Government's copy

MF-200A
(Revised June 1954)

Docket No. DMEA -3784

Commodity Chromium

Contract No. Idm-E 839

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
EXPLORATION PROJECT CONTRACT[1]
(Short Form)

It is agreed this JUL 6 1955 day of ....., 195..., between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and [2] R. F. Helmke and C. R. Janssen, partners, doing business as Helmke, Thomas, & Janssen, whose mailing address is 320 Market Street San Francisco 11, California, hereinafter called the "Operator," as follows:

ARTICLE 1. *This contract* is entered into under the authority of the Defense Production Act of 1950, as amended. It consists of this form (MF-200A), the attached Exhibit "A," Annex I, and map.

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

ARTICLE 2. *Operator's property rights.*—(a) The land which is the subject of this contract (hereinafter called "the land") is in the State of California, Counties of Shasta and Siskiyou, and is described in Annex I.[3]

(b) The Operator represents and undertakes that:

(1) The Operator is the [4] lessee of [5] mineral rights in the land, in possession and entitled to possession for all of the purposes of this contract, under and by virtue of a [6] lease, [7] un recorded in Book ....., page ....., official records of said County; and

(2) The Operator's right, title, or interest (whether as owner, lessee, or otherwise) is subject only to the following claims, liens, or encumbrances: .....

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

[1] If sufficient space is not provided in any blank, use an extra sheet of paper and refer to it in the blank.
[2] Insert name, and if an organization, its nature (corporation and place of incorporation, partnership with names of partners, etc.).
[3] State on a separate sheet marked "Annex I" the legal description or enough to identify the property, particularly excluding any areas from which the production is not to be subject to the Government's percentage royalty.
[4] Insert "owner," "lessee," "contract purchaser," "locator," etc.
[5] Insert "the entire interest," "the mineral rights," "an undivided one-third," etc.
[6] Insert "deed," "lease," "contract," "location notice," "patent," etc.
[7] If not recorded, so indicate by inserting "un."

16—70619-1

(d) The Operator shall preserve and maintain his right, title, and interest in the land and his right to the possession thereof for the purposes of this contract, and shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of this contract. Until the lapse of the time within which the Government may make a certification of discovery or development without any such certification having been made, and after any such certification has been made, the Operator shall neither transfer, convey, nor surrender the land nor any right, title, or interest therein, nor permit nor suffer any claim, lien, or encumbrance thereon, without expressly referring to and providing in the instrument of conveyance, lien, or encumbrance for the preservation of the Government's right to a percentage royalty on production and lien for the payment thereof. If the Government makes no certification of discovery or development within the time limited in Article 7, it shall thereafter have no claim against the land or any production therefrom except for any production referred to in Article 7(b)(1).

ARTICLE 3. *The exploration project.*—The project is a search for indicated or undeveloped deposits of chromium The work to be performed is described in Exhibit "A." The Operator on or before ..... shall commence the work, and on or before July 1, 1956 (unless the Operator's obligation to complete the work is terminated—see Article 8) shall complete the work.

ARTICLE 4. *Performance of the work.*—(a) *Operator's responsibility.*—The work shall be performed with reasonable diligence, efficiently, expertly, in a workmanlike manner, in accordance with good mining standards and State regulations for health and safety and for liability insurance covering employment; and with suitable and adequate equipment, facilities, materials, supplies, and labor, to bring it to completion within the time fixed.

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

ARTICLE 5. *Contribution by the Government.*—A fixed cost for each unit of work to be performed (per foot of drifting, per foot of drilling, per hour of operations, etc.) is hereby agreed upon, and is set forth in Exhibit "A" in connection with the estimated total cost of the project in the sum of $35,200.00 The Government will contribute 50 percent of the fixed unit costs as work is performed, in a total sum not in excess of $17,600.00: *Provided,* That until the Operator has rendered to the Government his final report, and any final auditing required by the Government has been made, and a final settlement of the contract has been made, the Government may withhold from the last voucher or vouchers such sums as it sees fit not in excess of 10 percent of the estimated total cost of the work. The Government will make its contribution on the basis of the monthly vouchers referred to in Article 6(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. To the extent that excesses over fixed unit costs or any excess over the estimated total cost may be necessary for the performance of the work, the Operator shall incur and pay such excesses for his own account without contribution by the Government. The Government may make payments directly to independent contractors and suppliers for the account of the Operator rather than to the Operator.

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performed during the reporting period including adequate engineering-geological maps or sketches, drill hole logs and locations, and assay reports on samples taken concurrently with advance in mineralized ground. (Forms for reporting under (1) and (2) above will be provided by the Government.)

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

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

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

ARTICLE 7. *Repayment by Operator.*—(a) *Certification.*—If the Government considers that a discovery or development from which production may be made has resulted from the work, the Government, at any time not later than six months after a sufficient final report and final account (see Article 6) has been rendered, may so certify in writing to the Operator. Such certification shall describe broadly or indicate the nature of the discovery or development.

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

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

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

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

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

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

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

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

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

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

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

ARTICLE 8. *Termination of the Government's obligations.*—(a) If in the opinion of the Government operations at any time have failed to achieve anticipated results that indicate the probability of making a worthwhile discovery, and in the opinion of the Government further operations are not justified, the Government may give the Operator written notice thereof, and thereupon the Government shall be free of all obligation to pay on account of units of work not then performed, and the Operator shall be free of all further obligation to prosecute the work other than such as may be necessary and incidental to winding up, reporting, and accounting.

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

(c) The giving of any notice by the Government under the provisions of this Article 8 shall not affect the Government's rights as provided for in the contract with respect to a percentage royalty, and such rights shall be fully preserved.

ARTICLE 9. *Notices to be given by the Government* may be delivered to the Operator, or may be sent by registered mail addressed to the Operator at his mailing address stated in this contract. If mailed, notices are deemed to have been delivered five days after the date of mailing.

ARTICLE 10. *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 11. *Changes and added provisions.*—

Executed in sextuplicate the day and year first above written.

HELMKE, THOMAS, & JANSSEN
(Operator)

By ..... (Partner)

By ..... (Partner)

THE UNITED STATES OF AMERICA

By C O Mittendorf
Administrator, Defense Minerals
Exploration Administration

I, ..., certify that I am the ..... secretary of the corporation named as Operator herein; that ..... who signed this contract on behalf of the Operator, was then ..... of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

.....

[CORPORATE SEAL]

U. S. GOVERNMENT PRINTING OFFICE 16—70618-1

EXPLORATION PROJECT CONTRACT
HELMKE, THOMAS, & JANSSEN
DOCKET NO. DMEA 3784

ANNEX I

The land referred to in Article 2 of the Contract consists of Lot 4, SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 2, T. 38 N., R. 4 W., Mount Diablo Meridian, containing 79 acres more or less.

The Little Castle Creek chromite property is partly in Shasta County and partly in Siskiyou County, California, about 4 miles southwest of Dunsmuir.

EXPLORATION PROJECT CONTRACT
HELMKE, THOMAS, & JANSSEN
DOCKET NO. DMEA-3784

EXHIBIT "A"

Description of the Work

The objective of this project is exploration of the Little Castle Creek Chrome Mine for chromite. The work is generally indicated on the map, Figure 2, attached hereto and made a part hereof entitled "Geologic Map and Cross Section of Little Castle Creek (Brown) Chrome Mine, Shasta County, California."

The work is divided into two successive stages. The Operator shall perform Stage I, and shall perform so much of the work set forth under Stage II as is approved in writing in advance by the Government.

Stage I

From a point approximately 100 feet in elevation below the Lower Brown workings, drive a 700-foot adit approximately S. 45° W. to explore the zone favorable for chromite mineralization indicated by the several exposures and a prior magnetometer survey. Location of the adit portal and bearing of the adit are subject to the prior approval of the Government.

Stage II

1. At locations in the adit driven under Stage I, approved in writing in advance by the Government, drive not in excess of 200 feet of crosscuts and/or drifts to explore the most favorable chromite mineralized zones encountered.

2. At locations in the workings driven under this contract, approved in writing in advance by the Government, drive not in excess of 100 feet of raises to explore the most favorable chromite mineralized zones encountered.

* * * * * *

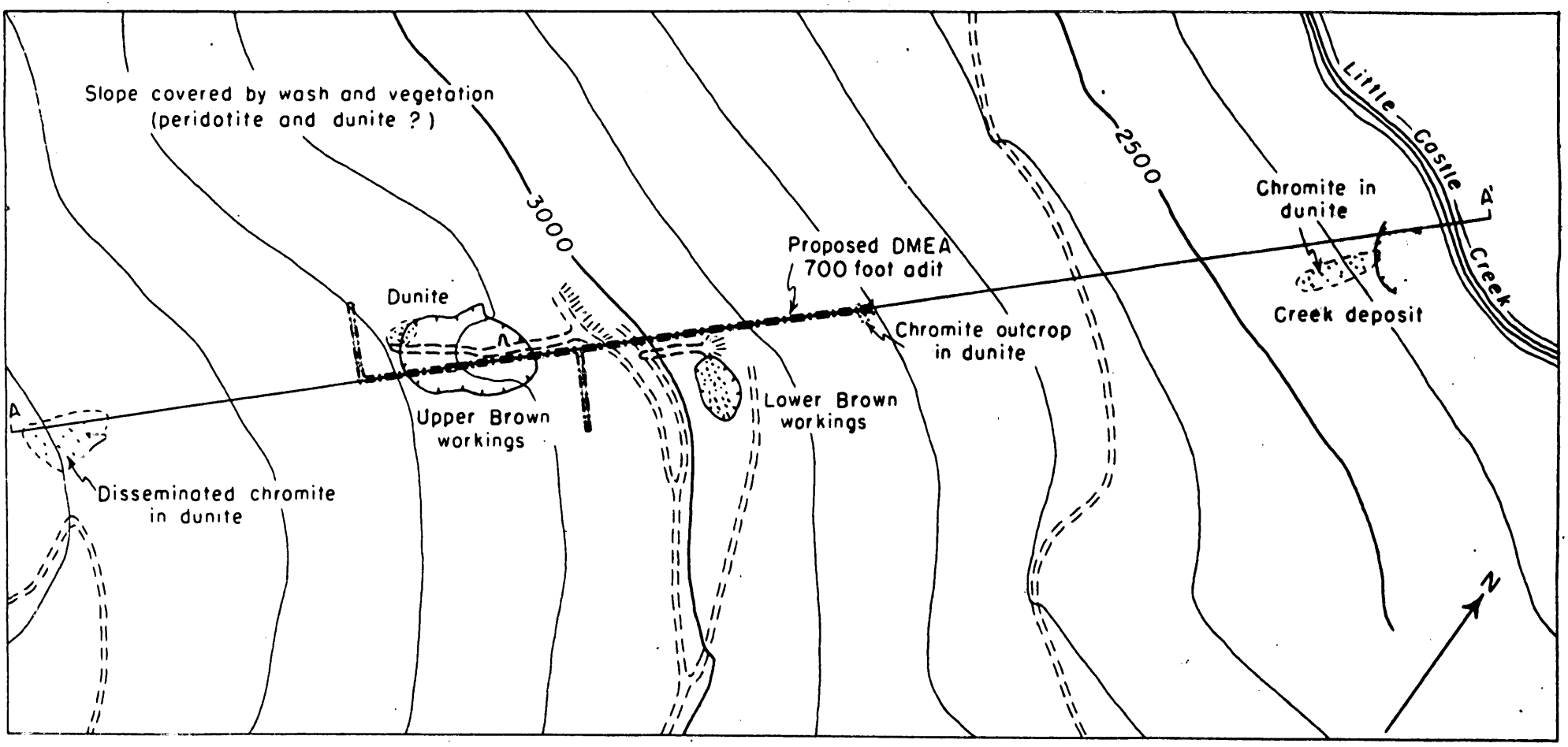
The adit, drifts, and crosscuts, shall be not less than 5 feet by 7 feet in the clear of timber, and shall be

