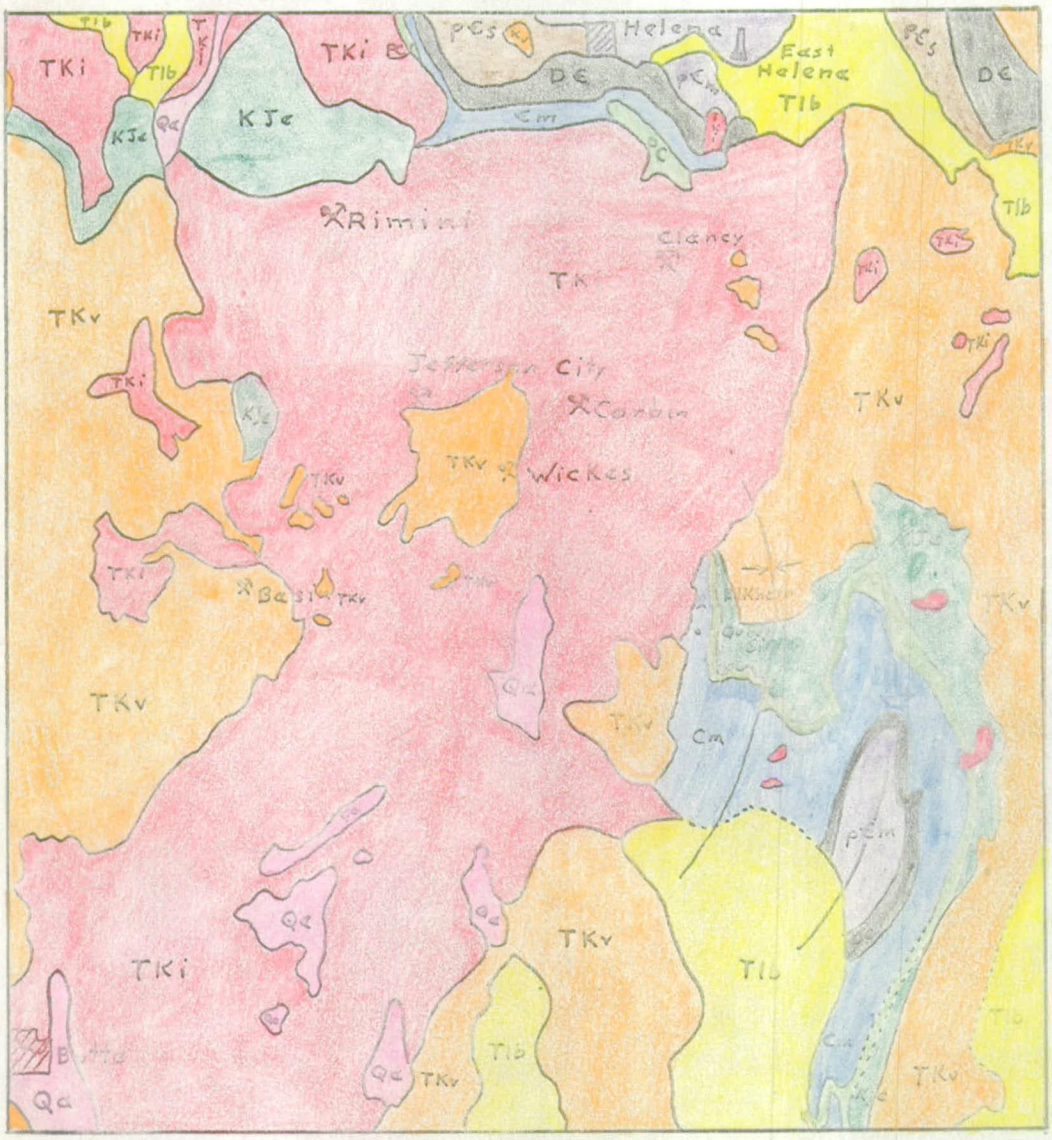


"ALBANENE" No. 196M K&E CO., N.Y.
REG. U.S. PAT. OFF

Fig. 2. Proposed Exploration
Elkhorn mine
Scale: 1" = 100'



J. A. Gendron Co. Spokane
"ALBANENE" NO. 100M K&E CO., N.Y.
REG. U.S. PAT. OFF.



GEOLOGIC MAP OF AREA BETWEEN HELENA AND BUTTE, MONTANA

Scale 0 Miles 10
After Geologic Map of Montana, 1944

Legend

Qa	Recent Alluvium
Tlb	Tertiary Lake Beds
TKi	Intrusives
TKL	Livingstone Volcanics
TKv	Undifferentiated Volcanics
KJe	Kootenai through Ellis
PC	Permian and Carboniferous
DC	Devonian through Cambrian
Cm	Missoula group
pCs	Siyeh group
Cm	Carboniferous Madison Limestone

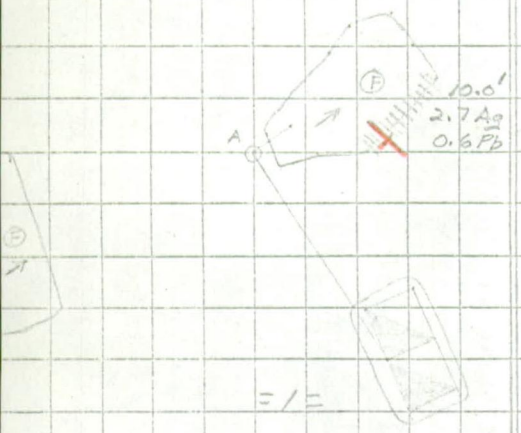
LEGEND

Aplite ap.
Diorite d
Gabbro g.
Quartz Diorite qp
Quartz Monzonite mz
Glacial Debris PGD
Moraines P.G.D.
Madison Limestone TEM
Union Shale DU
Keene Limestone DK
Cemetery Limestone Ec.
Hobo Gulch Fm. Eh
Starmont Limestone Es
Elkhorn Shale De
Alpreston Quartzite Ep
Turnley Hornstone a.T

GEOLOGIC MAP OF ELKHORN AREA
Jefferson County, Montana

After U.S.G.S. Report No. 22

Scale 1" —— 1000'



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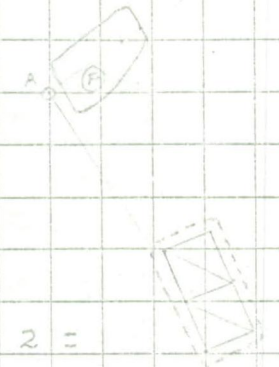

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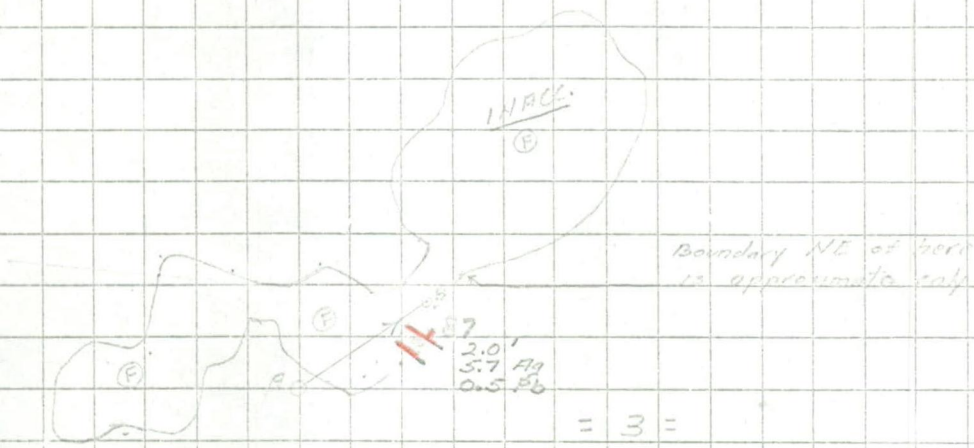
SHAFT PROJECTED



= 3 =

N

SOPHIA 110 STOPING (BELOW)

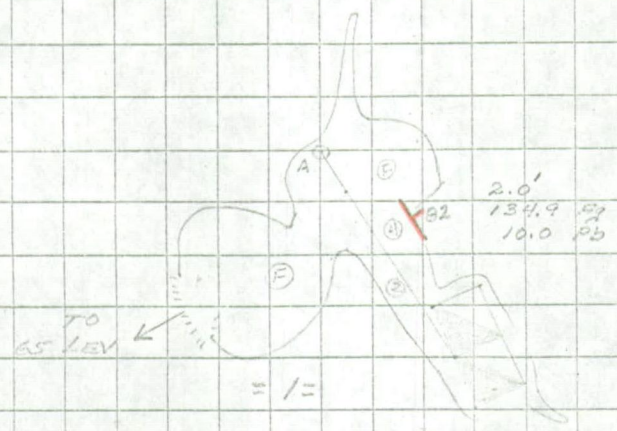
SHAFT PROJECTED

FLOORS 1, 2, & 3

1" = 20'

FORM NO. 3E 120 SCALE

5D



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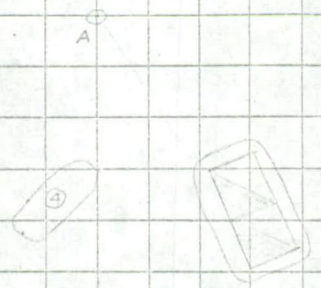


= 2 =

N

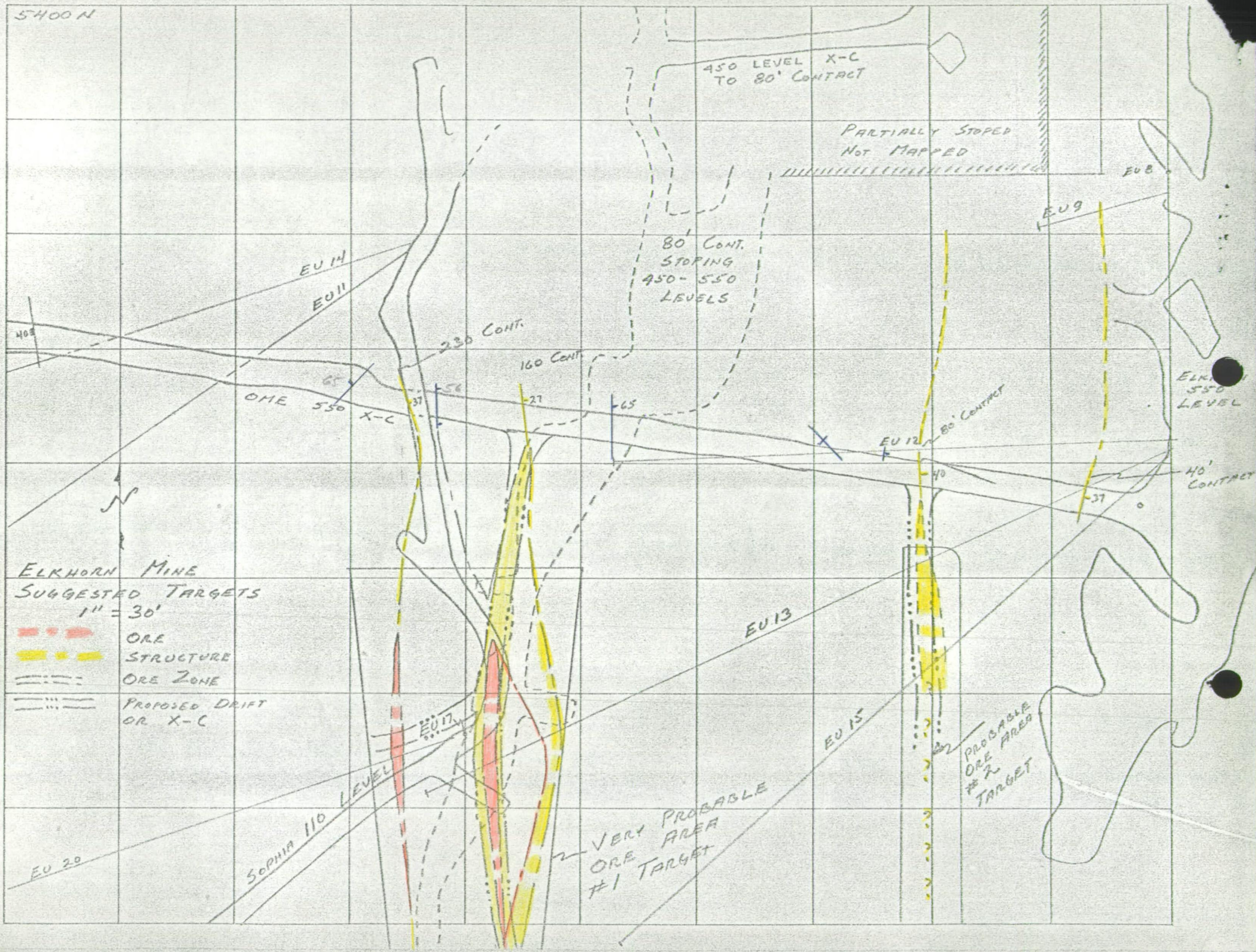
SOPHIA 110 STORING (ABOVE)

FIRST AND SECOND FLOORS

1" = 20' FLOOR = 85 FT.