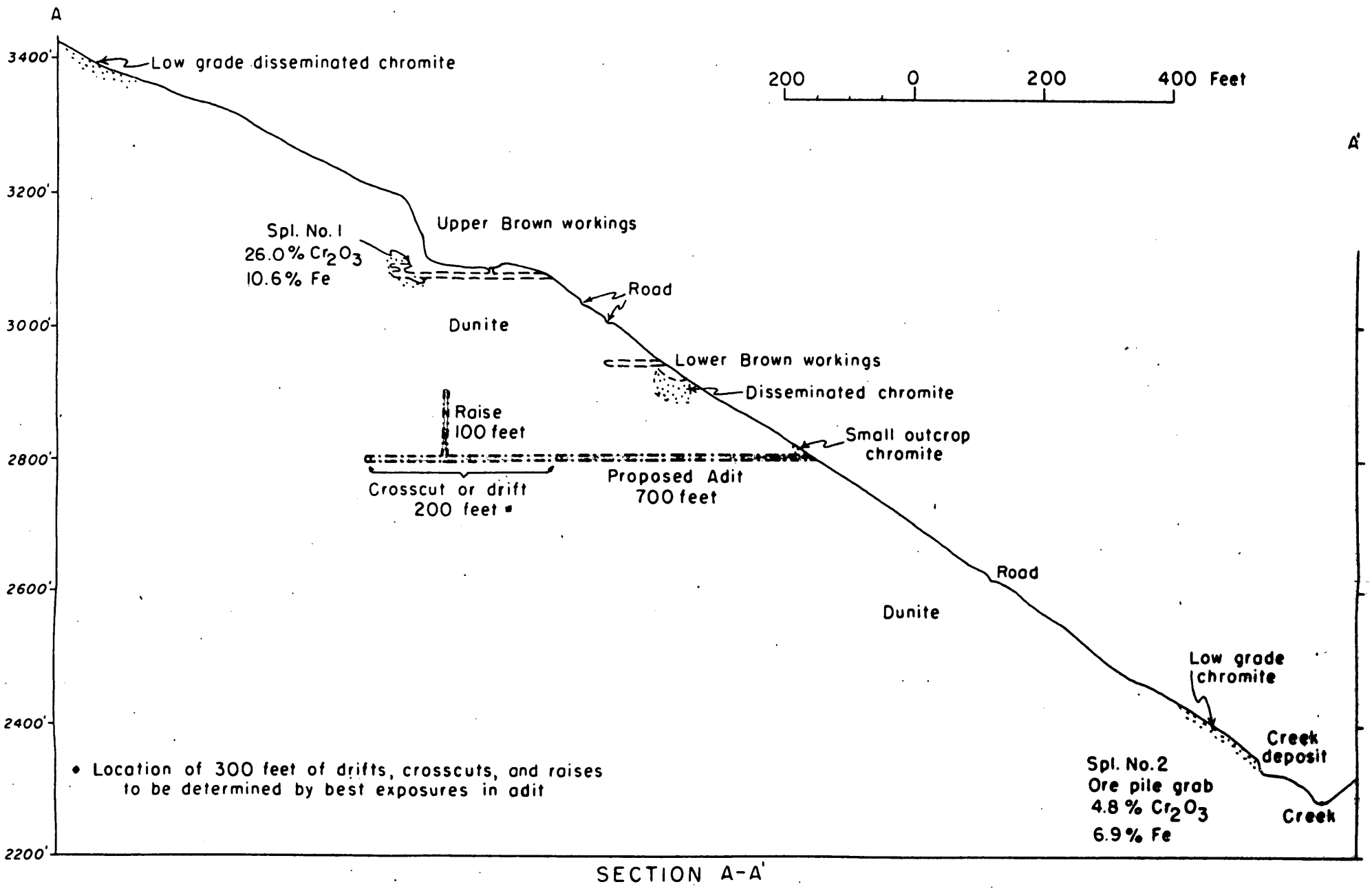
timbered as necessary. Raises shall be not less than 4 feet by 6 feet in the clear of timber, and shall be timbered as necessary.

Representative samples, which shall be analyzed for chromic oxide (Cr_2O_3) and iron (Fe), shall be taken of all mineralized ground encountered. Each sample shall be divided into at least two parts, one of which shall be furnished to the Government.

Fixed Unit Costs
(The unit costs include all costs whatsoever necessary to complete the work.)

Stage I		
700 feet of adit @ $31.50/ft.	$22,050.00	
700 feet of timbering @ $5.00/ft.	3,500.00	
20 samples analyzed for chromic oxide & iron @ $4.00/sample	80.00	$25,630.00
Stage II		
200 feet of crosscuts and/or drifts @ $31.50/ft.	6,300.00	
100 feet of raises @ $31.50/ft.	3,150.00	
30 samples analyzed for chromic oxide & iron @ $4.00/sample	120.00	9,570.00
Estimated Total Cost of Project		$35,200.00
Government Participation @ 50%		$17,600.00





SECTION A-A'

GEOLOGIC MAP AND CROSS SECTION OF LITTLE CASTLE CREEK (BROWN)
CHROME MINE, SHASTA COUNTY, CALIFORNIA

Figure 2

MF-203
(Revised July 1, 1954)

OWNER'S CONSENT TO LIEN

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller has an interest in certain property in the State of California, County of Siskiyou & Shasta, described as follows:1/

Lot 4, SW 1/4 of the NW 1/4 of Section 2, Township 38, Range 4 West of MDM containing 79 acres more or less

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

2/ HELMKE, THOMAS & JANSSEN

hereinafter called the "Operator"; and

WHEREAS, under the provisions of said contract the Government is entitled to a percentage royalty on production and to other rights and equities which do or may conflict with or be adverse to the rights of the undersigned:

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 21 1955

NOW THEREFORE, the undersigned, in consideration of said contract and as an inducement to the Government to enter into same, undertakes and agrees as follows:

1. The Government's equity in and right to dismantle, sever, take possession of, and remove and dispose of facilities, buildings, fixtures, equipment, or other items as provided in the contract or any amendment thereof shall prevail over and be prior and superior to any conflicting or adverse rights of the undersigned, and the Government is authorized to enter upon the land for such purposes.

2. To secure the payment to the Government of the percentage royalty on production3/ provided for under the terms of said exploration project contract or any amendment thereof there is hereby granted to the Government a lien upon the land above referred to and upon any production of minerals therefrom until said royalty is fully paid or ten years have elapsed from the date of the contract, whichever occurs first.

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

2/ Insert the name of the Operator as it will appear in the exploration project contract.

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

(OVER)

3. The undersigned shall commit no act nor assert any claim that may contravene or conflict with the lien, claim, or rights of the Government under the provisions of said contract. This agreement shall be binding upon the heirs, executors, administrators, successors, and assigns of the undersigned.

4. Changes and added provisions ~~In paragraph 2 the words "the period fixed in the contract or any amendment thereof has" are substituted for "ten years have."~~

Dated this 15 day of April, 1955.

Mernice T. Johnson [Seal]

Ada E. Johnson [Seal]

[Seal]

Docket copy

MF-200A
(Revised June 1954)

Docket No. DMEA -3784

Commodity Chromium

Contract No. Idm-E 839

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

ARTICLE 7. *Repayment by Operator.*—(a) *Certification.*—If the Government considers that a discovery or development from which production may be made has resulted from the work, the Government, at any time not later than six months after a sufficient final report and final account (see Article 6) has been rendered, may so certify in writing to the Operator. Such certification shall describe broadly or indicate the nature of the discovery or development.

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

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

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

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

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

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

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

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

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

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

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

ARTICLE 8. *Termination of the Government's obligations.*—(a) If in the opinion of the Government operations at any time have failed to achieve anticipated results that indicate the probability of making a worthwhile discovery, and in the opinion of the Government further operations are not justified, the Government may give the Operator written notice thereof, and thereupon the Government shall be free of all obligation to pay on account of units of work not then performed, and the Operator shall be free of all further obligation to prosecute the work other than such as may be necessary and incidental to winding up, reporting, and accounting.

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

(c) The giving of any notice by the Government under the provisions of this Article 8 shall not affect the Government's rights as provided for in the contract with respect to a percentage royalty, and such rights shall be fully preserved.

ARTICLE 9. *Notices to be given by the Government* may be delivered to the Operator, or may be sent by registered mail addressed to the Operator at his mailing address stated in this contract. If mailed, notices are deemed to have been delivered five days after the date of mailing.

ARTICLE 10. *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 11. *Changes and added provisions.*—

Executed in sextuplicate the day and year first above written.

HELME, THOMAS, & JANSSEN
(Operator)

By ..... (Partner)

By ..... (Partner)

THE UNITED STATES OF AMERICA

By C. Mittendorf
Administrator, Defense Minerals Exploration Administration

"Appd. Sol. Off."

I, ..., certify that I am the ..... secretary of the corporation named as Operator herein; that ..... who signed this contract on behalf of the Operator, was then ..... of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

.....

[CORPORATE SEAL]

U. S. GOVERNMENT PRINTING OFFICE 16—70618-1

EXPLORATION PROJECT CONTRACT
HELMKE, THOMAS, & JANSSEN
DOCKET NO. DMEA 3784

ANNEX I

The land referred to in Article 2 of the Contract consists of Lot 4, SW ¼ NW ¼ Sec. 2, T. 38 N., R. 4 W., Mount Diablo Meridian, containing 79 acres more or less.

The Little Castle Creek chromite property is partly in Shasta County and partly in Siskiyou County, California, about 4 miles southwest of Dunsmuir.

EXPLORATION PROJECT CONTRACT
HELMKE, THOMAS, & JANSSEN
DOCKET NO. DMEA-3784

EXHIBIT "A"

Description of the Work

The objective of this project is exploration of the Little Castle Creek Chrome Mine for chromite. The work is generally indicated on the map, Figure 2, attached hereto and made a part hereof entitled "Geologic Map and Cross Section of Little Castle Creek (Brown) Chrome Mine, Shasta County, California."

The work is divided into two successive stages. The Operator shall perform Stage I, and shall perform so much of the work set forth under Stage II as is approved in writing in advance by the Government.

Stage I

From a point approximately 100 feet in elevation below the Lower Brown workings, drive a 700-foot adit approximately S. 45° W. to explore the zone favorable for chromite mineralization indicated by the several exposures and a prior magnetometer survey. Location of the adit portal and bearing of the adit are subject to the prior approval of the Government.

Stage II

1. At locations in the adit driven under Stage I, approved in writing in advance by the Government, drive not in excess of 200 feet of crosscuts and/or drifts to explore the most favorable chromite mineralized zones encountered.

2. At locations in the workings driven under this contract, approved in writing in advance by the Government, drive not in excess of 100 feet of raises to explore the most favorable chromite mineralized zones encountered.

* * * * * *

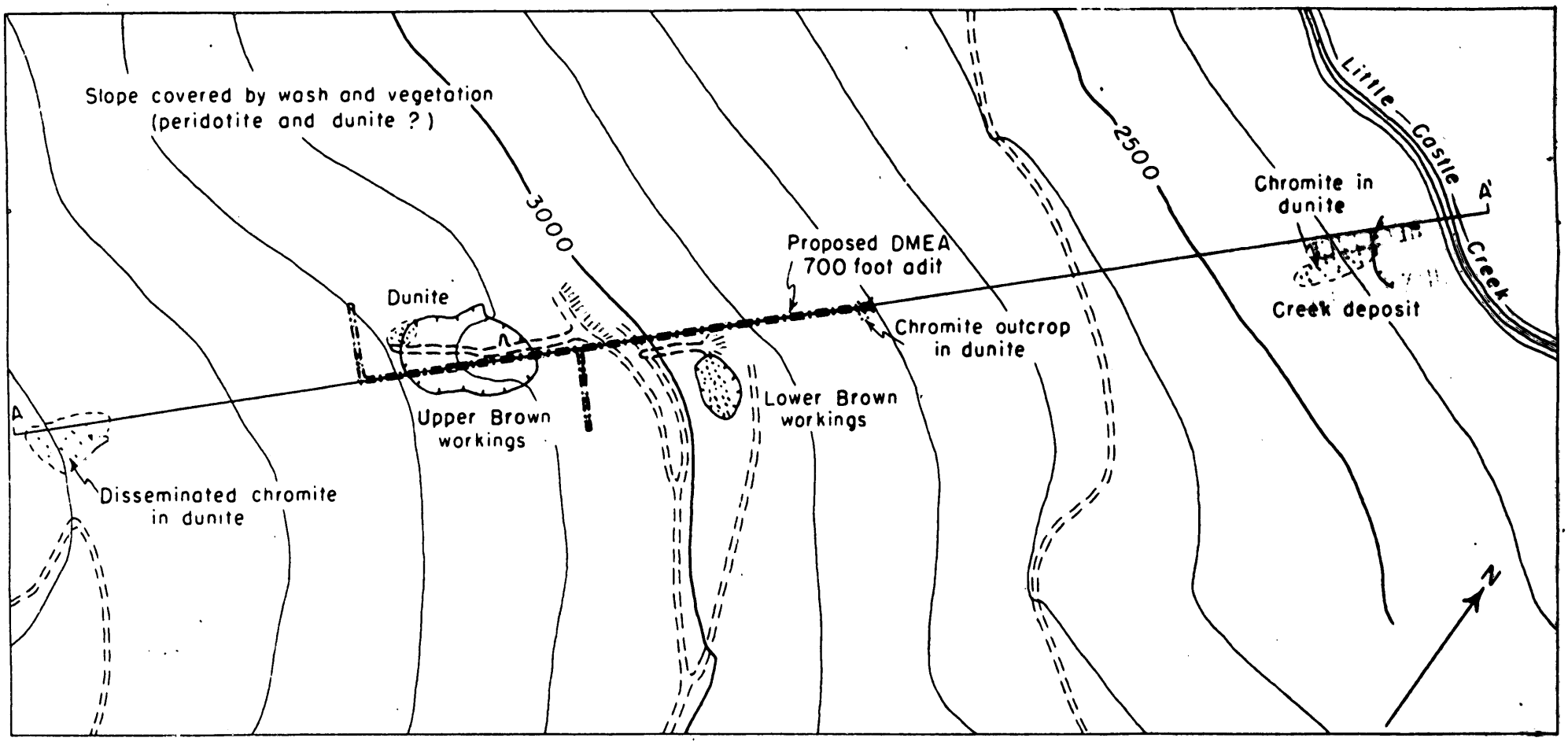
The adit, drifts, and crosscuts, shall be not less than 5 feet by 7 feet in the clear of timber, and shall be