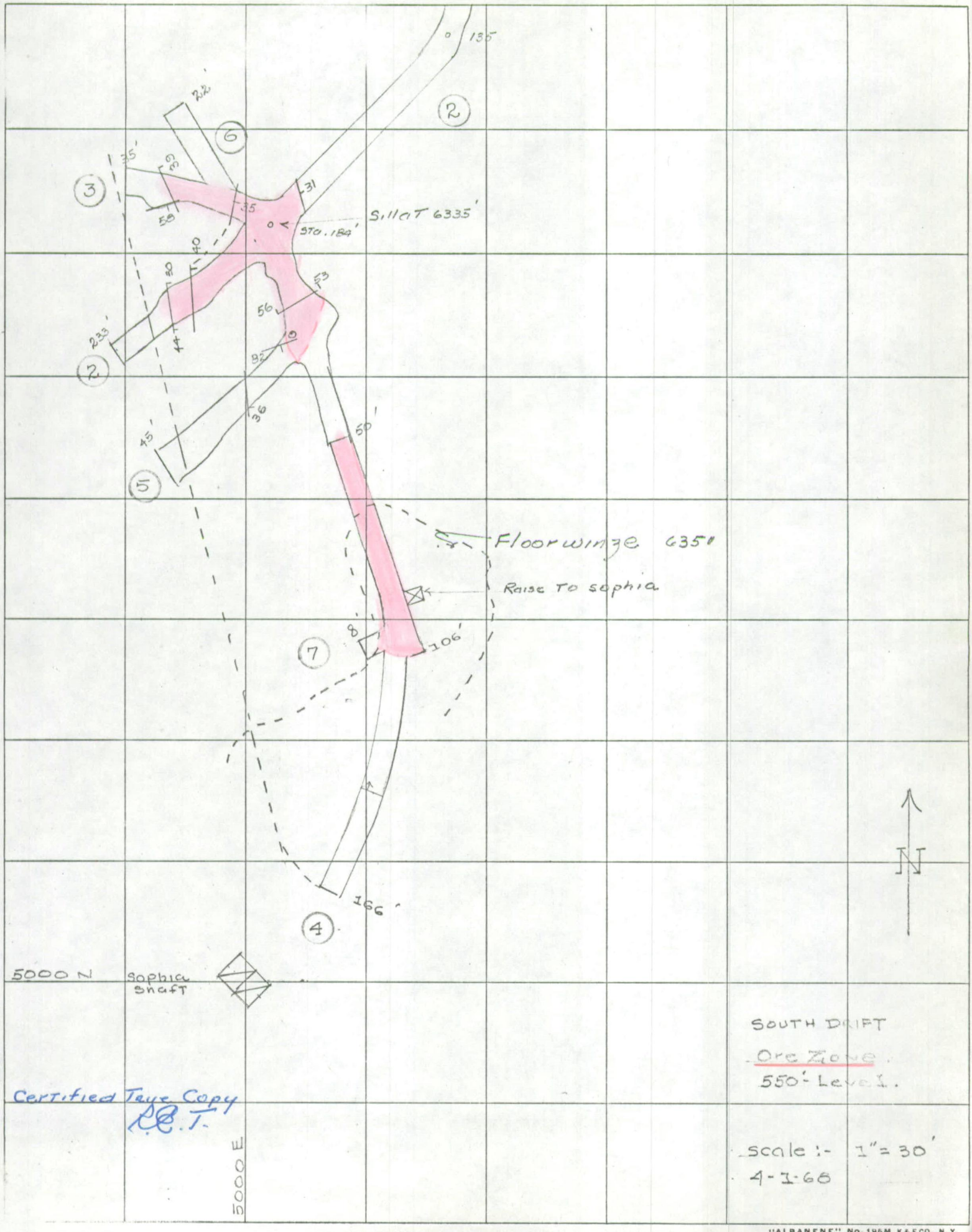
OFFICIAL COPY
O. M. REC
DEC 27
INITIALS CO. E

FORM NO. 32 20 SCALE

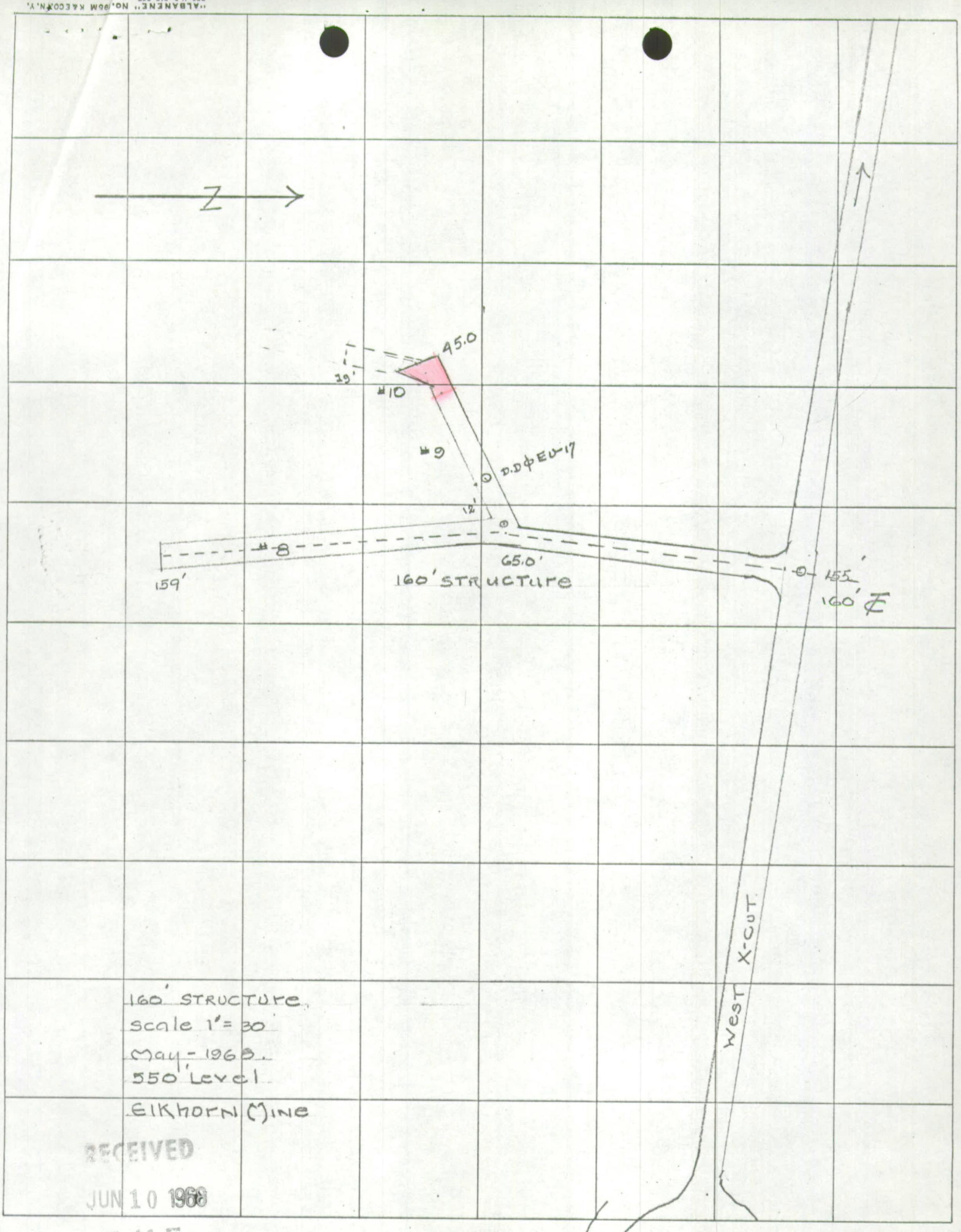


J. A. Gendron Co., Spokane

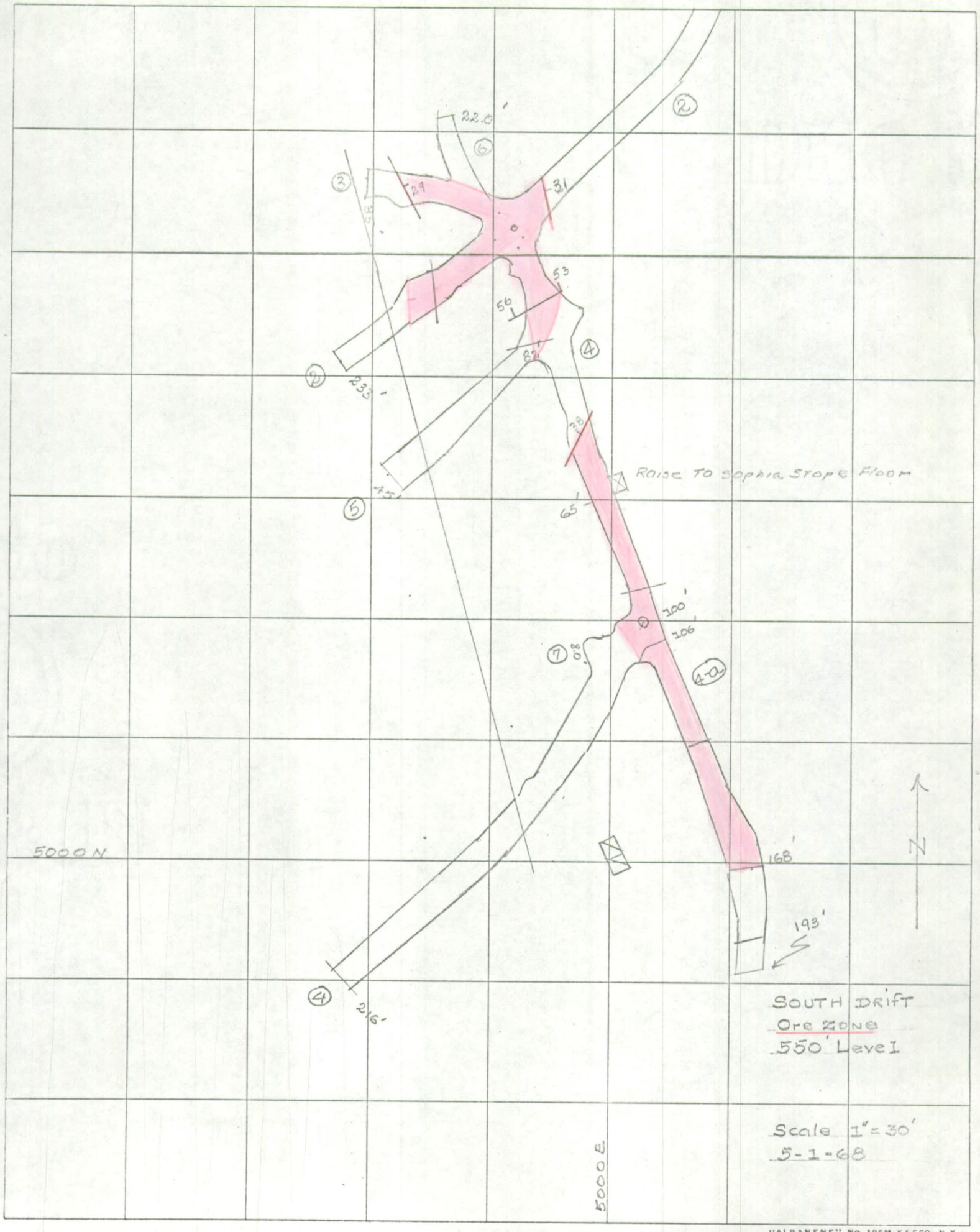
"ALBANENE" REG. 1868 K&E CO., N.Y. REG. U.S. PAT. OFF.



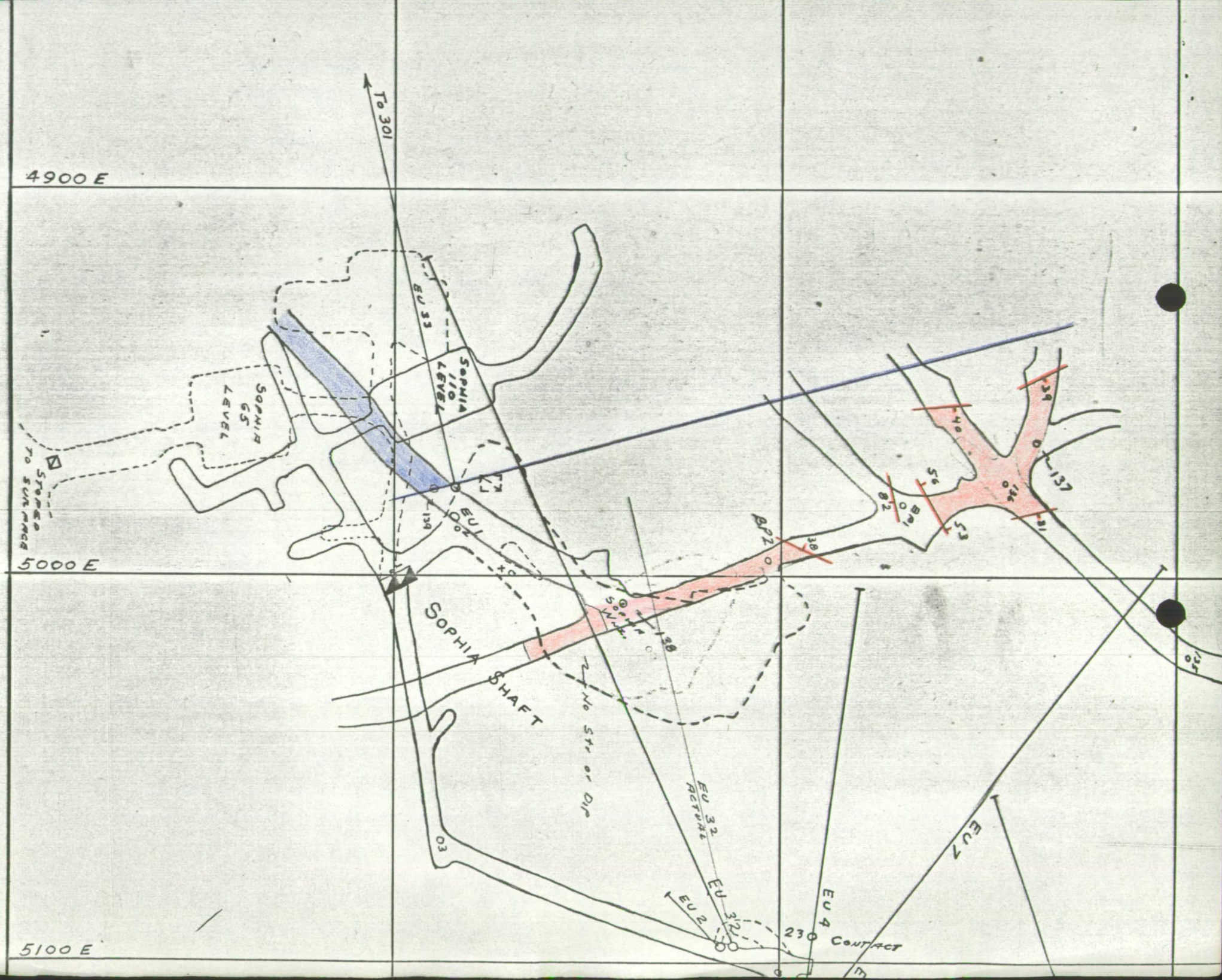
"ALBANENE" No. 195M K&E CO., N.Y.
REG. U.S. PAT. OFF