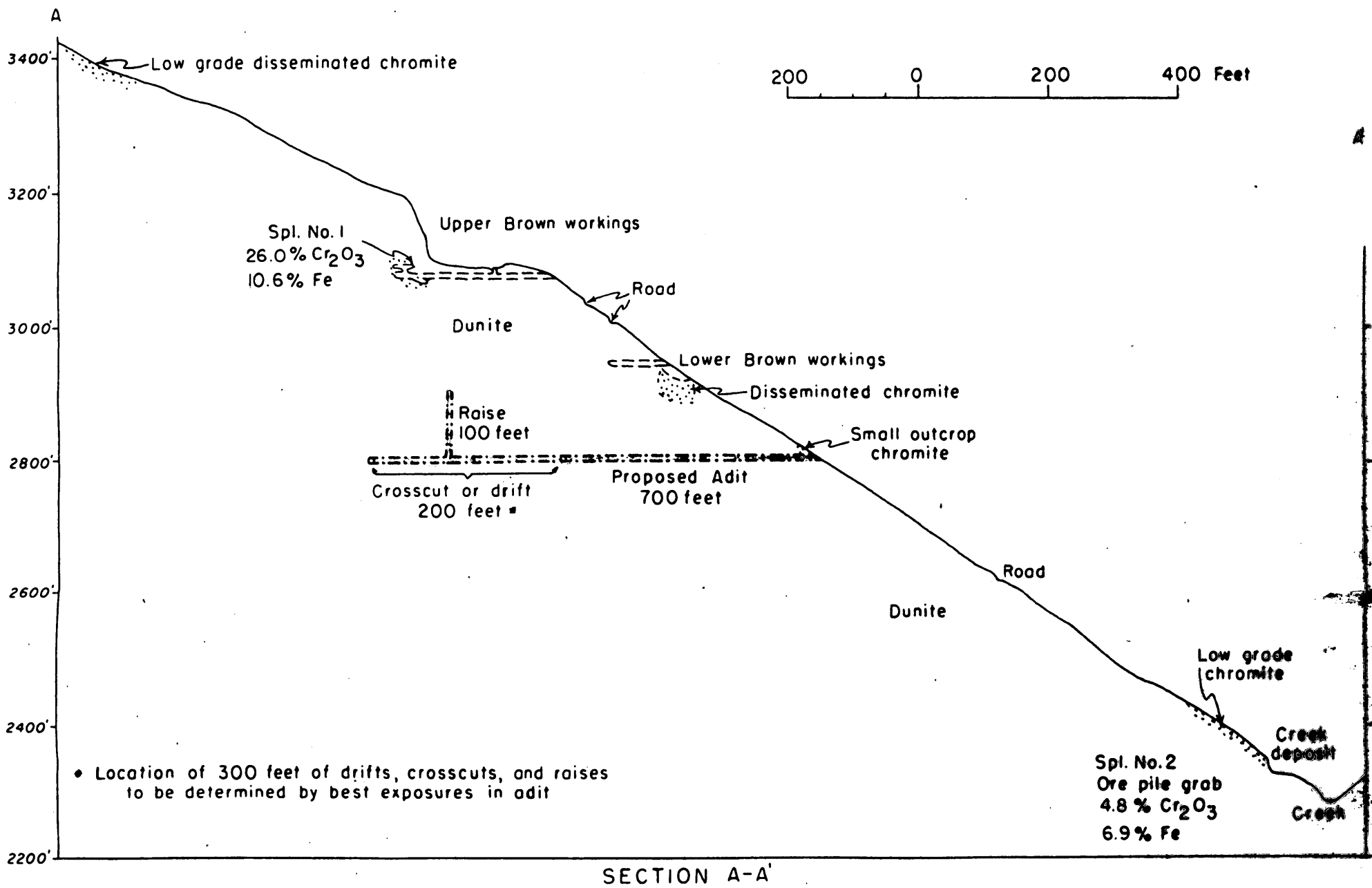
timbered as necessary. Raises shall be not less than 4 feet by 6 feet in the clear of timber, and shall be timbered as necessary.

Representative samples, which shall be analyzed for chromic oxide (Cr_2O_3) and iron (Fe), shall be taken of all mineralized ground encountered. Each sample shall be divided into at least two parts, one of which shall be furnished to the Government.

Fixed Unit Costs
(The unit costs include all costs whatsoever necessary to complete the work.)

Stage I		
700 feet of adit @ $31.50/ft.	$22,050.00	
700 feet of timbering @ $5.00/ft.	3,500.00	
20 samples analyzed for chromic oxide & iron @ $4.00/sample	80.00	$25,630.00
Stage II		
200 feet of crosscuts and/or drifts @ $31.50/ft.	6,300.00	
100 feet of raises @ $31.50/ft.	3,150.00	
30 samples analyzed for chromic oxide & iron @ $4.00/sample	120.00	9,570.00
Estimated Total Cost of Project		$35,200.00
Government Participation @ 50%		$17,600.00





SECTION A-A'

GEOLOGIC MAP AND CROSS SECTION OF LITTLE CASTLE CREEK (BROWN)
CHROME MINE, SHASTA COUNTY, CALIFORNIA

Figure 2

MF-203
(Revised July 1, 1954)

OWNER'S CONSENT TO LIEN

DEPARTMENT OF THE INTERIOR
Minerals Administration
RECEIVED
APR 21 1955

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller has an interest in certain property in the State of California, County of Siskiyou & Shasta, described as follows:1/

Lot 4, SW 1/4 of the NW 1/4 of Section 2, Township 38, Range 4 West of MDM containing 79 acres more or less.

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

2/ HEILMKE, THOMAS & JANSSEN

hereinafter called the "Operator"; and

WHEREAS, under the provisions of said contract the Government is entitled to a percentage royalty on production and to other rights and equities which do or may conflict with or be adverse to the rights of the undersigned:

NOW THEREFORE, the undersigned, in consideration of said contract and as an inducement to the Government to enter into same, undertakes and agrees as follows:

1. The Government's equity in and right to dismantle, sever, take possession of, and remove and dispose of facilities, buildings, fixtures, equipment, or other items as provided in the contract or any amendment thereof shall prevail over and be prior and superior to any conflicting or adverse rights of the undersigned, and the Government is authorized to enter upon the land for such purposes.

2. To secure the payment to the Government of the percentage royalty on production3/ provided for under the terms of said exploration project contract or any amendment thereof there is hereby granted to the Government a lien upon the land above referred to and upon any production of minerals therefrom until said royalty is fully paid or ten years have elapsed from the date of the contract, whichever occurs first.

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

2/ Insert the name of the Operator as it will appear in the exploration project contract.

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

(OVER)

3. The undersigned shall commit no act nor assert any claim that may contravene or conflict with the lien, claim, or rights of the Government under the provisions of said contract. This agreement shall be binding upon the heirs, executors, administrators, successors, and assigns of the undersigned.

4. Changes and added provisions **In paragraph 2 the words "the period fixed in the contract or any amendment thereof has" are substituted for "ten years have."**

Dated this 15 day of April, 1955.

Merrick T. Johnson [Seal]

Ada E. Johnson [Seal]

_____ [Seal]

400

DEC 1 5 1955

Helmke, Thomas, & Janssen
320 Market Street
San Francisco 11, California

Re: Docket No. DMEA-3784, Chromium
Little Castle Creek Mine
Shasta and Siskiyou Counties,
California

Gentlemen:

Reference is made to your letter of November 16, 1955, to Mr. Spangler Ricker, Executive Officer, DMEA Field Team, Region II, 1607 Evans Avenue, Reno, Nevada, returning unexecuted the original and five copies of a proposed contract for an exploration program at the subject mine.

In view of the reasons stated in your letter for deeming it inadvisable to sign the proposed contract at this time, the application is being withdrawn from our active files and the docket closed.

We note that if circumstances appear more favorable at a future date you plan to resubmit your application, together with new and supplementary information. Any new application should, of course, make reference to Docket No. DMEA-3784 for identification purposes.

We wish to thank you for your interest in the Defense Minerals Exploration Administration program and for bringing this property to our attention.

Sincerely yours,

S. O. Mikkander

Administrator

cc: Docket
Code 400
~~Sperry Summit~~
Adm. Read. File
T. Kiilsgaard, USGS
H. W. Davis, USBM
FT, Region 2

LScott
12/14/55

402

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

RECEIVED
DEC - 1 1955

Copy retained 400

1605 Evans Avenue
Reno, Nevada

November 29, 1955

Memorandum

To: Operating Committee, DMEA, Interior Building, Washington 25, D. C.

From: Executive Officer, DMEA Field Team, Region II

Subject: Docket No. DMEA-3784 (Chromium)
Helmke, Thomas & Janssen
Little Castle Creek Chrome Mines
Shasta and Siskiyou Counties, California
Contract No. Idm-2839

Copy retained 400

Reference is made to your letter of October 3, 1955 regarding status of subject contract.

Attached are two copies of letter dated November 16, 1955 from Helmke, Thomas and Janssen and the original and five copies of the above cited contract. Contract has not been executed by the Operators for the reason explained in their letter.

We believe that Helmke, Thomas and Janssen may reopen negotiation for a loan on the property sometime during 1956.

S. Ricker

Withdrawn

Attach.

SRicker:gh
cc: R. M. Smith
H. C. Miller
Finance Off., Reg. II
Geo. Mavor
File

MINES AND MILL
MAGALIA, CALIF.
CASTELLA, CALIF.

CASTELLA MINING & MILLING CO.

Chrome Ore and Concentrates

320 MARKET STREET
SAN FRANCISCO 11, CALIFORNIA

TELEPHONES
DOUGLAS 2-4840
EXBROOK 7-0624

RECEIVED
DEC - 1 1955

S. Ricker 11/18/55

November 16, 1955

Mr. S. Ricker
Defense Mineral Exploration Administration
1605 Evans Avenue
Reno, Nevada

Dear Mr. Ricker:

Docket D.M.E.A. 3784
Contract No. I D M E 839

Under separate cover we are mailing you the original and five copies of the above contract.

We find we are not in a position at present to execute this contract. We have been weighing the factors very carefully and find that the rising costs of labor and materials, the present shortage of competent men in the area, the modification contained in the contract from our original application and the limit time remaining before the termination of the sponsored chrome program make it advisable to defer action at this time. We are also presently faced with winter which makes this property unworkable during the next few months.

Our experience at the Lambert Mine, Magalia, Butte County, showed costs that greatly exceeded our estimates. We found it necessary to pay $20.00 per day to obtain competent mining which is a 25% increase. Our other expenses have increased approximately 15% in the last year. It is a difficult task to find men who are worth these wages, and it takes considerable time and effort to find subh men. We have finally been able to do so at Magalia.

If we can accumulate enough men, and if other factors become more stable, we will re-submit our application together with new and supplementary information.

Both Mr. Helmke and myself would like to express our appreciation of your co-operation and help, together with the very fine service we have had from your field men.

Sincerely yours,

CASTELLA MINING & MILLING CO.

HELMKE, THOMAS & JANSSEN

BY: [signature]

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

RECEIVED
OCT 24 1955

1605 Evans Avenue
Reno, Nevada

October 21, 1955

Helmke, Thomas, & Janssen
320 Market Street
San Francisco 11, California

Re: Docket No. DMEA-3784 - Chromium
Helmke, Thomas & Janssen
Little Castle Creek Chrome Mines
Shasta and Siskiyou Counties, Calif.
Contract No. Idm-E839

Dear Mr. Helmke:

Reference is made to our letter of July 12, 1955 in which we enclosed the original and five copies of the above cited contract for your consideration.

Will you please advise us what your intentions are concerning the contract. If you can give us no definite decision within a reasonable time, we would appreciate the return of the original and all five copies of the contract to this office, giving any reasons for not signing.

It is not our policy to let unexecuted contracts outstanding over a considerable period of time, and our request is made without prejudice to the property. You can at any future time submit a new application in quadruplicate and it will only be necessary to fill in new information on the forms and refer to the above referenced docket.

Very truly yours,

withdraw

S. Ricker
Executive Officer
DMEA Field Team, Region II

SRicker:gh
cc: DMEA, Wash., D.C.
R. M. Smith
File

OCT 3 - 1955

Mr. Spangler Ricker, Executive Officer
DMEA Field Team, Region XI
1605 Evans Avenue
Reno, Nevada

Re: Docket No. DMEA 3784 - Chromium
R. F. Helmke & C. R. Janssen
dba Helmke, Thomas, & Janssen
Little Castle Creek Chrome Mine
Shasta and Siskiyou Counties,
California

Dear Mr. Ricker:

Reference is made to Contract No. Idm-E839 for the above-noted applicant, which was sent to your office on July 6, 1955. Your August report showed that the contract was sent to the applicant for execution but had not been returned.

We believe it would be advisable to inquire about the applicant's intentions and request, if he does not intend to execute the contract, that he return the original and five copies to your office, giving any reasons for not signing.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

Approved:

P. F. Yopes
Member, Bureau of Mines

Thor H. Kiilsgaard
Member, Geological Survey

cc: Docket
Code 400
Adm. Read. File
Oper. Committee
T. Kiilsgaard, USGS
H. W. DAVIS, USBM
FT, REG. 2

TLChapman/ls
10/3/55

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

JUL - 6 1955

FARUTLEDGE:fec 6-29-55 600

cc to: Docket
Code 600
Adm. Read. File
Oper. Comm.
FT. REQ. II

Messrs. Katlin, USBM
Kiilsgaard, USGS

Mr. Spangler Richer, Executive Officer
DMEA Field Team, Region II
1605 Evans Avenue
Reno, Nevada

Re: Docket No. DMEA 3784 - Chromium
Hainlen, Thomas & Jensen
Little Castle Creek mine
Shasta & Siskiyou Counties,
California

Dear Mr. Richer:

Enclosed are the original and five copies of a proposed contract for an exploration program at the above-referenced property, signed by the Administrator for the Government, together with Annex I (1 page), Exhibit "A" (2 pages), Owner's Consent to Lien, and a map.

If the terms and conditions of this proposed contract are satisfactory to you and the operator, all six copies should be signed and the usual distribution made.

If any part of this proposed contract does not have either your approval or that of the operator and cannot be amended within your delegated authority, the original and all copies of the proposed contract are to be returned to this office, together with the proposed changes for consideration.

Under Article 3, the starting date has been left blank and is to be filled in when the contract is signed by the operator.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

Enclosure

APPROVED:

/s/ Robert W. Geehan
Member, Bureau of Mines

Thor H. Kiilsgaard
Member, Geological Survey

400

IN REPLY REFER TO:

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

June 23, 1955

Re: DMEA-3784
Helmke, Thomas and Janssen
Little Castle Creek Mine
Shasta & Siskiyou Counties, Calif.
$39,500.00 - Chromium

Copy retained 200

Memorandum

To: W. S. Martin, Defense Minerals Exploration Administration

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

Subject: Review of Field Team report

I do not agree with the recommendation of the Field Team. In other places they have bored for plums of chromite with plugged diamond bits while in serpentine or firmer wall rock and core bits when in the chromite. If the water is "coming back" the change to chromite, even disseminated, is distinct. If the water is "lost" the driller can tell by the "feel" when the bit enters harder material, and vice versa. The ground near the outcrop in the Upper Brown workings is reported as having been blocky and probably difficult to drill. That such conditions hold in the inner Upper Brown stopes where the sample was taken we are not told and of the ground to be explored below the old workings probably nothing definite is known, though company account long hole and diamond core holes, from the adit, are proposed.

Unless known to be utterly impractical diamond drilling, vertical and angle holes from the surface should be given a trial since there is no positive target for an adit, as at the Lambert (DMEA-3407) where there was some known unbottomed ore 50 feet above the proposed end of the project adit. The lone small lens found in the long adit at the Lambert, aside from the downward extension of the known ore, emphasizes the weakness of that type of prospecting. Further probing from the adit may better the results and, as expected, the adit possesses distinct development and operation value.

Unless filled with waste the flat bottom of the open cut at the Upper Brown workings might afford sites for fans of vertical and high angle holes or to the southwest, or hanging wall, there should be sites for angle holes. No large pod should be missed which cannot be said for the single, double or triple heading adit.

CC: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
Charles Katlin, 3515 Int.

N. E. Nelson

N. E. Nelson
NENelson:hlm G-6/23/55

RECEIVED
JUN 2 4 1955

400

June 21, 1955

MEMORANDUM

To: Acting Assistant Solicitor,
Defense Minerals

From: Iron and Ferro-Alloys Division, DMEA

Subject: Preparation of contract
Docket No. DMEA 3784 - Chromium
Helmke, Thomas, & Janssen
Little Castle Creek (Brown) chrome mine
Shasta and Siskiyou Counties, California

Transmitted herewith is a draft of a proposed contract for the captioned project for your use in preparing the contract in final form.

W. S. Martin, Chief
Iron and Ferro-Alloys Division

Attachment

cc: Docket
Code 400

ls 6/21/55

EXPLORATION PROJECT CONTRACT
HELMKE, THOMAS, & JANSSEN
DOCKET NO. DMEA 3784

ANNEX I

The land referred to in Article 2 of the Contract consists of Lot 4, SW ¼ NW ¼ Sec. 2, T. 3[illegible] N., R. 4 W., Mount Diablo Meridian, containing 79 acres more or less.

The Little Castle Creek chromite property is partly in Shasta County and partly in Siskiyou County, California, about 4 miles southwest of Dunsmuir.

EXPLORATION PROJECT CONTRACT
HELMKE, THOMAS, & JANSSEN
DOCKET NO. DMEA 3784

EXHIBIT "A"

Description of the Work

The objective of this project is exploration of the Little Castle Creek Chrome Mine for chromite. The work is indicated on the map attached hereto and made a part hereof entitled "Figure 2 - Geologic Map and Cross Section of Little Castle Creek (Brown) Chrome Mine, Shasta County, California."

The work is divided into two stages as follows:

Stage I

From a point approximately 100 feet in elevation below the Lower Brown workings, drive a 700-foot adit approximately S. 45° W. to explore the zone favorable for chromite mineralization indicated by the several exposures and a prior magnetometer survey. Location of the adit portal and bearing of the adit are subject to the approval of the Government.

Stage II

If, in the opinion of the Government, based upon the results of Stage I, further work is warranted and is approved by the Government in advance, Stage II shall be performed.

1. At locations in the adit driven under Stage I, subject to the prior written approval of the Government, drive not in excess of 200 feet of crosscuts and/or drifts to explore the most favorable chromite mineralized zones encountered.

2. Drive not in excess of 100 feet of raises, at locations having the written approval of the Government, to explore the most favorable chromite mineralized zones encountered.

The adit, drifts, and crosscuts shall be not less than 5' by 7' in the clear and timbered where necessary. Raises shall be not less than 4' by 6' in the clear and timbered where necessary.

Representative samples, which shall be analyzed for chromic oxide (Cr_3O_4) and iron (Fe), shall be taken of all mineralized ground encountered. Each sample shall be divided into at least two parts, one of which is to be furnished to the Government.

ESTIMATED COST OF THE PROJECT

Fixed Unit Costs

Stage I		
700 feet of adit @ $31.50/ft.	$22,050.00	
700 feet of timbering @ $5.00/ft.	3,500.00	
20 samples analyzed for chromic oxide & iron @ $4.00/sample	80.00	$25,630.00
Stage II		
200 feet of crosscuts and/or drifts @ $31.50/ft.	6,300.00	
100 feet of raises @ $31.50/ft.	3,150.00	
30 samples analyzed for chromic oxide & iron @ $4.00/sample	120.00	9,570.00
Estimated total cost of project	$35,200.00	
Government participation @ 50%	$17,600.00	

400

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

RECEIVED
JUN 13 1955

1605 Evans Avenue
Reno, Nevada

June 10, 1955

Memorandum

To: Operating Committee, DMEA, Interior Building
Washington 25, D. C.

From: Executive Officer, DMEA Field Team, Region II

Subject: Docket No. DMEA-3784 - Chromium
Helmke, Thomas & Janssen
Little Castle Creek Mine
Shasta & Siskiyou Counties, California

Reference is made to your letter of May 6, 1955 on above subject docket.

Attached are four copies of a report on the property by J. D. Warne, Bureau of Mines, and H. K. Stager, Geological Survey in which an exploration program consisting of 700 feet of adit and 300 feet of drifts, crosscuts or raises is recommended at a total cost of $39,500.00 of which the Government's participation would be $19,750.00.

50%

Roscoe Smith and I believe the property has merit, particularly in view of the highly successful DMEA project at the Lambert mine, which was also for the purpose of exploring for chromite lenses along a fairly well defined structure along which appreciable sized ore bodies had been mined on the surface. We approve of the recommendation as outlined in the report.

S. Ricker

Attach.
SRicker:gh
cc: R. M. Smith
File

RECEIVED
JUN 13 1955

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION II

APPLICATION REPORT

DMEA-3784 - (Chromium)
Heimke, Thomas, and Janssen
Little Castle Creek Mine
Shasta and Siskiyou Counties, California

John D. Warne
Mining Engineer
U. S. Bureau of Mines

Harold K. Stager
Geologist
U. S. Geological Survey

June 9, 1955

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Fig. 1. - Location map

Fig. 2. - Geologic map and cross section of Little Castle Creek (Brown) chrome mine, Shasta County, California

Docket No.: DMEA-3784 - (Chromium)

Name and address of applicant: Helmke, Thomas, and Janssen
320 Market Street
San Francisco 11, California

Name and location of property: Little Castle Creek Mine
Sec. 2, T. 38 N., R. 4 W., M.D.B.&M.
Shasta and Siskiyou Counties, California

INTRODUCTION

Helmke, Thomas and Janssen, 320 Market Street, San Francisco, California applied for Government assistance in a $64,828.90 program under the Defense Minerals Exploration Administration, docket number 3784, to explore for chromium at the Little Castle Creek mine, also known as the Brown mine, Shasta County, California. The applicants wish to explore a favorable northeast trending chromite horizon in peridotite with 1,200 feet of drift and 200 feet of raise.

A field examination was requested by the Operating Committee, and was made by H. K. Stager of the Geological Survey and J. D. Warne of the Bureau of Mines on April 13, 1955, accompanied by Mr. C. A. Fulgrum, mine superintendent for the applicants.

The open pits and underground mine workings were inspected and compared with published maps and cross sections. Two samples were taken by the examiners to check the grade and chrome/iron ratio of the ore.

The area of the Little Castle Creek mine was tested by a Geological Survey magnetometer survey and a Bureau of Mines trenching project in 1941, but this work did not discover outcrops of minable deposits of ore.[1]

CONCLUSIONS AND RECOMMENDATIONS

The Little Castle Creek deposit has yielded the largest body of massive chromite yet mined in California. The geological probability of discovering other large bodies of chromite in the ground to be explored by the proposed project is good.

The applicants proposed to explore for other ore bodies by driving two adits, one 800 feet long with a 200 foot raise at the end and one 400 feet long. Following the examination, the applicants' proposed exploration program was revised and the proposed work and costs were reduced. The approved program consists of a 700 foot adit and 300 feet of drifts, crosscuts, or raises in the most favorable exposures cut by the adit. Exploratory diamond core and long hole drilling from underground stations will be carried on concurrently with this work by the company on company account. This program, which is acceptable to the applicants, is well suited to explore the deposit, and the applicants are well qualified to do the work. The

1/ Report of Investigations 4516, July 1949, Investigation of Little Castle Creek Chromite Deposit, Shasta County, Calif.; U. S. Bureau of Mines.

project site is readily accessible and facilities for accomplishing the work are available. The revised program will require 10 months to complete and the Government's share of the estimated total cost of $39,500.00 would be $19,750.00.

It is recommended that the Government enter into a DMEA contract with Helmke, Thomas, and Janssen, to provide 50 percent of the costs of the revised program.

LOCATION, ACCESSIBILITY, LOCAL RESOURCES

The Little Castle Creek chromite property is in sec. 2, T. 38 N., R. 4 W., M.D.B.&M., Shasta and Siskiyou Counties, Calif. From Dunsmuir, California, the property is reached by automobile by traveling south along U.S. Highway No. 99 for three miles, turning west a distance of one mile up Little Castle Creek Canyon to the lower workings of the mine.

Some experienced mine labor can be obtained in the area. Water, power, and timber are available in the immediate vicinity and supplies can be obtained from Redding, Calif., 50 miles distant, or from the San Francisco area. Numerous truck, bus, and train schedules afford good transportation to Castella and Dunsmuir.

HISTORY AND PRODUCTION

The property was located in 1906 by L. H. Brown of Dunsmuir, Calif., who operated on a small scale until 1915 when owner-

ship was acquired by the California Chrome Co. During 1915-1916 this company produced about 15,000 tons of 45 to 48 percent Cr_2O_3 ore. After World War I, title to the property reverted to the Government and later acquired by Mr. M. T. Johnson, the present owner. A production of 5,000 tons of 45 to 48 percent Cr_2O_3 ore is reported from 1916 to the present time.

Various examinations, magnetometer surveys, and exploration investigations were conducted on the property by the Geological Survey and Bureau of Mines during 1940-1941, according to a report by E. J. Matson dated July 1949.[1/]

PROPERTY AND OWNERSHIP

The property consists of 79 acres, more or less, of Lot 4, SW 1/4 of the NW 1/4 of sec. 2, T. 38 N., R. 4 W., M.D.B.&M. in Shasta and Siskiyou Counties, Calif. It is owned now by Mernice T. and Ada E. Johnson, his wife, 897 South Highway, Dunsmuir, Calif.

The applicant, Helmke, Thomas, and Janssen secured a lease, contained in the application, from the owners on April 30, 1954. This company has been actively engaged in mining chrome and manganese ores for 15 years. They presently operate a mill at Castella, Calif., about 7 miles from the Little Castle Creek mine, for concentrating chrome ores produced from their various operating properties. DMEA

1/ Opp. Cit.

exploration work in progress at the Lambert Mine (Idm-E747) has been performed in rapid and satisfactory manner by the applicant.

DEVELOPMENT

No mine plant buildings or housing facilities are located on the property. The equipment now at the mine consists of a Gardner-Denver, 365 c.f.m. compressor, jackhammer, and accessory air and hand tools, but the operator has complete mining equipment which he intends to move to the property to perform exploration work. A 100-ton gravity mill, located about 6 miles from the mill, near Castella, is owned by the applicant.