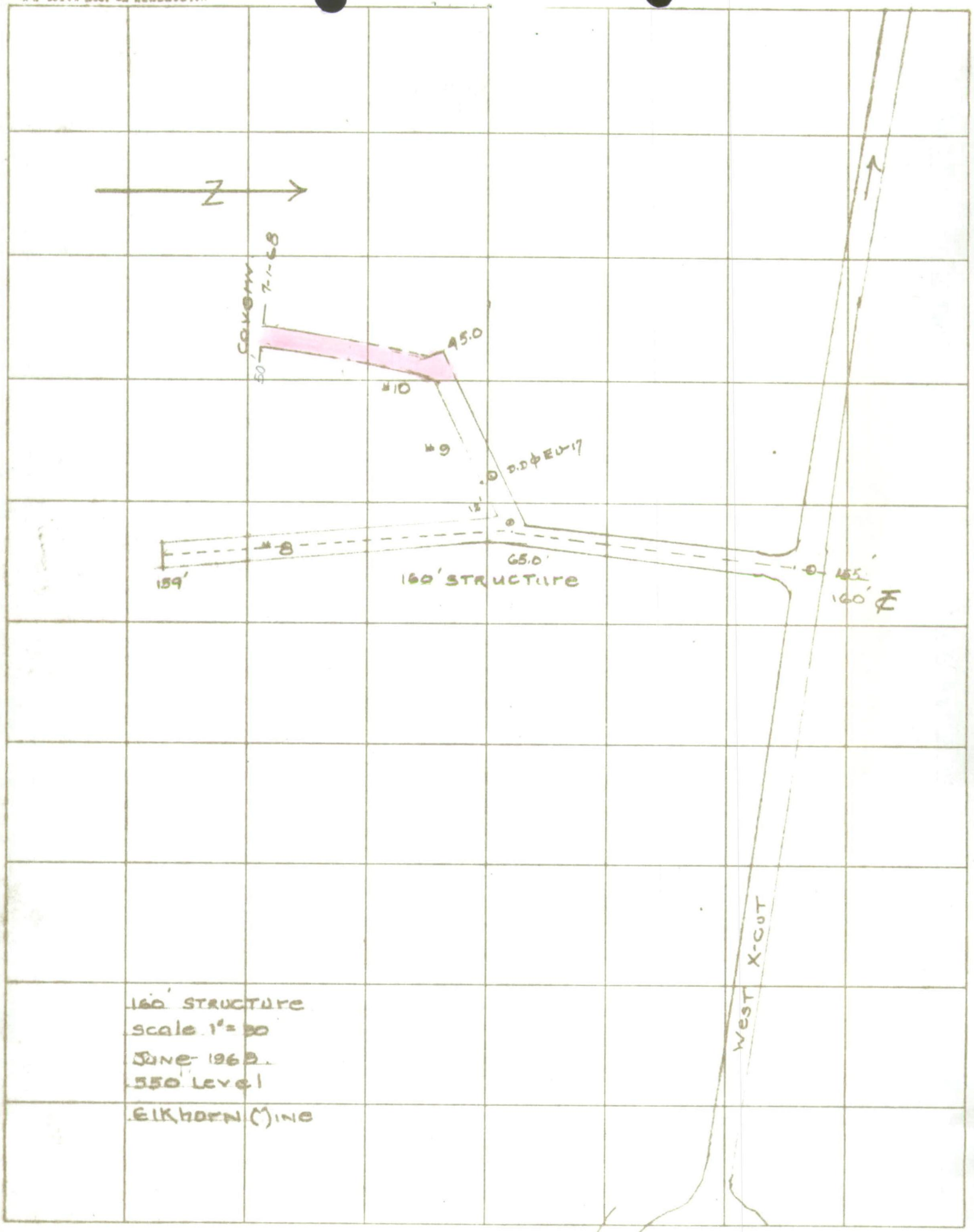


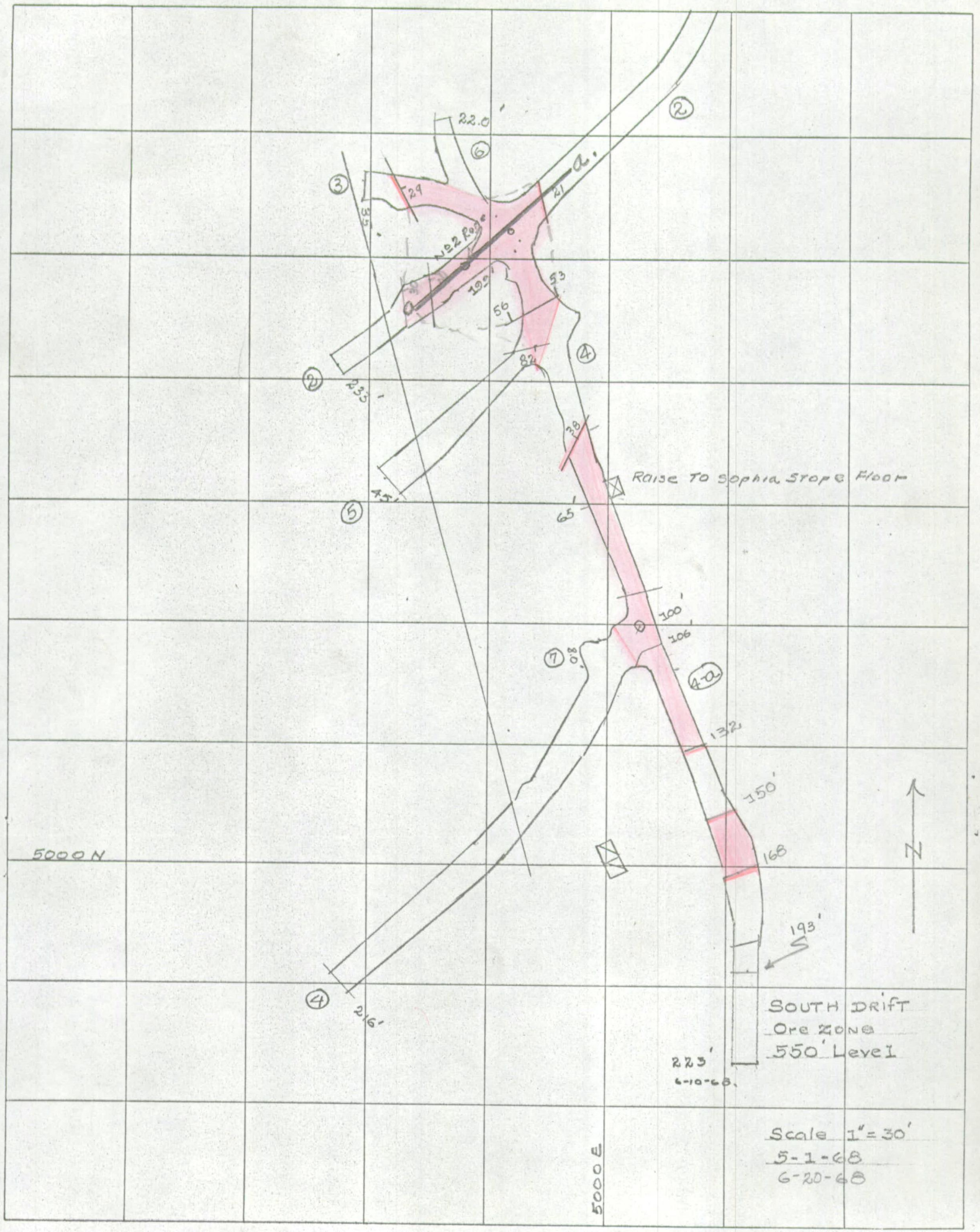
RECEIVED
JUN 10 1968
O. M. E.
SPOKANE, WASH.



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


4900 E
5000 E
5100 E
To 301
EU 33
SOPHIA 110 LEVEL
SOPHIA 65 LEVEL
TO STOPES SURFACE
EU1
02
139
SOPHIA SHAFT
03
No Str or Dip
EU 32 ACTUAL
EU 32
EU 2
23
CONTACT
EU 4
EU7
BP2
38
138
82
BP1
56
53
40
29
137
134
81
125


N
COKOMW
7-1-68
50'
45.0
#10
#9
D.D ϕ EW-17
#8
159'
65.0'
160' STRUCTURE
155'
160' ℄
WEST X-CUT
160' STRUCTURE
SCALE 1" = 30
JUNE 1968.
550' LEVEL
ELKHORN MINE



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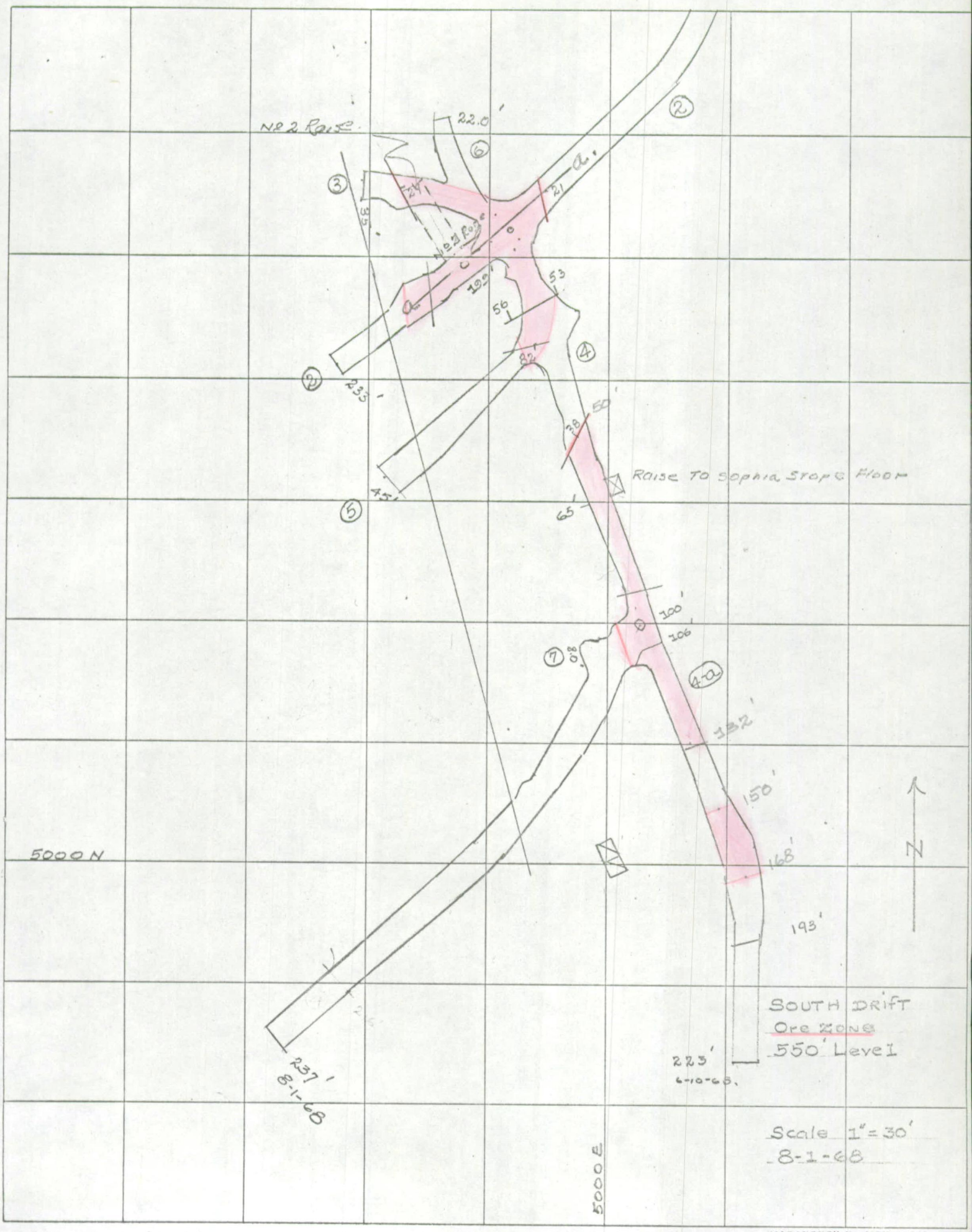
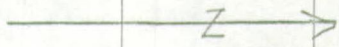
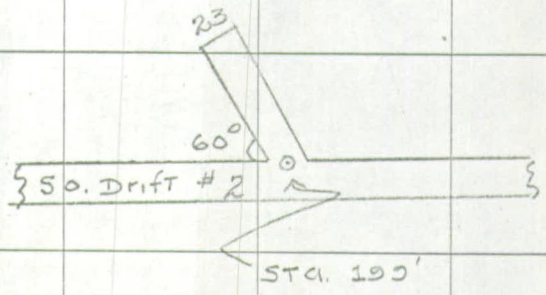
REG. U.S. PAT. OFF