The principal development area, called the Upper Brown workings, consists of a caved open pit and underground workings where chrome ore was mined from the surface to 130 feet in depth. The lowest adit is still accessible for a distance of about 250 feet. This adit is at an elevation of about 725 feet above Little Castle Creek. The lower Brown workings consist of a small open pit and an 80 foot adit at about 625 feet above the creek. About 100 feet above Little Castle Creek there are two small open cuts and an inaccessible adit known as the Creek Deposit.

The work done by Helmke, Thomas, and Janssen during 1954-1955 has consisted of reopening the upper Brown adit and surface stripping the mineralized zone at the Creek Deposit.

GENERAL GEOLOGY

The Little Castle Creek mine is in an area of high relief and the surface is almost completely covered with slope wash and dense vegetation. Because of the cover there are few outcrops. The rocks exposed in the vicinity of the mine are chiefly dunite and peridotite near the northern end of a large mass of basic igneous rocks.

The dunite consists mostly of dark green or gray olivine that weathers to a buff or buckskin color. It has been slightly serpentinized. Nearly perfect crystal cleavage in the olivine gives the rock a rough foliation that strikes NW and dips steeply N.

A well-defined fault cuts the main ore body of the deposit, strikes about N. 50° W. and dips 75° NE. There is no evidence for any vertical displacement on this fault and only about five feet of horizontal displacement had been noted. The ore bodies at the Little Castle Creek mine and the deposit at the adjoining Coggins property, on the northeast side of Little Castle Creek, are roughly aligned along a N. 50° E. trend suggesting some structural control although the nature of this control is not evident and has not been determined by geologic study.

ORE DEPOSITS

The ore bodies at the Little Castle Creek mine are of two types, massive and disseminated. Chromite, the only ore mineral present, occurs as pods and disseminated grains in dunite along a favorable horizon that strikes N. 50° E.

The principal chromium mineral is chromite that contains from 45 to 48 percent Cr_2O_3 with a chrome/iron ratio of about 2/1. Other chromium minerals are uvarovite and a pink chrome-bearing chlorite (kammererite or kotschubeite). Gangue minerals are olivine, magnetite, serpentine, talc and chrysotile asbestos.

The pod of ore mined from the Upper Brown workings in 1916 consisted of a large elongate kidney of massive chromite in a body about 150 feet long, 40 feet wide, and about 50 feet high. This body contained over 18,000 tons of chromite, with an average grade of about 48 percent Cr_2O_3, and is the largest single body of massive chromite ever mined in California.

The ore mined from the Lower Brown workings consisted of disseminated ore in a body about 65 feet long, 25 feet wide, and 8 feet thick with an average grade of over 20 percent Cr_2O_3.

The ore mined from the Creek Deposit consisted of angular blocks of nodular chromite and some disseminated chromite in a matrix of unserpentinized dunite. The grade of this material has been quite low and a grab sample of the ore pile at the time of the

examination assayed 4.8 percent Cr_2O_3.

Total production from the Little Castle Creek deposit is about 20,000 tons of chromite containing from 45 to 48 percent Cr_2O_3.

SAMPLING

Analysis of two samples by the Bureau of Mines taken at the time of this examination from locations shown in Figure 2 were as follows:

Sample No.	%, Cr_2O_3	%, Fe	Description
1	26.0	10.6	Chip sample across northeast face of sub-level 15 feet above upper Brown adit, about 225 feet from portal.
2	4.8	6.9	Grab sample of low grade chrome bearing material, mined from Creek Deposit for mill test purposes.

ORE RESERVES

The applicants estimate that the ore reserves at the property are 1,500 tons of indicated ore assaying over 20 percent Cr_2O_3 that can be economically mined and successfully concentrated at their Castella mill. About 300 tons of this ore is massive ore in the 3rd level workings below the Upper Brown open pit (fig. 2), 700 tons is disseminated ore in the walls and bottom of the open pit at the Lower Brown workings, and 500 tons is low grade disseminated ore exposed in the Creek Deposit. A review of the applicants maps and sections, a study of production records and of the exposures on the property revealed that this estimate of reserves is conservative.

Judging from the distribution of ore bodies that have been mined, it is inferred that additional ore bodies may be discovered in the block of ground to be explored by the proposed program. A tonnage of ore equal to what has been produced, about 20,000 tons, is inferred for this block. It is expected that any new ore bodies discovered would be about the same grade as the ore mined, about 48 percent Cr_2O_3.

PROPOSED EXPLORATION

The applicants proposed to drive an 800 foot exploratory adit from the hillside, about 100 feet below the Lower Brown workings (fig. 2), with a 200 foot exploratory raise at the end, and followed by a 400 foot exploratory adit about 200 feet above the Creek Deposit (fig. 2). They estimated the cost of the work would be $64,828.00.

In conference with the applicants it was agreed that the present exposures do not justify more than one exploratory adit and that the location of additional exploratory drifts, crosscuts, or raises, should be determined by the most favorable exposures cut in the adit.

The approved project work is divided into two stages:

Stage I - 700 feet of adit to be driven in an approximate S. 45° W. direction, at 100 feet below the Lower Brown workings.

Stage II - 300 feet of drifts, crosscuts, or raises to explore the most favorable chromite mineralized zones encountered by the 700 foot adit.

The operator shall perform Stage I and shall perform so much of the work under Stage II as is approved in advance by the Government.

Work will start within 60 days and be completed within 10 months from the date of an exploration contract.

The location of the work is indicated in Figure 2, Geologic map and cross section of Little Castle Creek (Brown) Chrome Mine, Shasta County, Calif.

EXPLORATION COSTS

Estimated costs submitted by the applicant in his original application were taken into consideration where applicable in the final approved program; however, separate estimates were made as follows:

(1) Independent contracts

Drifting labor, 1,000 feet @ $13.00/ft. $13,000.00

(2) Labor and Supervision

1 Engineer-Supervisor (1/2 time) at $700.00/mo., 10 months	$3,500.00	
1 Compressor and supply man, 10 months at $325.00/mo.	$3,250.00	
		$ 6,750.00

(3) Operating materials and supplies

Diesel fuel	$1,400.00	
Oil	140.00	
Explosives	2,600.00	3,000.00
Timber	4,308.00	
Track	? 2,400.00	1,500.00
Steel & bits	210.00	
Pipe	15.00	
		$11,080.00

(4) Operating equipment
(To be furnished by operator on rental basis)

Compressor (present value)	$7,500.00	
Mucking machine	3,700.00	
Drifter	450.00	
Column, arm, saddle	100.00	
Mine cars	500.00	
Blower	325.00	
Ventube	512.00	
Hoses & pressure tank	125.00	
Supply truck	750.00	
Pickup truck	1,500.00	
	$15,262.00	
$\frac{\$15,262.00 \times 10}{60}$		$ 2,543.67

(5) Initial rehabilitation and repairs

Access road to adit site, and repair of existing road, and preparation of portal site	$ 900.00

(6) New buildings, improvements, etc.

Tool house and supply storage at portal site	$ 200.00

(7) Miscellaneous

Equipment maintenance & repair	$450.00	
Vehicle maintenance & repair	175.00	
Accounting 10 months @ $100/month	1,000.00	
Workman's compensation, payroll taxes, etc.	1,500.00	
		$ 3,125.00

(8) Contingencies

For possible equipment failure, delays, etc. @ $100/mo., 10 mo.	$1,000.00	
TOTAL COST		$39,498.67

Estimated cost per foot = $39.50
(Including timbering at an estimated cost of $7.50 per foot)

Resume of estimated costs:
Estimated costs of project
Fixed Unit Costs

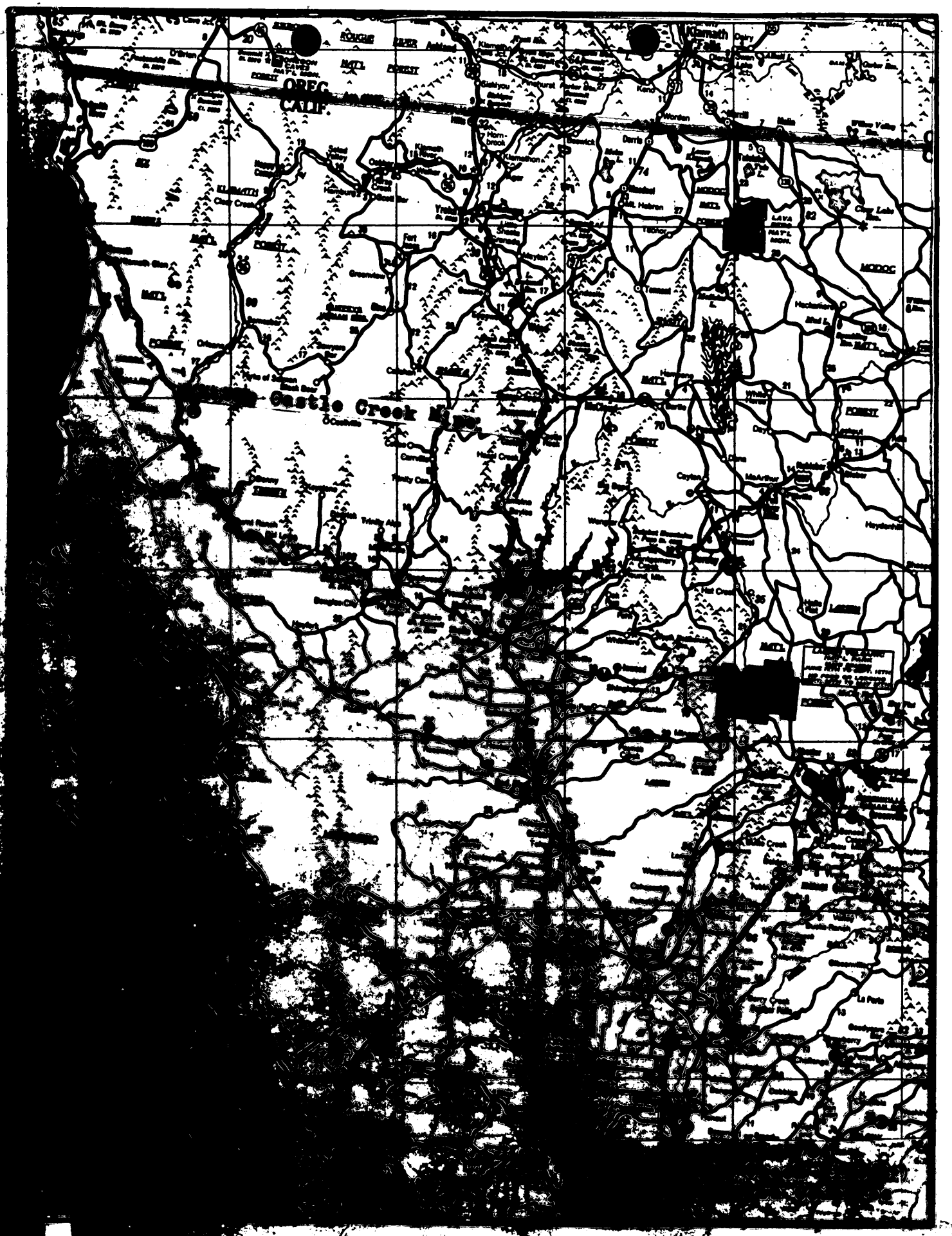
Stage I

700 feet of adit @ $32.00/ft.	$22,400.00	
700 feet of timbering in adit, as required, @ $7.50/ft.	5,250.00	
		$27,650.00

Stage II

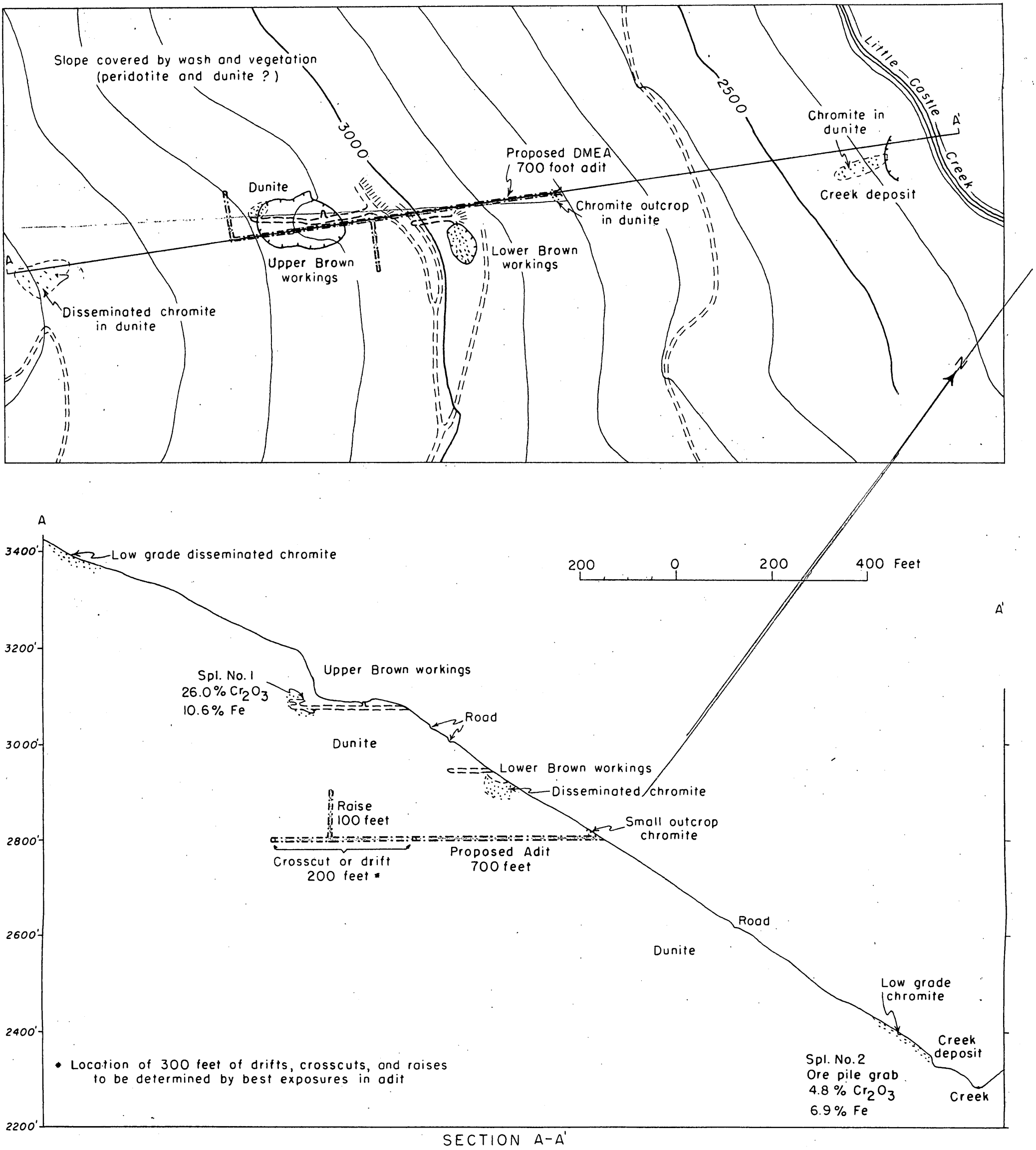
300 feet of drifting, crosscutting, or raising @ $32.00/ft.	$9,600	
300 feet of timbering in drifts, crosscuts, or raises as required @ $7.50/ft.	$2,250	
		$11,850.00

Estimated total cost of project	$39,500.00
Government participation at 50%	$19,750.00



IG LOCATION MAP

RECEIVED
JUN 13 1955

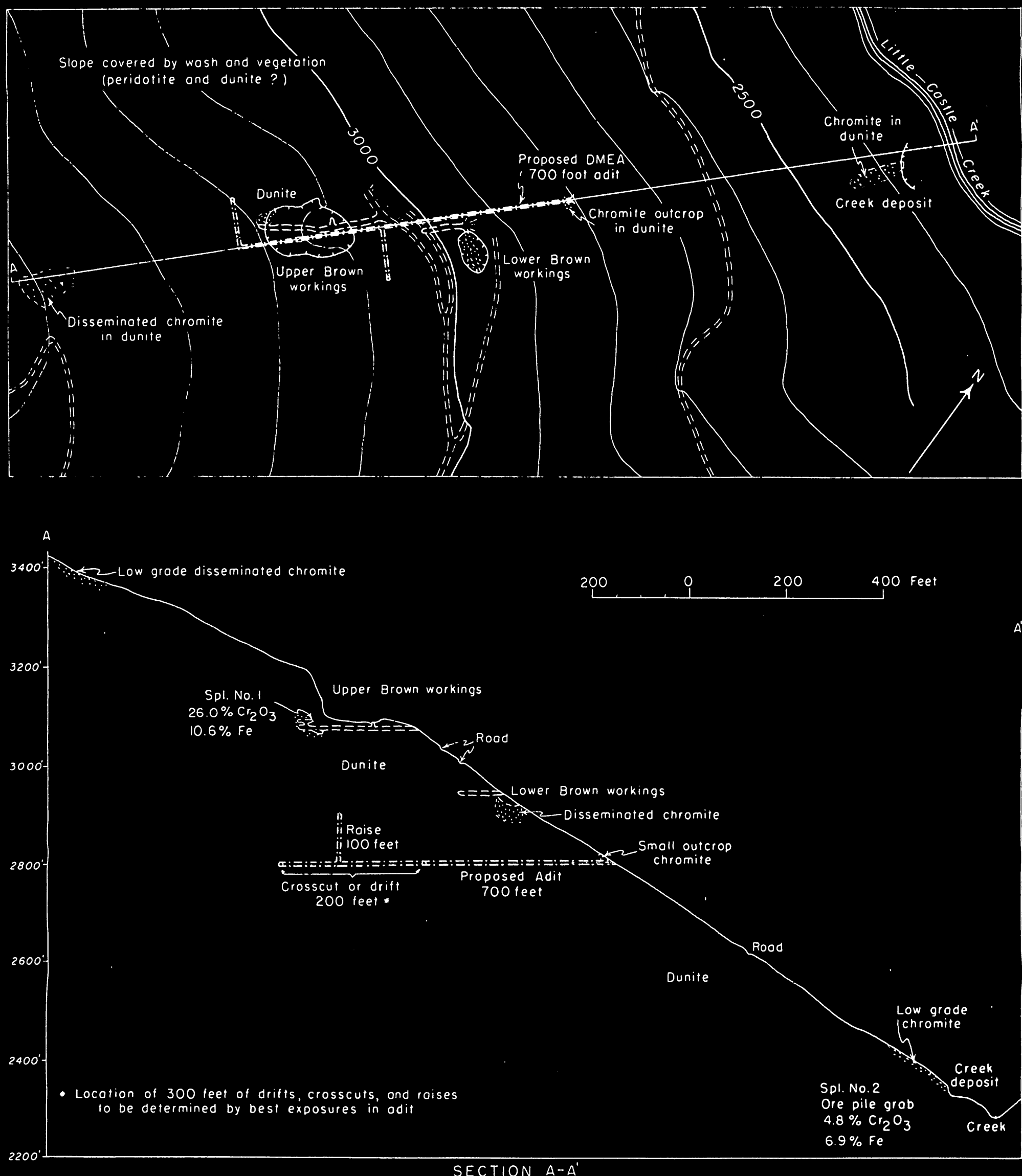


SECTION A-A'

GEOLOGIC MAP AND CROSS SECTION OF LITTLE CASTLE CREEK (BROWN) CHROME MINE, SHASTA COUNTY, CALIFORNIA

Figure 2

RECEIVED
JUN 13 1955



SECTION A-A'

GEOLOGIC MAP AND CROSS SECTION OF LITTLE CASTLE CREEK (BROWN)
CHROME MINE, SHASTA COUNTY, CALIFORNIA

Figure 2

407

IN REPLY REFER TO:

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 3 - 1955

May 2, 1955

Re: DMEA-3784
Helmke, Thomas & Jensen
Little Castle Creek Mine
Dunsmuir, Siskiyou County, California
$64,828.90 - Chromium

(Copy retained 200)

Memorandum

To: W. S. Martin, Defense Minerals Exploration Administration

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

Subject: Review of application

The subject of this application has been the scene of repeated attempts to find an ore body comparable to the notable Upper Brown kidney-shaped lens from which 15,000± tons of relatively high grade chromite ore was mined before and during World War I. Probably the last investigation was that of the U. S. Geological Survey and U. S. Bureau of Mines in 1942 and '43.

The three Little Castle Creek or Brown deposits and those at the Coggins mine to the northeast and across the creek are nearly in line. This feature suggests a control and a fracture, theoretical unless demonstrated since World War II has been provided. Fracture or no and lacking other controls, the work proposed by the applicants would seem to have been layed out in the most promising vertical plane. As for horizons the vertical distance between the Creek showing and the Upper Brown has been trisected.

In general underground openings afford better opportunities for detecting obscure indications of ore deposition than do diamond drill cores. As proposed the drifts and raise will be logged meaning close inspection and mapping of the fresh faces will be required. Poor coring of the serpentinized wall rock could be expected, but many diamond drill holes of the length required could be drilled for the money requested for drifting and raising. The targets are small and consideration should be given this type of blind probing as a preliminary to the drifting and raising.

New information concerning this chromite belt may be available to the Field Team. A review of the application by it is suggested and here recommended.

CC: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
C. Katlin, 3515

N. E. Nelson

N. E. Nelson
NENelson:hlm G-5/2/55

400

MAY - 6 1955

Mr. Spangler Richer, Executive Officer
DMEA Field Team, Region II
1645 Bryant Avenue
Reno, Nevada

Re: Docket No. DMEA 378 - Chromium
Hilkin, Thomas & Jackson
Little Sculpin Creek mine
Shasta & Siskiyou Counties,
California

Dear Mr. Richer:

Reference is made to the above-designated application for exploration assistance that is being referred to your office for review and a field examination of the property if required.

Two copies of a relevant memorandum dated May 2, 1955, by H. E. Nelson, Geological Survey, are enclosed for your information.

Sincerely yours,

W. S. Martin

ACTING Chairman, Operating Committee

APPROVED:

John E. Crawford

Director, Bureau of Mines

/s/ R. D. Trace

Director, Geological Survey

FAKnowledge:fcc 5-6-55
cc to: Docket
Code 400
Adm. Reading File
Operating Comm.
FT. REG. II
Charles Cahlin, USBM
Thor H. Kiilsgaard, USGS

MAY - 6 1955

Mehlum, Thomas & Jensen
320 Market Street
San Francisco, California

Re: Docket No. DMEA 376 - Chromium
Little Castle Creek mine
Shasta & Siskiyou Counties,
California

Gentlemen:

The above-docketed application for exploration assistance has been reviewed by the Iron and Ferro-Alloys Division of the Reference Minerals Exploration Administration and referred to Mr. Spangler Maher, Executive Officer, DMEA Field Team, Region II, 1605 Evans Avenue, Reno, Nevada, for review and possibly a field examination of the property.

Any assistance that you can give the members of the Field Team will be appreciated.

Sincerely yours,

Frank E. Johnson

ACTING Administrator

FARutledge:foc
5-6-55
cc to: Docket
Code 400
Adm. Reading File
Operating Comm.
FT. REG. II
Charles Catkin, USBM
Thor N. Kiilsgaard, USGS

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

RECEIVED APR 21 1955

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

Not to be filled in by applicant

Docket No. 3784
Metal or Mineral Chromium
Date Received 4-21-55
Estimated Cost $64,828.90
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: HELLMAN, THOMAS & JANSSON 320 Market Street, San Francisco, California
A legal co-partnership in the state of California
R. F. Hellmo, partner 320 Market Street, San Francisco, California
C. R. Janssen, partner 320 Market Street, San Francisco, California

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

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract Lot 4, SW 1/4 of the NW 1/4 of Section 2, Township 36, Range 4 West of MDM, containing 79 acres more or less

(*b*) State any mine name by which the property is known. Little Castle Creek Mine

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

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property. Copy of Lease and Owner's Consent to Lion attached.

(*e*) If you own the land, describe any liens or encumbrances on it No not own.

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. No unpatented claims.

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

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

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

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

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

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

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

(*c*) The work will start within 60 days and be completed within 12 months from the date of an exploration project contract.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated April 15th, 1955

WILMIE, THOMAS & JANSSEN
(Applicant)

By R. F. Schulke

Lacrytor R. Janssen

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

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

THIS AGREEMENT OF LEASE entered into this 30th day of April, 1954, by and between Mernice T and Ada E. Johnson, his wife, hereinafter called the Lessors, and Helmke, Thomas & Janssen, a partnership, hereinafter called the Lessees.

W I T N E S S E T H

That in consideration of the sum of Ten Dollars, receipt of which is hereby acknowledged, and of the covenants hereinafter contained by Lessees to be kept and performed, Lessors lease unto the Lessees that certain mining property hereinafter described, with the exclusive right to prospect and explore for, and to mine, produce, mill, beneficiate and take and sell any and all minerals and metals of value therefrom, with all other rights necessary, incidental or convenient to the mining operations of the Lessees thereon, including without limiting other rights granted or implied, the right of ingress and egress, the right to water, to cut timber for Lessees' mining use, to store or dispose of tailings on the property, and the right to construct such buildings, plants, works and roads on such sites and such locations as Lessees may deem necessary or convenient.

Lessors reserve the right of entry and the right to occupy the land or lease the same, subject, however, to this lease and without interference with the rights or operations of Lessees hereunder.

The mining properties are situated in the County of Siskiyou and Shasta, State of California, and more particularly described as follows:

Lot 4, SW 1/4 of the NW 1/4 of Section 2, Township 38, Range 4 West of MDM containing 79 acres more or less

To have and to hold for a term of Ten Years from and after the date hereof, and upon condition that Lessees are not in default under any of the terms hereof, Lessees shall have the option to extend the aforesaid term for an additional Ten Years.