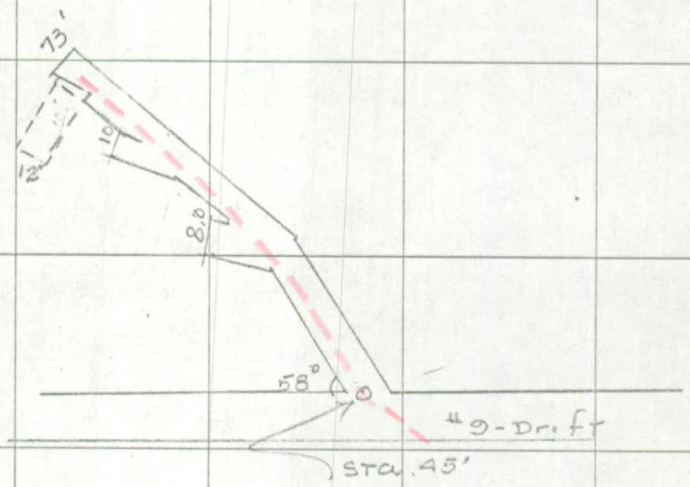


"ALBANENE" No. 195M K&E CO., N.Y.
REG. U.S. PAT. OFF





#2-Raise

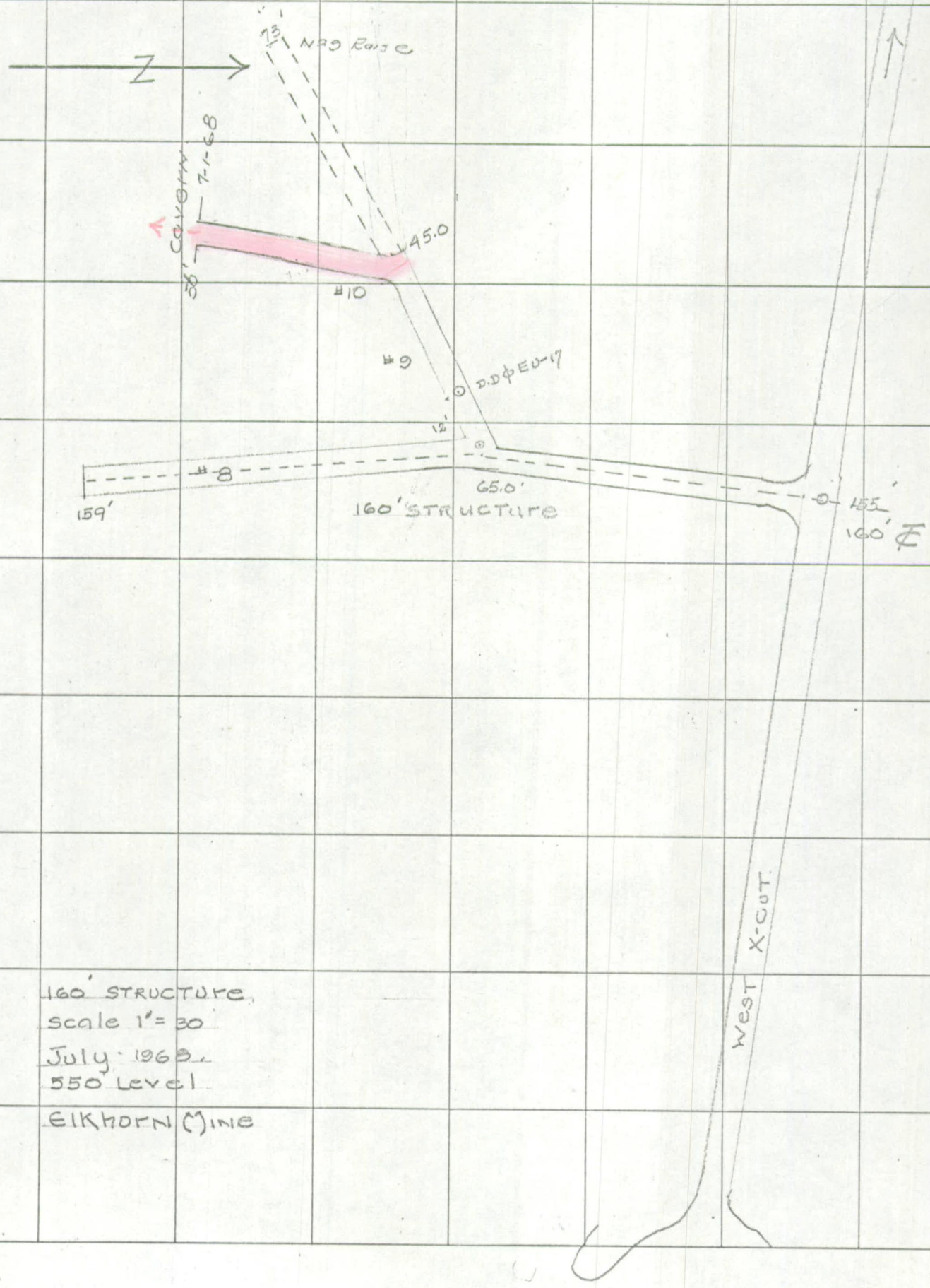


#9-Raise.

Scale 1" = 30'

8-1-68

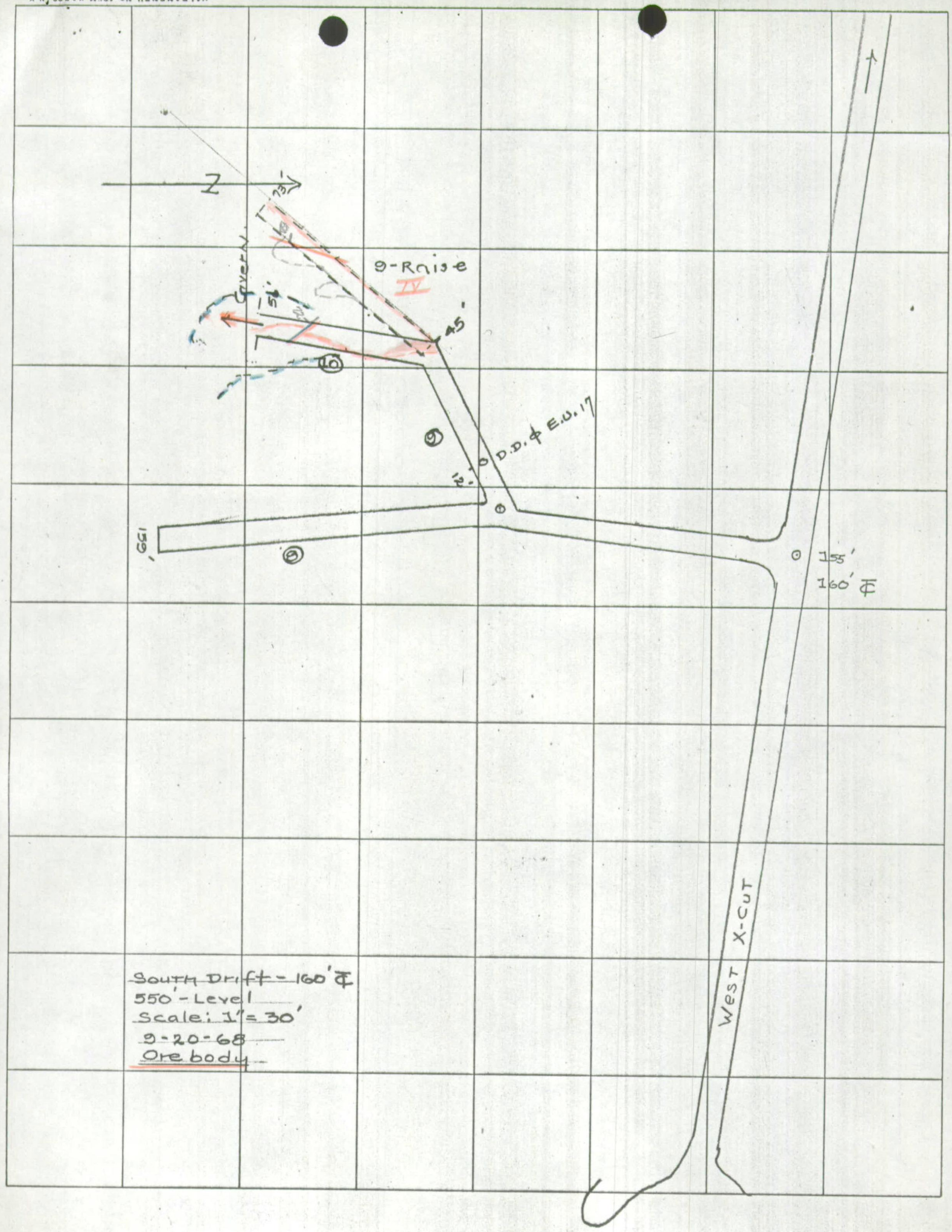
"ALBANENE" NO. 196M KAECO., N.Y.
REG. U.S. PAT. OFF.