And in consideration of these premises Lessees agree:

To commence the work of prospecting, exploring or mining of ores in or on said real property within ninety days from date hereof, and thereafter to carry on and prosecute the same with reasonable deligence, and to perform said mining work in a manner consistent with good mining practices. Provided, that if for any reason it becomes unprofitable to operate the mine and/or mill on the property, the Lessees shall have the right to suspend mining and/or milling operations and shall not be held in default by reason of such suspension, and the term of this lease shall be extended the same number of days said suspension or suspensions are in effect, and Lessees agree to resume said mining and/or milling operations when in their opinion it is economically sound to do so. Provided, however, the Lessees shall not be charged with failure of performance if the same is due to strikes, action of the elements, accidents, rules or

regulations of any Governmental Agency, civil disturbances, war, or any other cause or event, whether of the kind or kinds herein enumerated or not, beyond the reasonable control of the Lessees.

Lessees agree to pay as rent a royalty in the following amounts:

(1) Upon ores mined, shipped and sold Lessees shall pay Lessors 10% of the amount received by Lessees, less the cost of hauling and/or transportation.

(2) Upon ores that are milled, concentrated, beneficiated or smeltered, the Lessees shall pay Lessors 10% of the amount received by Lessees less hauling and/or transportation charges, milling, concent ating, beneficiating, and/or smelter charges.

Lessees agree to pay unto Lessors the above royalties on or before the 20th day of the month following for all ores shipped and sold during the preceding calendar month. Each royalty check to Lessors shall be accompanied by a settlement statement setting forth the weight, value, and quantity of ores shipped and sold from said property during such previous calendar month.

Lessees agree to comply with all applicable laws and to assume all responsibility in case of accident to themselves and to keep all employees fully insured with Workmen's Compensation Insurance, at the sole cost and expense of Lessees.

Lessees agree to pay taxes assessed against all mine and mill equipment installed by Lessees on said property.

Lessors shall be in no way responsible for debts contracted by said Lessees, and shall not be responsible for money due for work, materials or supplies, done or used on said premises, and said Lessees shall at all times hold harmless and protect the said Lessors against any and all claims or liens for labor or material furnished to said Lessees during the term of this lease.

Lessors shall post upon said property notices permitted by law, stating and giving notice that said Lessors shall not be liable for any labor or materials furnished to said Lessees.

Lessors shall have the right at reasonable times to enter upon all parts of leased property for the purpose of inspection.

Lessees agree to keep true and accurate books of account showing the tonnage and value of any and all ore mined, milled, shipped and sold from said property.

Lessors agree that they own the entire mining interest in said property and agree to protect Lessees in quiet possession and enjoyment thereof.

All machinery, equipment, tools, building and improvements brough upon the property or installed thereon by Lessees shall remain the property of the Lessees and may be removed by Lessees at any time.

In the event of the breach of any covenant hereof by Lessees, Lessors shall give Lessees written notice of such alleged breach and Lessees shall remedy same within 60 days after receipt of such notice. Upon Lessees' failure to do so, Lessors shall have the option to terminate this lease within 120 days by written notice to Lessees.

In the event of any dispute between Lessees and Lessors relative to the grades of ore, concentrate, milled or smeltered product, and said ore, concentrate, milled or smeltered product has been sold to any agency of the United States Government, the certificate of said agency shall be conclusive upon the parties hereto. If said ore, concentrate, milled or smeltered product is sold in the open market the certificate of Abbot A. Hanks, 624 Sacramento Street, San Francisco, or George Zetzsche, 1020 Market Street, Redding, shall be conclusive upon the parties hereto.

In the event of any other dispute relative to the terms hereof, Lessors and Lessees upon the written demand of either shall each select an arbitrator, and these two arbitrators so selected shall select a third arbitrator, and the decision of any two arbitrators shall be binding on the parties hereto.

Lessees may terminate this lease at any time by payment to Lessors of the sum of $10.00 and delivering to Lessors a quit claim deed of all Lessees' right, title and interest herein, and thereupon Lessees shall have no further obligations hereunder except to account for any unpaid royalty on ore theretofore shipped and sold from said premises.

In case Lessees do not commence work within 90 days from date hereof as hereinabove provided, at Lessors' option this lease shall terminate and Lessees shall deliver to Lessors upon receiving written notice of the exercise of such option, a quit claim deed of all Lessees' right, title and interest herein and thereupon Lessees shall have no further obligations hereunder.

Lessees may assign this Lease to any partnership, syndicate or corporation created by them or in which they may become interested, provided, however, that any such partnership, syndicate or corporation shall agree in writing to be fully bound by the terms hereof, and the assignor shall be released and discharged of any further liability under said lease.

All notices shall be sent to Lessors at 897 South Highway, Dunsmuir. and to the Lessees at 320 Market Street, San Francisco.

This lease applies to, inures to the benefit of, and binds all parties hereto, their heirs, legatees, divisees, administrators, executors, successors and assigns.

Lessees shall deliver all moneys required to be paid as royalties to Lessors at above address or to such other agency as Lessors may designate in writing.

HELMKE, THOMAS & JANSSEN
320 MARKET ST.
SAN FRANCISCO 11, CALIF.

Lessees P. T. Helmke
Clayton R. Janssen

Lessors Merrill T. Johnson
Ella E. Johnson

Helmke, Thomas & Janssen
320 Market Street
San Francisco, California

4. PHYSICAL DESCRIPTION

(a) The Little Castle Creek mine has been to date one of the largest producers of chromite ore in California. It was discovered and located in 1906 by L. H. Brown of Dunsmuir, California on the south side of Little Castle Creek canyon in Sec 2, Twn 38 N, R 4 W Shasta and Siskiyou Counties, California. The original discovery of chromite was made at what is presently known as the Upper Brown workings which is a vertical distance of 800 feet above Little Castle Creek. Mr. Brown started producing ore from this area by drifting and square set stoping. While this activity was in progress, the open pit of the Lower Brown workings was developed, downslope on the apparent strike of the ore zone, a vertical distance of approximately 125 feet below the Upper Brown workings. Mr. Brown continued producing from these areas until 1915 when he sold to the California Chrome Company. This company drove a drift along the apparent strike of the Upper Brown lense some 15 feet below the previous workings. As this drift was driven at what was then considered to be the lower limit of the ore body, a modified system of caving was instituted to take the ore. The Upper Brown pit was the result of this caving. Meanwhile, a drift was driven paralleling the strike of the Lower Brown ore body. Ore from these areas that would not make shipping grade was concentrated by jigging. In 1916 the decline in price paid for domestic chromite forced the operators to close the mine. The company was then dissolved and through this action, title to the property reverted to the United States Government. The property was subsequently homesteaded and it is this title that has been acquired by the present owner, Mr. M. T. Johnson, who resides at the property. The property was inactive from 1916 until the demand for domestic chromite brought the property again into production early in World War II. At that time, the U. S. Bureau of Mines examined the mine and reported their findings in R. I. 4516 Investigation of Little Castle Creek Chromite Deposit, Shasta County, California. Leasers operated the

4. PHYSICAL DESCRIPTION (Continued)

property for several years during this period, principally taking ore left exposed by the earlier work. A limited amount of work was done on the creek deposit which heretofore had only been prospected. In April 1954, Helmke, Thomas & Janssen negotiated the lease which they presently hold on the property. The work done by Helmke, Thomas & Janssen since signing their lease in 1954 has consisted of cleaning the Upper Brown pit by bulldozing, opening the Upper Brown tunnel, exposing the ore zone at the creek deposit by surface stripping, and moving a small lot of ore from the dumps to the company mill at Castella for mill test work. Except for some debris on the floors and sloughing of the walls, the pits of the Upper and Lower Brown workings can be readily examined. The drifts are open and the underground workings are accessible except where stopes were purposely caved for mining. The area stripped at the creek deposit is now clean.

(b) Production figures are based on data given in California Division of Mines' Bulletin No. 76 and the U. S. Bureau of Mines R. I. 4516 Investigation of Little Castle Creek Chromite Deposit, Shasta County, California.

Production through 1916	15,000 tons	45% to 48% Cr_2O_3
Production since 1916	5,000 tons	45% to 48% Cr_2O_3

The property is not presently producing but production is planned for the immediate future from the creek deposit. There has not been suffcient work done to date to accurately estimate the ore reserves of the property. However, a possible 1500 tons of plus 20% Cr_2O_3 ore is indicated as readily available.

Helmke, Thomas & Janssen
320 Market Street
San Francisco, California

4. PHYSICAL DESCRIPTION

(c) The chromite of the Little Castle Creek mine occurs within an ultramafic intrusive which skirts the eastern edge of the Castle Crags in a northeast-southwest direction. The mine is located on the south side of the canyon of Little Castle Creek. The topography of the area is very rugged with high relief varying from 2300 feet at the creek deposits to 3150 feet at the upper limit of the open pit of the Upper Brown workings. The horizontal difference between the creek and the southwesterly limits of the Upper Brown open pit is approximately 1380 feet. In spite of the high relief, a heavy soil mantle covers the area obscuring many of the geologic features. For this reason, little can been seen except in the areas where this cover has been removed in the course of mining, and in the underground workings. The chromite appears to occur where the intrusive has been altered to dunite. The chromite occurs as disseminated ore, "bean chrome" and massive lenses. All of the ore bodies and the surrounding host rocks where exposed have been highly fractured into small blocks of somewhat pyramidal shapes. A system of clay and gouge filled fractures ranging from a few inches to a few feet in width and generally paralleling the apparent strike of the ore bodies may be observed in the exposed areas. Generating from these fractures at a low angle is another system of fractures of a lesser magnitude which forms the pyramidal shaped blocks just mentioned. Some of the joints of these blocks are serpentinized, but as yet no apparent pattern for the serpentinization has been established. All of the joints are filled with mud and/or gouge; a condition which due to the small size of the blocks makes timbering a necessity in underground work. All of these features seem to present the possibility of compression faulting, the location and attitude of such faulting being obscured by the subsequent erosion and the soil covering of the area. From what can be seen in the exposed areas, no struc-

Helm[illegible], Thomas & Janssen
320 Market Street
San Francisco, California

4. PHYSICAL DESCRIPTION

(c) Continued

tural control, if any, for the deposition of the ore can be determined. At a point some 80 feet below the lower Brown workings and 20 feet above the elevation of the portal site, where 800 feet of exploration drift is proposed to be driven, a small outcropping of chromite has been exposed. This outcropping together with the Lower Brown ore body and the Upper Brown ore body tends to establish a trend to the ore occurences in this area. A drift at this elevation driven along this apparent trend to a point beyond the vertical limits of the Upper Brown workings would explore what may be considered the most favorable block of ground in this area. A raise to the elevation of the present lower limits of the upper Brown workings will make it possible to explore the downward extension of what has been the major ore body of the mine to date. The limited vertical distance now exposed at the creek deposit makes it difficult to select a portal site for a drift to properly explore the area between the creek deposits and the proposed exploration drift for the upper area. A site some 200 feet above the present upper limits of the creek deposits has been tentatively selected. The selection of this site is based upon the little information available to date about the trend of the ore body in the creek deposit. The scheduled mining in the creek deposit can very readily develop information which would better establish the proper portal site.

See Supplemental Appended.

(d) The Little Castle Creek mine is reached by turning west off Highway 99 where the highway crosses Little Castle Creek approximately three miles south of Dunsmuir, California. It is one mile from the highway, up Little Castle Creek Canyon to the creek deposit workings of the mine. The road to this point has no unfavorable grades. To reach the Lower and Upper Brown workings from the creek deposit, it is necessary to travel approximately two miles over a road which

4. PHYSICAL DESCRIPTION

(d) Continued

climbs the south side of Little Castle Creek Canyon. There are some places where the grade is as much as 27% but these can be corrected without too much expense. The maximum haul for ore, which would be from the Upper Brown workings to the Helmke, Thomas & Janssen mill at Castella, would be seven miles. The nearness of the mine to Dunsmuir makes it possible for employees to find living accommodations and also provides a source of supply for many required operating items. The numerous truck, bus, and train schedules operating through Castella and Dunsmuir make the supply houses of the San Francisco-Bay Area a ready source of supplies for those items not obtainable locally.

(e) Even though the principal industry of the Dunsmuir area is lumbering, there is enough mining activity in the vicinity to make available a sufficient number of men with mining experience to properly execute an exploration project. Timber requirements can be readily supplied by the local sawmills. Necessary supplies that are not obtainable from local sources can be readily procured from supply houses in the Bay Area. Present plans call for the use of diesel power for all contemplated mining. In the event future developments should warrant it, power could be obtained from the California-Oregon Power Company whose lines are within a mile and a half of the property. Necessary water for mining operations is no problem as Little Castle Creek flows through the property and the present owner has a sufficient water right to satisfy any foreseeable needs.

HELMKE, THOMAS & JANSSEN
320 Mark[illegible] St., San Francisco, Calif.

4. Physical Description.

(C) Supplement

It is recognized that steeply dipping mineral occurrences are less susceptible to erosion than flat lying mineralized zones. In the case of massive chromite, many flat lying deposits are recognized after erosion only by residual float, as at Chrome Ridge, Swede Basin in Southern Oregon. Certain deposits contain massive chromite in steeply dipping fracture or shear zones undisturbed by erosion except where streams have cut through these zones, as at The Lambert Mine, Butte County, Californua, and The Tyson Mine in Del Norte County, California. It is indicated by the shape and dip of the mined ore bodies at The Little Castle Creek Mine, as well as study of the fracture zone where exposed on the surface, that the massive chromite found there occurs in a steeply dipping zone.