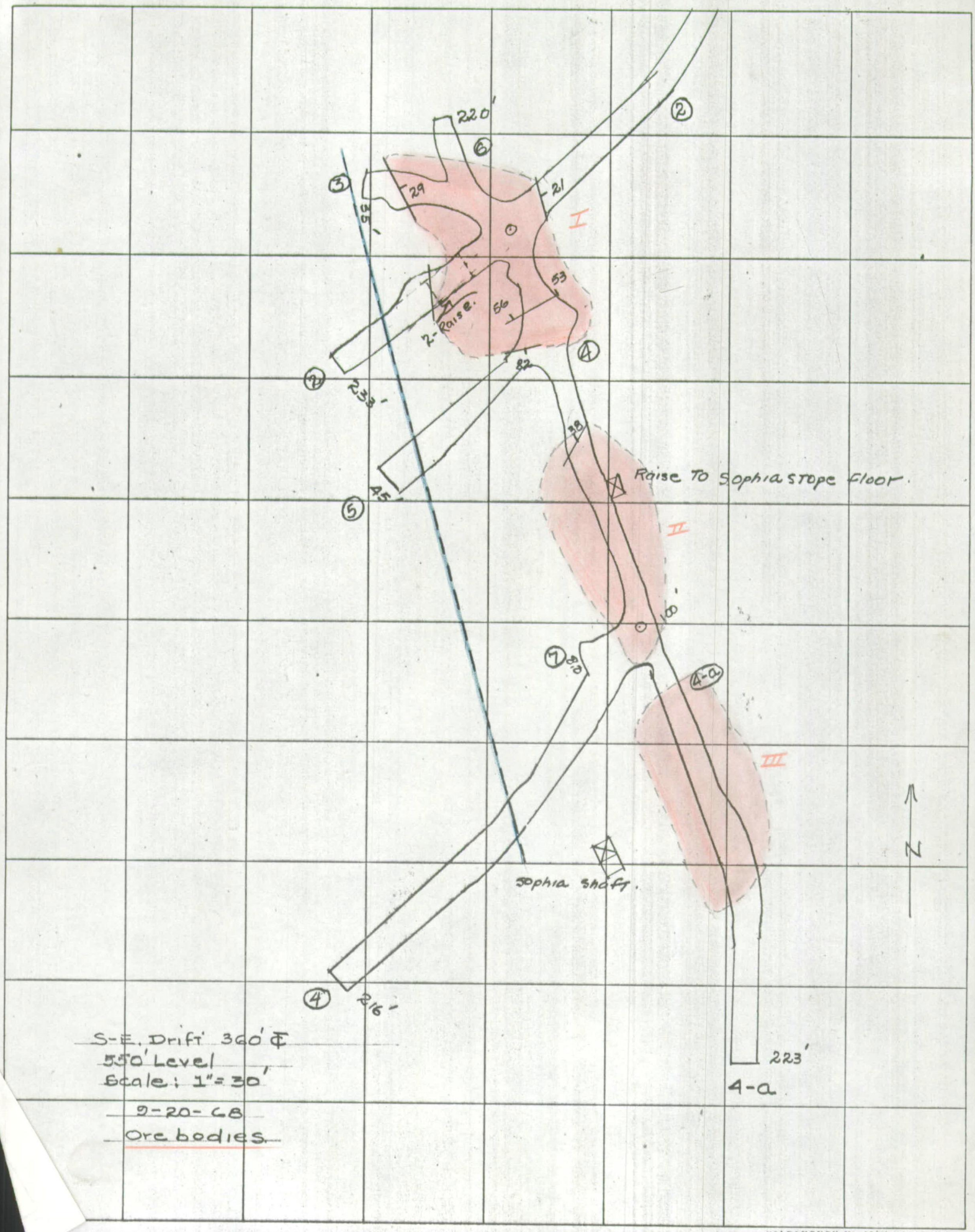


160' STRUCTURE
scale 1" = 30
July 1968
550 Level

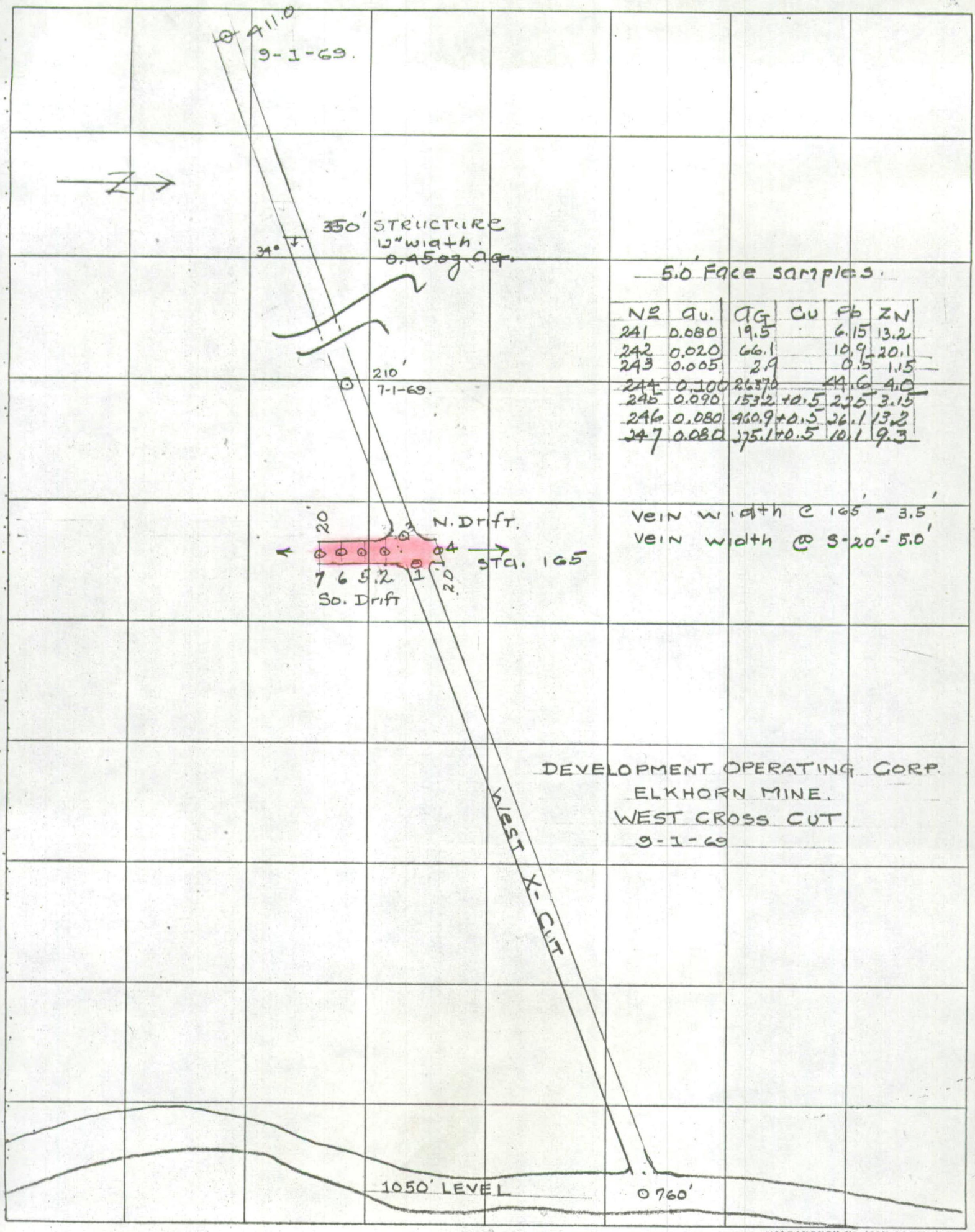
ELKHORN MINE

"ALBANENE" No. 1905M KEUFFEL & ESSER CO., N.Y.
MADE IN U.S.A. PAT. OFF.





"ALBANENE" No. 196M K&E CO., N.Y.
REG. U.S. PAT. OFF



5.0' Face samples.

Nº	Au.	Ag	Cu	Pb	Zn
241	0.080	19.5		6.15	13.2
242	0.020	66.1		10.9	20.1
243	0.005	2.9		0.5	1.15
244	0.100	268.0		44.6	4.0
245	0.090	153.2	+0.5	22.5	3.15
246	0.080	460.9	+0.5	26.1	13.2
247	0.080	375.1	+0.5	10.1	9.3

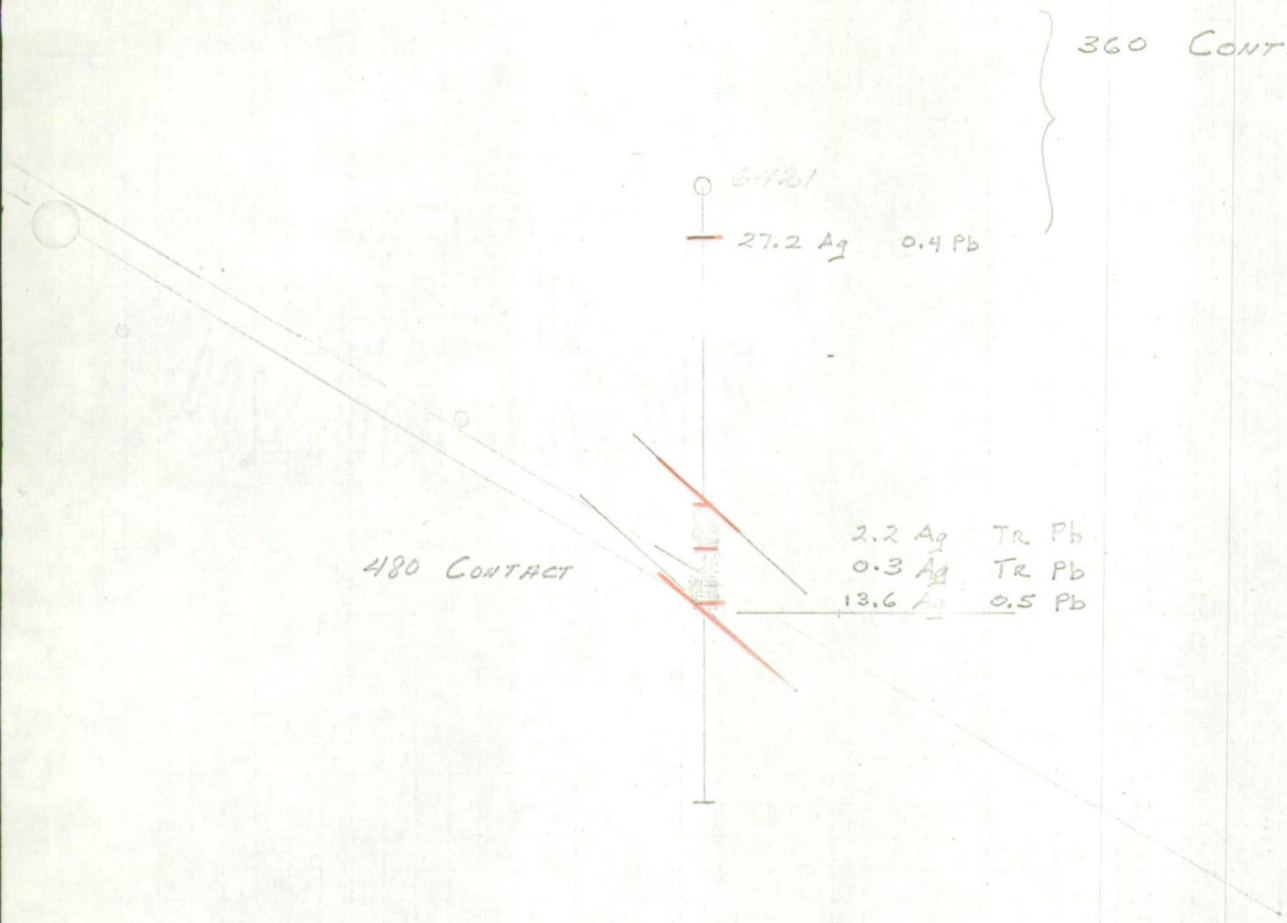
Vein width @ 165' = 3.5'
Vein width @ S-20' = 5.0'

DEVELOPMENT OPERATING CORP.
ELKHORN MINE.
WEST CROSS CUT.
9-1-69

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

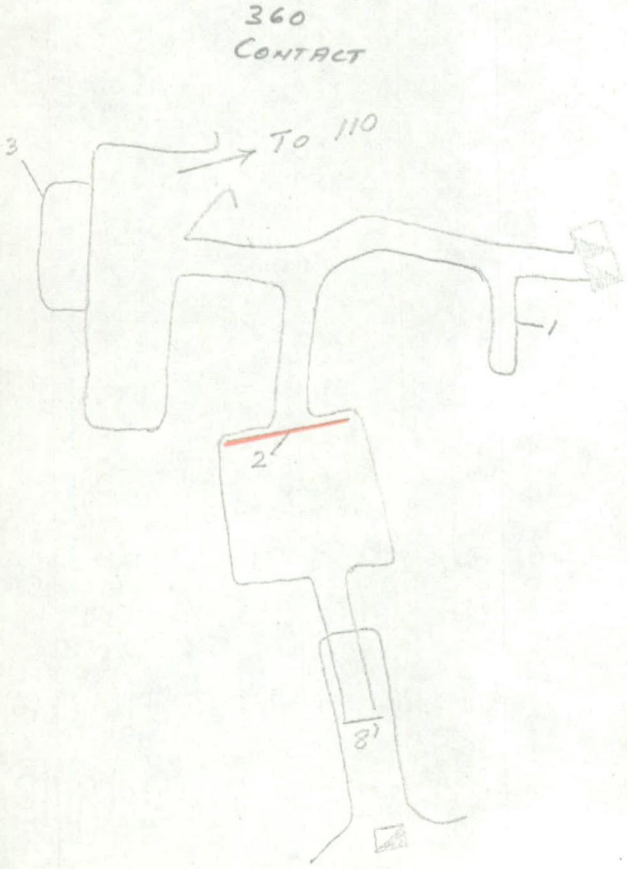
HOLE #1
V
94'

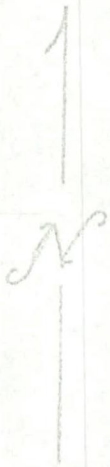
1" = 30'



OFFICIAL COPY
O. M. E.
RECEIVED
DEC 27 1966
INITIALS

6A



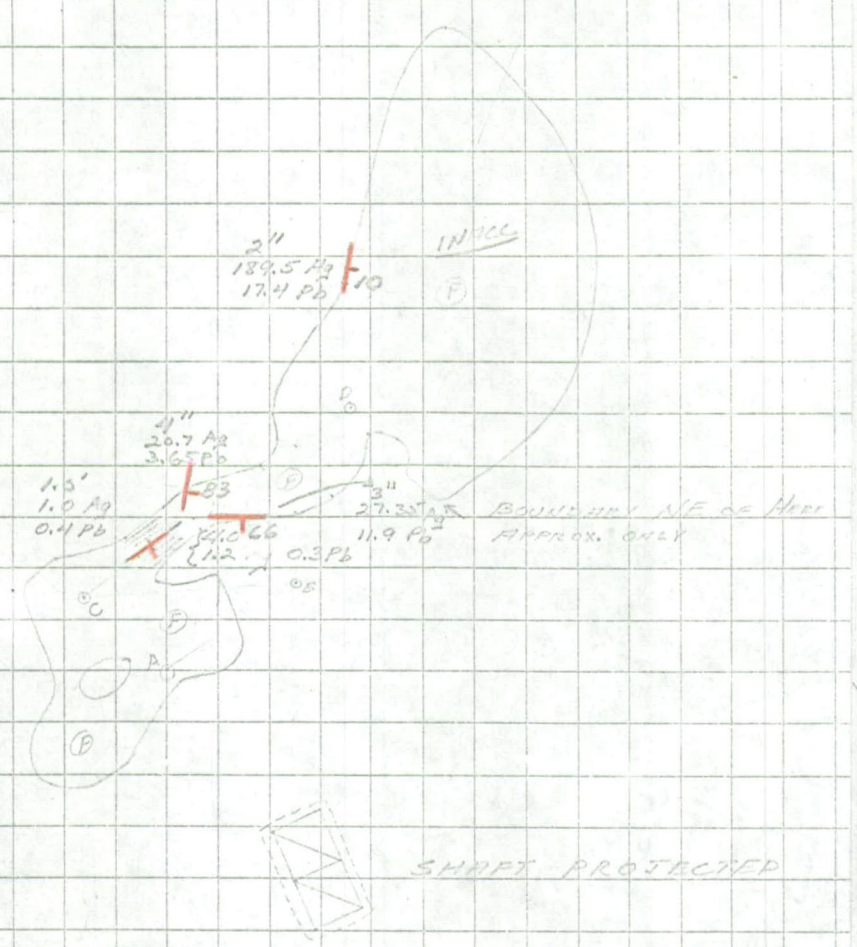


SOPHIA 65 LEVEL

MAPPED AND SAMPLED
BY. ROWLAND KING

SAMP.	WIDTH.	OZ AG	PB %
1	4.5	13.0	1.6
2	23.0	9.1	1.6
3	3.0	5.6	0.1
8	8.0	3.4	TR

1" = 30'



N

SOPHIA 110 STOPING (BELOW)

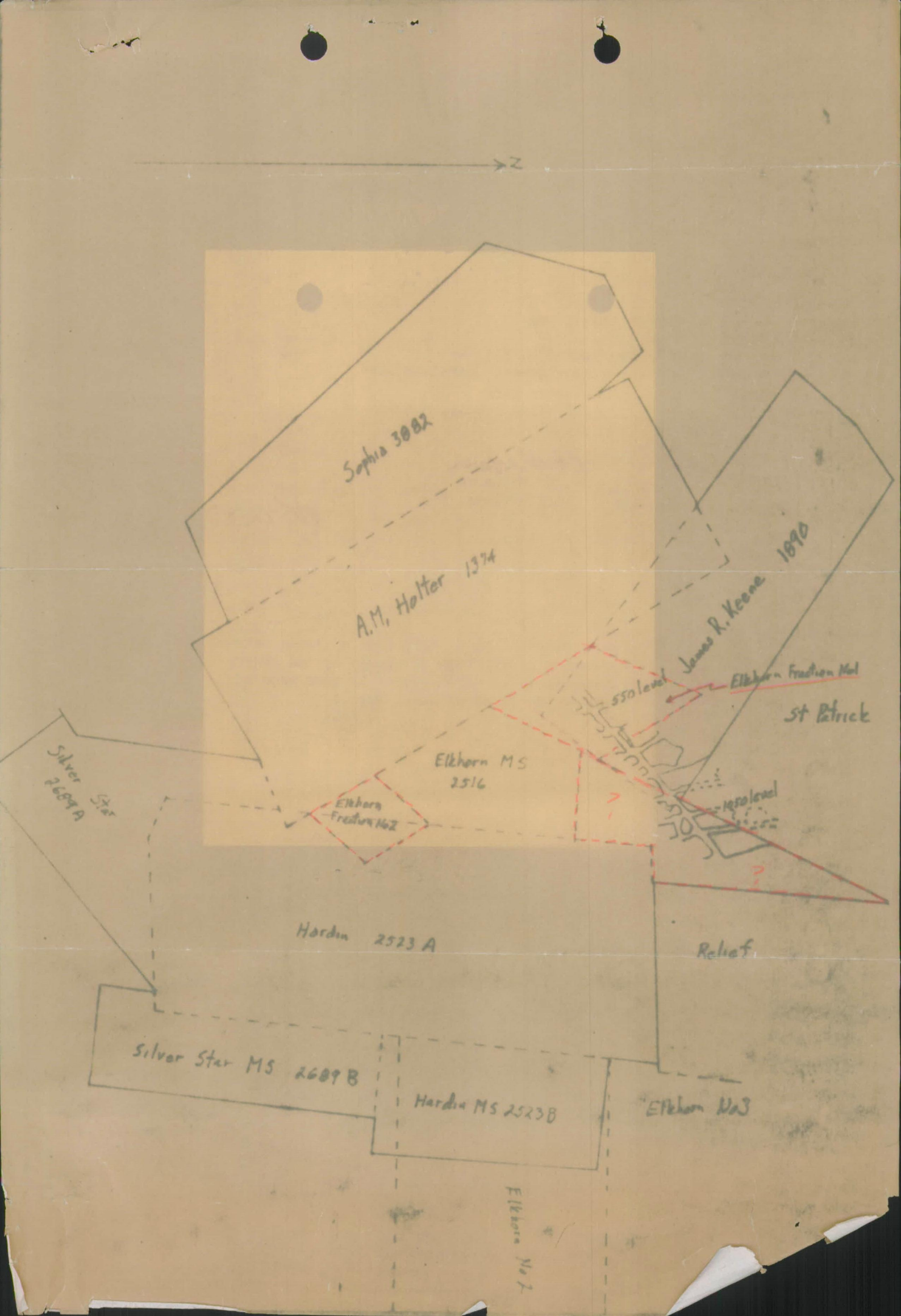
FIFTH FLOOR

1" = 20'

FORM 10.3E 20 SCALE

SOPHIA 110 SILL
1" = 20'

FORM NO. 32 20 SCALE


N
Sophia 3082
A.M. Holter 1374
James R. Keene 1890
Elkhorn Fraction Mol
St Patrick
550 level
Elkhorn MS
2516
Elkhorn
Fraction 1462
1850 level
Silver Star
2689 A
Hardin 2523 A
Relief
Silver Star MS 2689 B
Hardin MS 2523 B
Elkhorn No 3
Elkhorn No 7

MME FORM 6 REFERENCE SLIP

REV. [illegible]59 OFFICE OF MINERALS EXPLORATION

TO:	DATE	INITIALS
1. Chief, OME	4/17/67	
Re: OME-6587 (Silver)		
2. Development Operating Corp.		
Elkhorn Mine		
3. Jefferson County, Montana		
4.		
5. D. R. MacLaren		
FROM: Field Officer, Reg. I		

OFFICIAL COPY O. M. E. RECEIVED APR 19 1967 INITIALS CODE

FOR: Check items for action desired

X Action ____ Reply for signature of ____

____ Approval ____ Investigate ____ Surname

____ Comment ____ Recommendations ____ Signature

____ Conference ____ Rewrite ____ File

____ Instructions ____ Your information

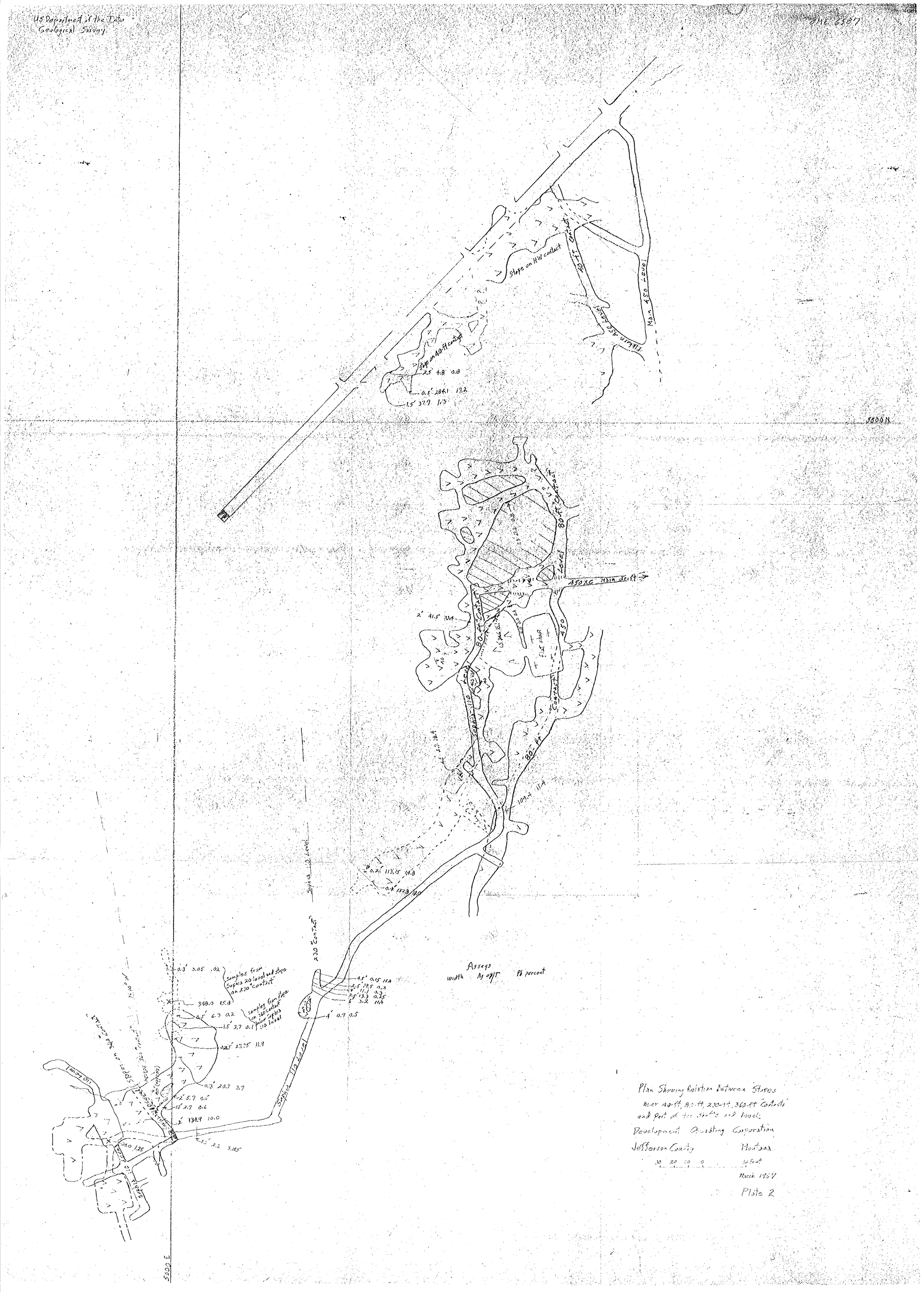
REMARKS: Transmittal of true copy of lease and five copies of MME Form 52 signed by the owners in accordance with the request in your memo of 1/9/67 to the Field Officer, Reg. I.

Filed left-hand side

INT.-DUP. SEC., WASH., D.C. M56300-62

US Department of the Interior
Geological Survey

OHE 6507

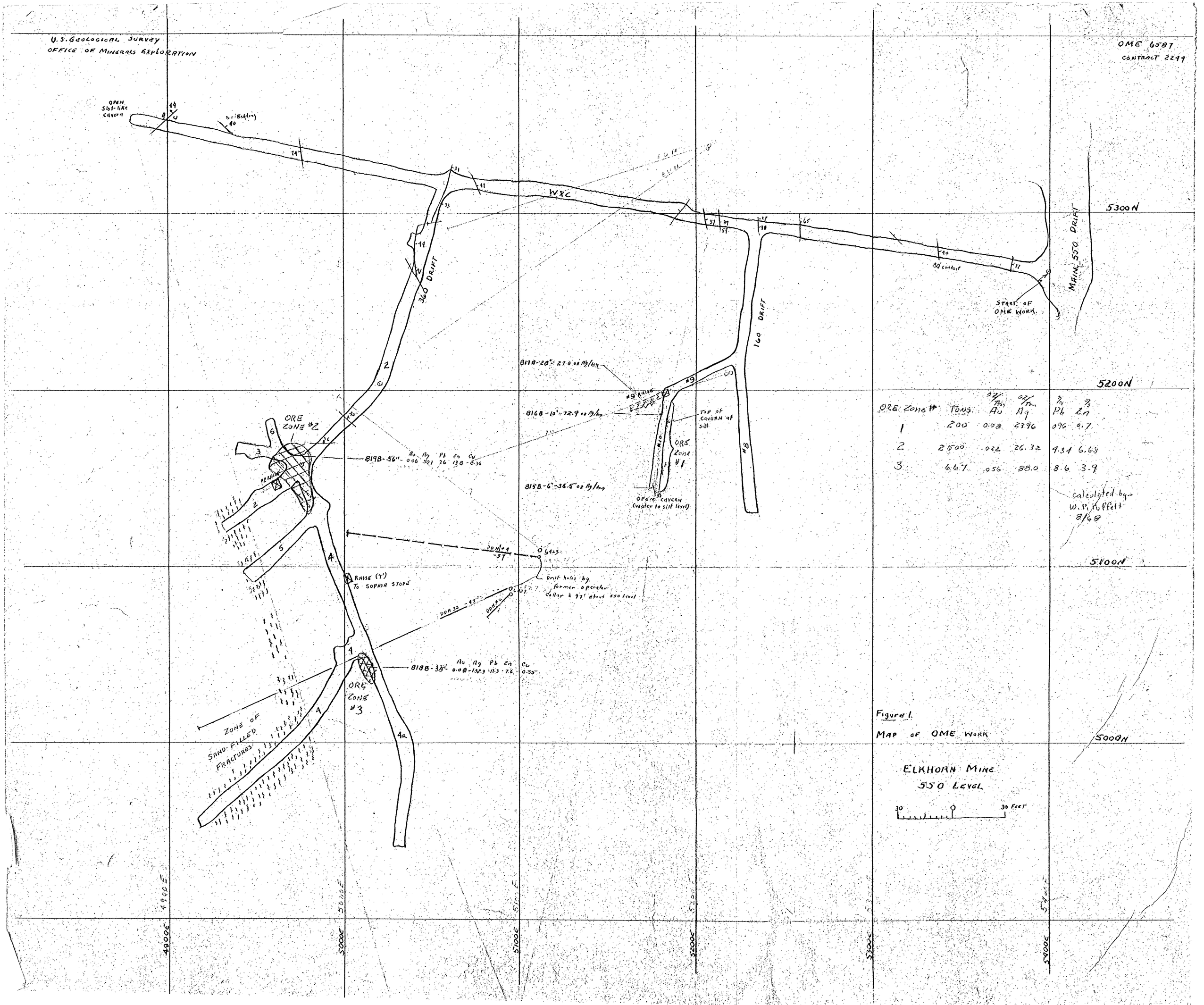


Assays
width Ag oz/T Pb percent

Plan Showing Relation Between Stopes near 40-ft, 80-ft, 230-ft, 360-ft Contacts and part of the shafts and levels
Development Operating Corporation
Jefferson County Montana
30 20 10 0 30 feet
March 1954
Plate 2

U.S. GEOLOGICAL SURVEY
OFFICE OF MINERALS EXPLORATION

OME 6587
CONTRACT 2249



ORE Zone #	Tons	Au oz/ton	Ag oz/ton	Pb %	Zn %
1	200	0.08	23.96	0.96	9.7
2	2500	.022	26.32	4.34	6.68
3	667	.056	88.0	8.6	3.9

calculated by W.P. Moffett 8/68

Figure 1.
MAP OF OME WORK

ELKHORN MINE
550 LEVEL

30 0 30 FEET

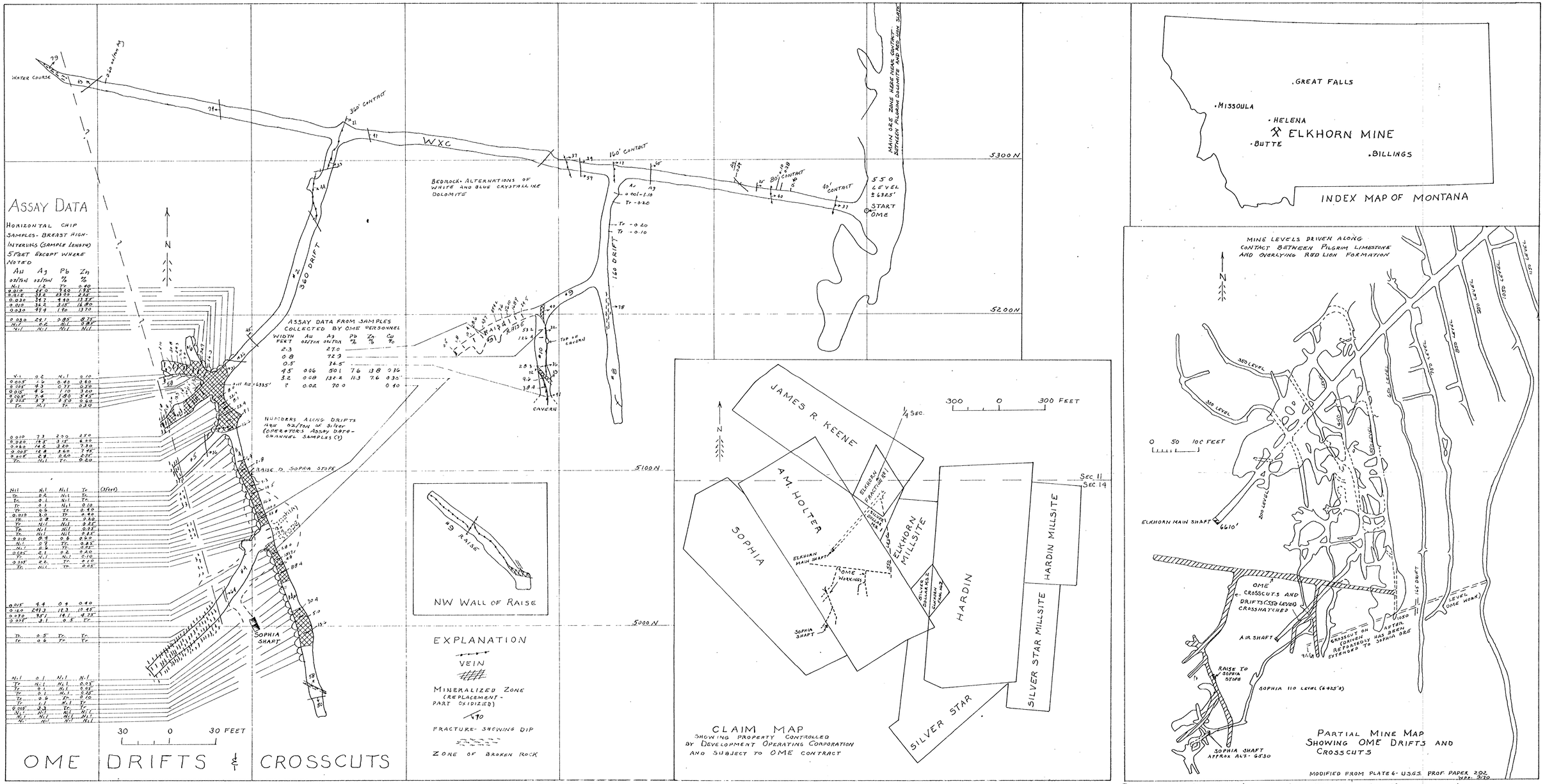
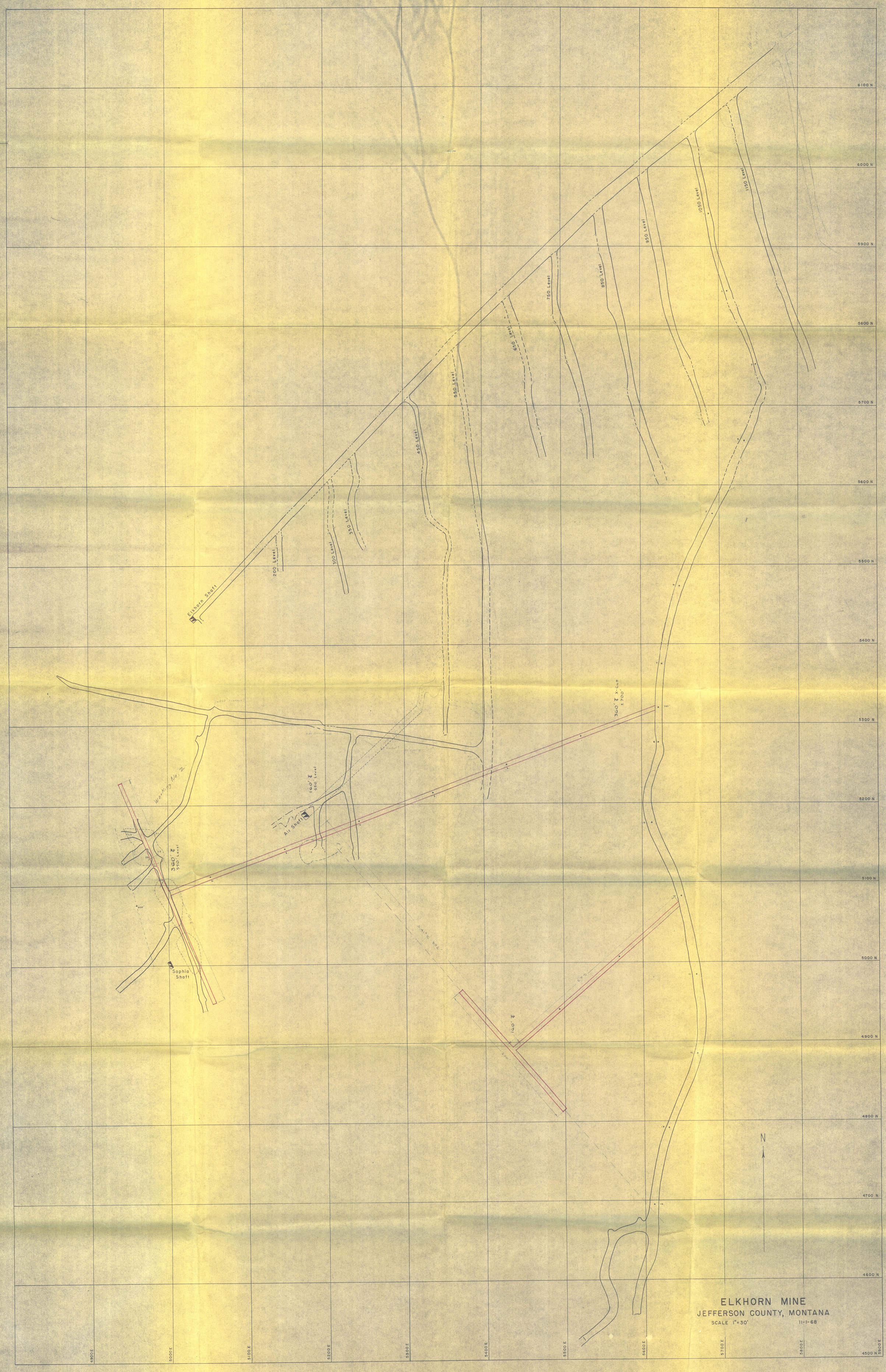
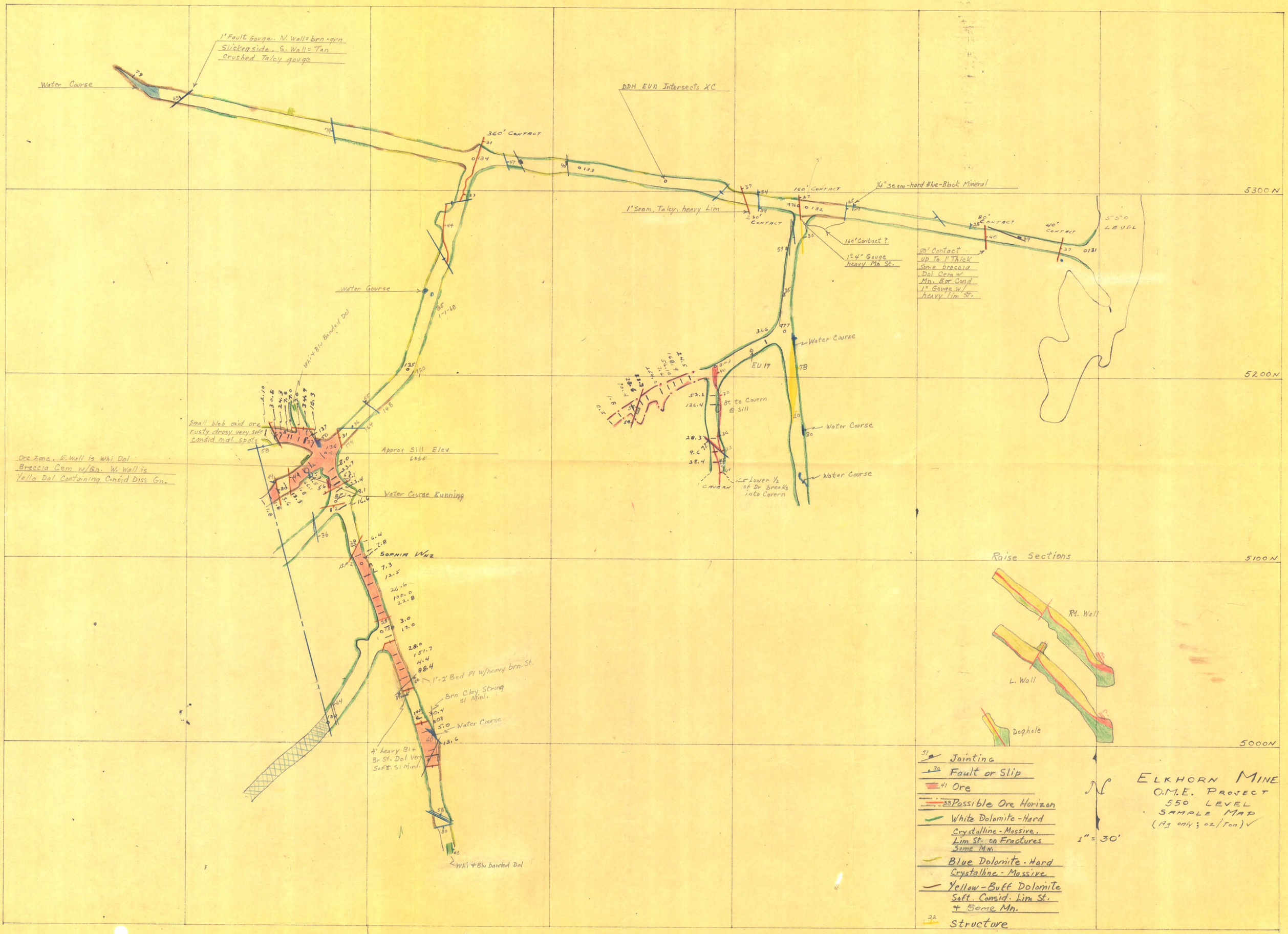
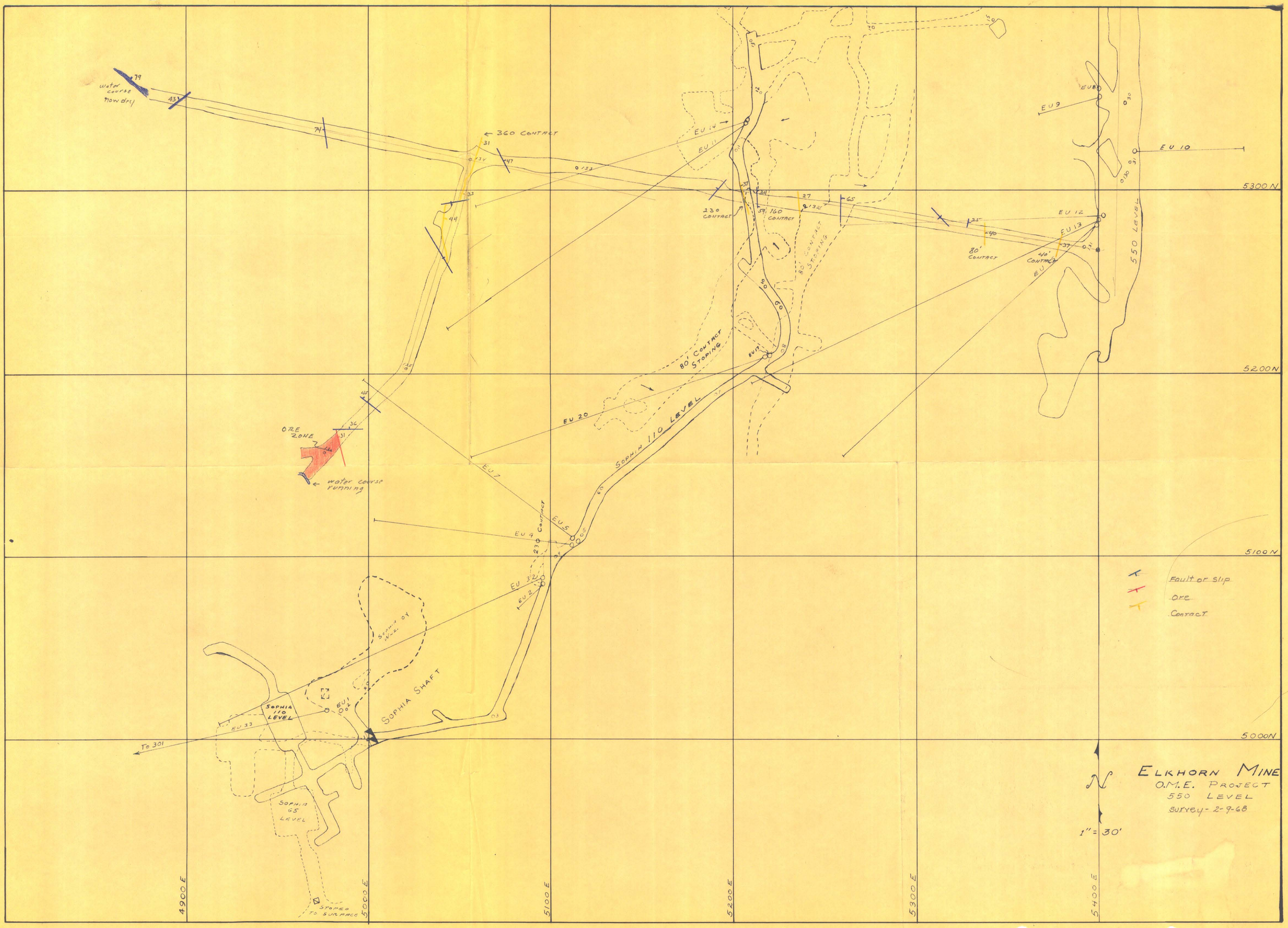


FIGURE 1 - CLAIM, INDEX, PARTIAL UNDERGROUND, AND OME DRIFT AND CROSSCUT MAPS, ELKHORN MINE, SECS. 11 AND 14, T. 6 N., R. 3 W., ELKHORN MINING DISTRICT, JEFFERSON COUNTY, MONTANA

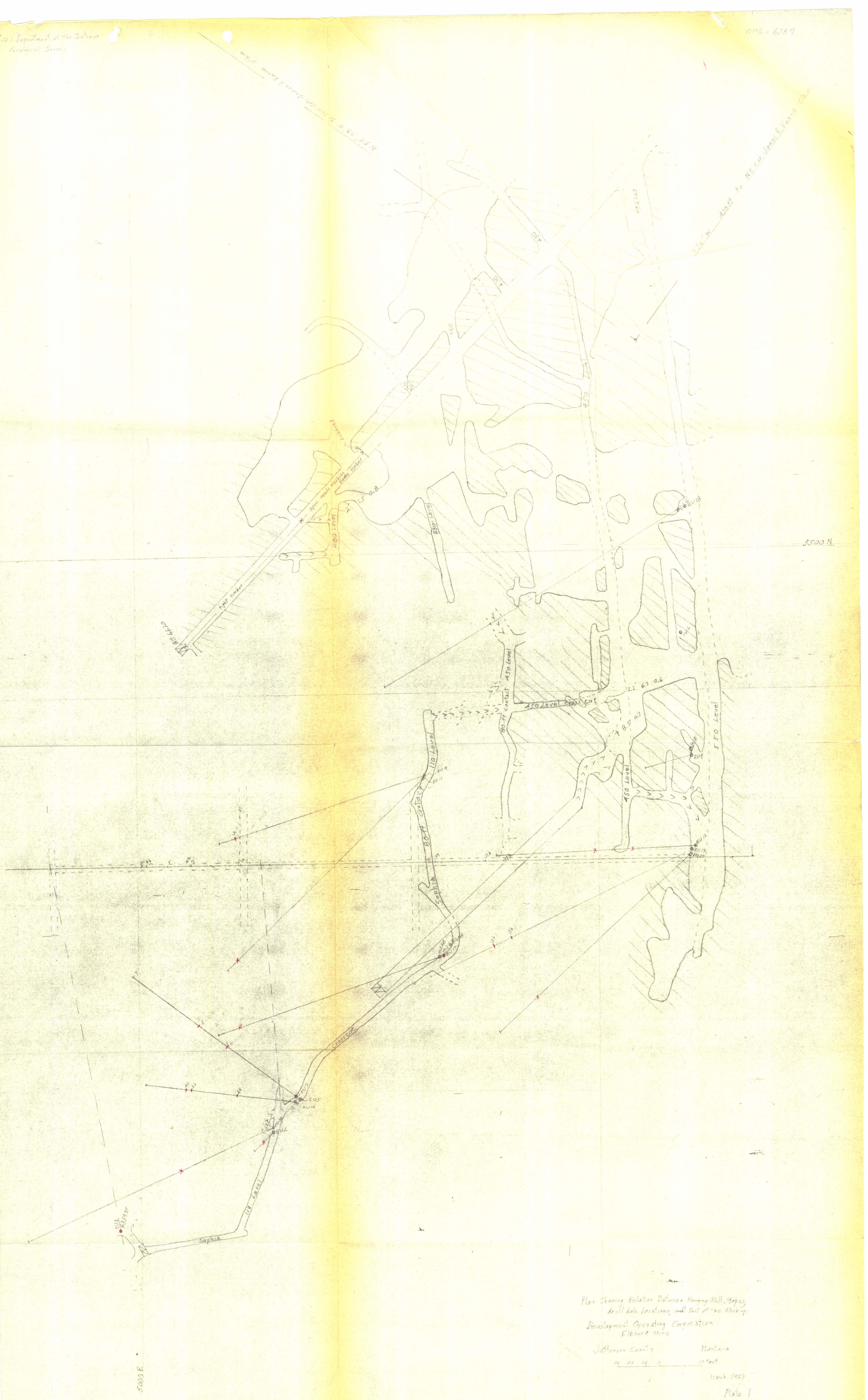

ELKHORN MINE
JEFFERSON COUNTY, MONTANA
SCALE 1"=30'
11-1-68
N
Elkhorn Shaft
200 Level
300 Level
350 Level
450 Level
550 Level
650 Level
750 Level
850 Level
950 Level
1050 Level
1150 Level
360' ± X-Cut
± 700'
160' ±
550' Level
Air Shaft
360' ±
550' Level
Sophia
Shaft
160' ±
Work-33 No. 2
6100 N
6000 N
5900 N
5800 N
5700 N
5600 N
5500 N
5400 N
5300 N
5200 N
5100 N
5000 N
4900 N
4800 N
4700 N
4600 N
4500 N
4900 E
5000 E
5100 E
5200 E
5300 E
5400 E
5500 E
5600 E
5700 E
5800 E
5900 E


1' Fault Gouge. N. Wall = brn-grn
Slickenside. S. Wall = Tan
Crushed Talcy gouge
Water Course
DDH EU11 Intersects XC
360' Contact
160' Contact
230' Contact
1/4" seam-hard Blue-Black Mineral
1" Seam, Talcy, heavy Lim
160' Contact ?
1"-4" Gouge
heavy Mn St.
80' Contact
40' Contact
80' Contact
up To 1" Thick
Some breccia
Dol Cem w/
Mn. Str Cond
1" Gouge w/
heavy lim St.
550 LEVEL
5300N
5200N
5100N
5000N
Water Course
Whi + Blu Banded Dol
Small bleb oxid ore
rusty drusy very soft
consid mal. spots
Ore Zone. E. Wall is Whi Dol
Breccia Cem w/Gn. W. Wall is
Yello Dol Containing Consid Diss Gn.
Approx Sill Elev
6335
Water Course Running
SOPHIA WNZ
1'-2' Bed Pl w/heavy brn. St.
Brn Clay. Strong
sl Mini.
Water Course
4' heavy Bl +
Br St. Dol Very
Soft. Sl Mini.
Whi + Blu banded Dol
EU 17
Bt to Covern
@ Sill
Lower 1/2
of Dr breaks
into Cavern
CAVERN
Water Course
Water Course
Raise Sections
Rt. Wall
L. Wall
Doghole
Jointing
Fault or Slip
Ore
Possible Ore Horizon
White Dolomite - Hard
Crystalline - Massive.
Lim St. on Fractures
Some Mn.
Blue Dolomite - Hard
Crystalline - Massive.
Yellow - Buff Dolomite
Soft. Consid. Lim St.
+ Some Mn.
Structure
1" = 30'
N
ELKHORN MINE
O.M.E. PROJECT
550 LEVEL
SAMPLE MAP
(Ag only; oz/ton)


water course now dry
360 CONTACT
EU 14
EU 11
230 CONTACT
160 CONTACT
80' CONTACT STOPING
EU 9
EU 10
EU 12
EU 13
80' CONTACT
40' CONTACT
550 LEVEL
5300 N
5200 N
5100 N
5000 N
ORE ZONE
water course running
EU 20
EU 7
SOPHIA 110 LEVEL
EU 5
EU 4
230 Contact
EU 3
EU 2
SOPHIA SHAFT
SOPHIA 110 LEVEL
EU 33
EU 1
To 301
SOPHIA 65 LEVEL
STOPED TO SURFACE
4900 E
5000 E
5100 E
5200 E
5300 E
5400 E
Fault or slip
Ore
Contact
ELKHORN MINE
O.M.E. PROJECT
550 LEVEL
Survey - 2-9-68
1" = 30'

U.S. Department of the Interior
Geological Survey

OME-6387



Plan Showing Relation Between Hanging Wall Stopes, drill hole locations, and Part of the Workings

Development Operating Corporation
Elkhorn Mine

Jefferson County Montana

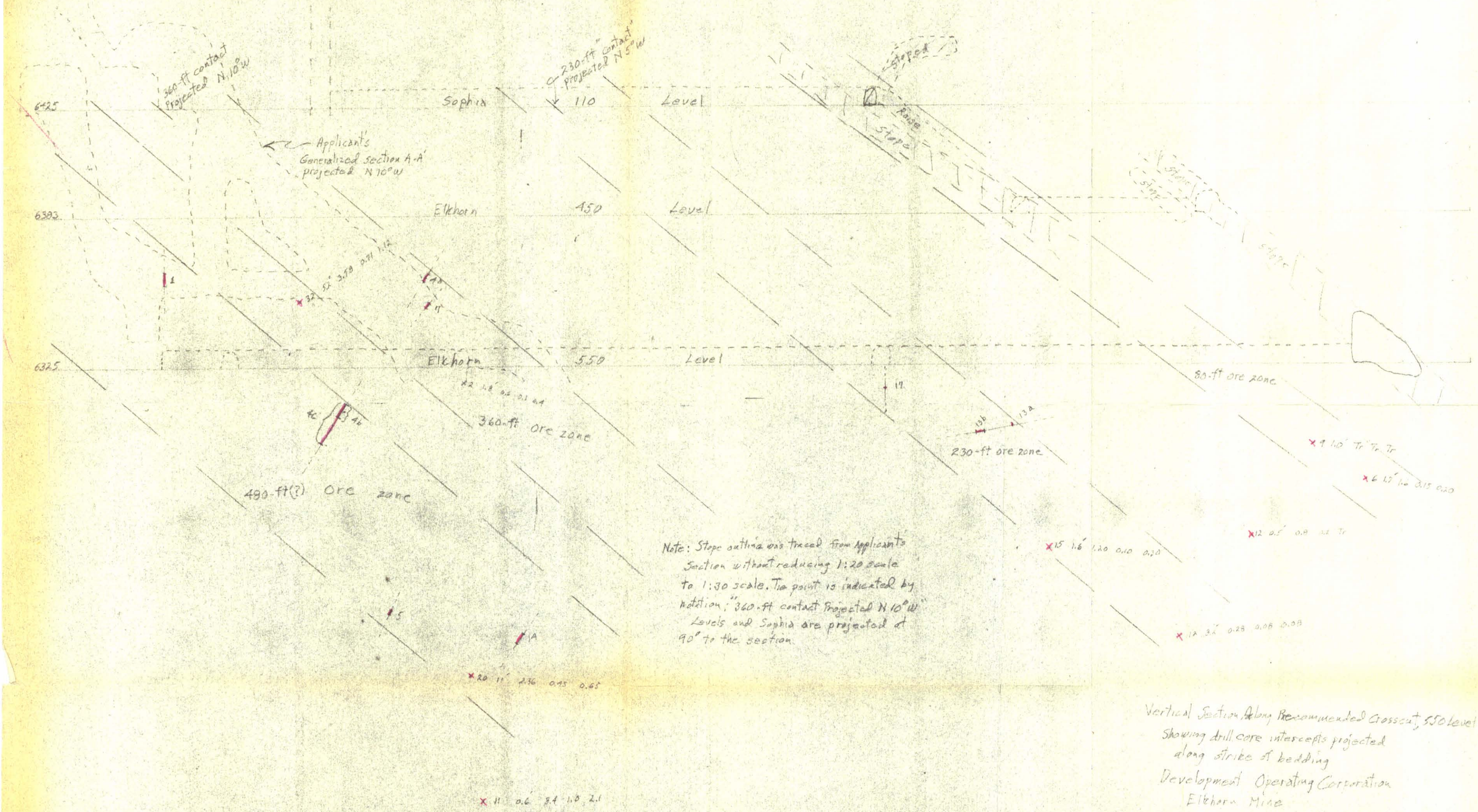
30 20 10 0 30 feet

March 1967

Plate 1

Geological Survey

OME - 6587



Vertical Section Along Recommended Crosscut, 550 Level
Showing drill core intercepts projected along strike of bedding
Development Operating Corporation
Elkhorn Mine
Jefferson County Montana

30 20 10 0 30 Feet

March 1967

Plate 3