The tunnel now being driven at the Lambert Mine under DMEA Exploration Contract No. Idm-E747, has intersected a small occurrence of massive chromite on dip below a surface outcrop. It has also intersected an important new ore body which probably has no surface indication. Both new occurrences are found within a steeply dipping fracture or shear zone on the same general strike and dip as the main workings of the Lambert Mine. These new discoveries are so close to the northwest as to virtually prove the continuation of the previously known mineralized zone over a distance at least 600' to the northwest and at least 60' deeper than the deepest workings in the mine.

Considering the steeply dipping known ore bodies and fracture zones at the Little Castle Creek Mine, and noting their similarity to the above mentioned chromite deposits, conditions are believed to be favorable at the Little Castle Creek Mine for the discovery, by the work covered in this application, of new occurrences of massive chromite within the fracture zone below the big lens (or lenses) mined at the Upper Brown workings. Favorable conditions are also believed to be present for the discovery of new lenses of massive chromite contained within the fracture zone, but which do not extend to the surface as in the case of the new discovery at The Lambert Mine.

Helmke, Thomas & Janssen
320 Market Street
San Francisco, California

5. THE EXPLORATION PROJECT

(b) The proposed exploration project is for a total of 1200 feet of drifting and 200 feet of raising. 800 feet of drift to be driven from a point 100 feet below the Lower Brown workings in a southwesterly direction along the indicated trend of the ore of this area as established by the mining in the Upper and Lower Brown workings and the outcrop below the Lower Brown workings. 200 feet of raise to be driven from the end of this drift to the elevation of the lowermost workings of the Upper Brown workings. 400 feet of drift to be driven in a southwesterly direction at a point approximately 200 feet above the workings of the creek deposit. The final location of this portal site is dependent upon information developed in the presently scheduled mining activity for the creek deposit. All drifts are to be 5 feet by 7 feet in the clear and the raise to be a two compartment squareset raise, each compartment to be 4 feet by 4 feet in the clear inside. The nature of the ground to be explored indicates that drifts will have to be timbered, standard drift sets lagged top and sides being required. This same condition necessitating squareset timbering for the raise.

Helmke, Thomas & Janssen
320 Market Street
San Francisco, California

5. THE EXPLORATION PROJECT

(d) Helmke, Thomas & Janssen have been actively engaged in the mining of chrome and manganese ores in California continuously for the past 15 years. They have been one of the few companies which has produced domestic chrome ore continuously during the post-World War II years. They presently own and operate a mill at Castella, California for the concentrating of chrome ores produced from their operating properties. Mr. R. F. Helmke has personally directed much of these mining activities. He has had wide experience in both the mining and marketing of chrome ores and has been a member of the National Advisory Council on chrome and manganese. Mr. Oren A. Fulghum, Superintendent of Mining for Helmke, Thomas & Janssen, has since 1937 been engaged in the operation of both underground and open pit mining in the Western United States.

Helmke, Thomas & Janssen
320 Market Street
San Francisco, California

6. ESTIMATE OF COSTS.----

1200 feet of drifting

(a) Drifting labor 1200 ft @ $15.00/ft			
(Probably will be contracted)		$18,000.00	
			$18,000.00
(b) Wages and salaries listed in (b) based on 10 months.			
Superintendent and engineering (½ time)	$350.00/month	$ 3,525.00	
Surface man (Full time)	1.75/hr	4,020.00	
Supply man (½ time)	150.00/month	1,500.00	
			9,045.00
(c) Diesel		$ 1,680.00	
Oil		168.00	
Explosives		3,129.00	
Timber		5,172.00	
Track		2,880.00	
Steel and bits		252.00	
Pipe		1,099.00	
			14,380.00

(d) All items listed in (d) are now owned by the company and are to be used on this exploration project.

Compressor	$ 7,500.00	Present value
Macking machine	3,700.00	" "
Drifter	450.00	" "
Column, arm and saddle	100.00	" "
Mine cars (2)	300.00	" "

Helmke, Thomas & Janssen
320 Market Street
San Francisco, California

6. ESTIMATE OF COSTS.---- (Continued)

(d) Continued----

Blower	325.00	Present value		
Ventube	512.00	"	"	
Hoses and pressure tank	125.00	"	"	
Supply truck	750.00	"	"	
Pickup truck	1,500.00	"	"	
	15,262.00 X 10 / 60			2,543.67

(e) Access road	$ 900.00	
Tunnel site preparation	325.00	
		1,225.00

(f) Tool house and supply storage at portal site	200.00	
		200.00

(g) Equipment maintenance and repair	$ 450.00	
Vehicle maintenance and repair	175.00	
Accounting @ $125.00/month	1,250.00	
Workmen's compensation	3,373.00	
Payroll taxes	1,352.00	
		6,600.00

(h) Contingencies. For possible major equipment failures and/or losses due to Act of God.	$ 2,500.00	
		2,500.00
Total cost =		$54,493.67

$54,493.67 or $45.411/ft of drift

Helmke, Thomas & Janssen
320 Market Street
San Francisco, California

6. ESTIMATE OF COSTS.——

200 feet of raise.

(a) Raise labor 200 ft @ $15.00/ft		$ 3,000.00	
			$ 3,000.00
(b) Wages and salaries listed in (b) based on 2 months.			
Superintendent and engineering (½ time)	$350.00/month	700.00	
Surface man (full time)	1.75/ hr	804.00	
Supply man (½ time)	150.00/month	300.00	
			1,804.00
(c) Diesel		320.00	
Oil		32.00	
Explosives		521.50	
Timber		2,800.00	
Steel and bits		48.00	
Pipe		157.00	
			3,878.50

(d) All items listed in (d) are now owned by the company and are to be used on this exploration project.

Compressor	$ 7,500.00	Present Value
Drifter	450.00	" "
Stoper	200.00	" "
Column, arm and saddle	100.00	" "
Mine cars (2)	300.00	" "
Tugger hoist	500.00	" "

Helmke, Thomas & Janssen
320 Market Street
San Francisco, California

6. ESTIMATE OF COSTS.---- (Continued)

(d) (Continued)

Blower	325.00	Present Value	
Ventube	512.00	" "	
Hoses and pressure tank	125.00	" "	
Supply truck	750.00	" "	
Pickup truck	1,500.00	" "	
	12,262.00 X 2 / 60		408.73

(e) None.

(f) None.

(g) Equipment maintenance and repair	100.00	
Vehicle maintenance and repair	50.00	
Accounting @ $125.00/month	250.00	
Workmen's compensation	599.00	
Payroll taxes	245.00	
		1,244.00

(h) None.

Total cost = $10,335.23

$10,335.23 or $51.676/ft of raise

Helmke, Thomas & Janssen
320 Market Street
San Francisco, California

7.

(b) Helmke, Thomas & Janssen are prepared to meet their share of the costs of this project.

400

DOCKET
Surname:
Martin

DEC 1 5 1955

Helmke, Thomas, & Janssen
320 Market Street
San Francisco 11, California

Re: Docket No. DMEA-3784, Chromium
Little Castle Creek Mine
Shasta and Siskiyou Counties,
California

Gentlemen:

Reference is made to your letter of November 16, 1955, to Mr. Spangler Ricker, Executive Officer, DMEA Field Team, Region II, 1607 Evans Avenue, Reno, Nevada, returning ~~the~~executed the original and five copies of a proposed contract for an exploration program at the subject mine.

In view of the reasons stated in your letter for deeming it inadvisable to sign the proposed contract at this time, the application is being withdrawn from our active files and the docket closed.

We note that if circumstances appear more favorable at a future date you plan to resubmit your application, together with new and supplementary information. Any new application should, of course, make reference to Docket No. DMEA-3784 for identification purposes.

We wish to thank you for your interest in the Defense Minerals Exploration Administration program and for bringing this property to our attention.

Sincerely yours,

E. C. Mittendorf

Administrator (2/3)

cc: Docket
Code 400
~~Operxxxxxxxxxxx~~
Adm. Read. File
T. Kiilsgaard, USGS
H. W. Davis, USBM
FT, Region 2

LScott
12/14/55

R.4.5

DMEA

Docket

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

RECEIVED
DEC - 1 1955

1605 Evans Avenue
Reno, Nevada

November 29, 1955

Copy retained 200

Memorandu m

To: Operating Committee, DMEA, Interior Building, Washington 25, D. C.

WSM

From: Executive Officer, DMEA Field Team, Region II

Subject: Docket No. DMEA-3784 (Chromium)
Helmke, Thomas & Janssen
Little Castle Creek Chrome Mines
Shasta and Siskiyou Counties, California
Contract No. Idm-E839

Reference is made to your letter of October 3, 1955 regarding status of subject contract.

Attached are two copies of letter dated November 16, 1955 from Helmke, Thomas and Janssen and the original and five copies of the above cited contract. Contract has not been executed by the Operators for the reason explained in their letter.

We believe that Helmke, Thomas and Janssen may reopen negotiation for a loan on the property sometime during 1956.

S. Ricker

S. Ricker

Attach.

Copy retained 200

BUREAU OF MINES
WASHINGTON, D. C.

Nov 30 1 45 PM '55

MINES AND MILL
MAGALIA, CALIF.
CASTELLA, CALIF.

CASTELLA MINING & MILLING CO.

Chrome Ore and Concentrates

320 MARKET STREET
SAN FRANCISCO 11, CALIFORNIA

TELEPHONES
DOUGLAS 2-4840
EXBROOK 7-0624

RECEIVED
DEC - 1 1955
S. Ricker 11/18/55

November 16, 1955

Mr. S. Ricker
Defense Mineral Exploration Administration
1605 Evans Avenue
Reno, Nevada

Dear Mr. Ricker: Docket D.M.E.A. 3784
Contract No. I D M E 839

Under separate cover we are mailing you the original and five copies of the above contract.

We find we are not in a position at present to execute this contract. We have been weighing the factors very carefully and find that the (1) rising costs of labor and materials, the present (2) shortage of competent men in the area, the (3) modification contained in the contract from our original application and the (4) limit time remaining before the termination of the sponsored chrome program make it advisable to defer action at this time. We are also presently faced with winter which makes this property unworkable during the next few months.

Our experience at the Lambert Mine, Magalia, Butte County, showed costs that greatly exceeded our estimates. We found it necessary to pay $20.00 per day to obtain competent mining which is a 25% increase. Our other expenses have increased approximately 15% in the last year. It is a difficult task to find men who are worth these wages, and it takes considerable time and effort to find subh men. We have finally been able to do so at Magalia.

If we can accumulate enough men, and if other factors become more stable, we will re-submit our application together with new and supplementary information.

Both Mr. Helmke and myself would like to express our appreciation of your co-operation and help, together with the very fine service we have had from your field men.

Sincerely yours,

CASTELLA MINING & MILLING CO.

HELMKE, THOMAS & JANSSEN

BY: C. B. Janssen

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

RECEIVED
OCT 24 1955

1605 Evans Avenue
Reno, Nevada

October 21, 1955

Helmke, Thomas, & Janssen
320 Market Street
San Francisco 11, California

Re: Docket No. DMEA-3784 - Chromium
Helmke, Thomas & Janssen
Little Castle Creek Chrome Mines
Shasta and Siskiyou Counties, Calif.
Contract No. Idm-E839

Dear Mr. Helmke:

Reference is made to our letter of July 12, 1955 in which we enclosed the original and five copies of the above cited contract for your consideration.

Will you please advise us what your intentions are concerning the contract. If you can give us no definite decision within a reasonable time, we would appreciate the return of the original and all five copies of the contract to this office, giving any reasons for not signing.

It is not our policy to let unexecuted contracts outstanding over a considerable period of time, and our request is made without prejudice to the property. You can at any future time submit a new application in quadruplicate and it will only be necessary to fill in new information on the forms and refer to the above referenced docket.

Very truly yours,

S. Ricker
Executive Officer
DMEA Field Team, Region II

SRicker:gh
cc: DMEA, Wash., D.C.
R. M. Smith
File

Helmke, Thomas and Janssen.
Dmea-3784, Chrome

Application $64,828.90
Drifting $45.41 per foot
Raising $51.68 per foot.

Field Team Recommendation

Drifting	$32.00 per foot	All drift to be timbered
Timbering	7.50 per foot	
Total	$39.50 per foot	

Raising $39.50 per foot

Contract

Drifting	$31.50 per foot	
Timbering	5.00 per foot	
Total	36.50 per foot.	All to be timbered

Raising $31.50 per foot

400

DOCKET
Surname:
Chapman
Martin
Selfridge
Hansen
Whitesley

OCT 3 - 1955

Mr. Spangler Ricker, Executive Officer
DMEA Field Team, Region II
1605 Evans Avenue
Reno, Nevada

Re: Docket No. DMEA 3784 - Chromium
R. F. Helmke & C. R. Janssen
dba Helmke, Thomas, & Janssen
Little Castle Creek Chrome Mine
Shasta and Siskiyou Counties,
California

Dear Mr. Ricker:

Reference is made to Contract No. Idm-E839 for the above-noted applicant, which was sent to your office on July 6, 1955. Your August report showed that the contract was sent to the applicant for execution but had not been returned.

We believe it would be advisable to inquire about the applicant's intentions and request, if he does not intend to execute the contract, that he return the original and five copies to your office, giving any reasons for not signing.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (GCS)

Approved:

P. F. Yopes (GCS)
Member, Bureau of Mines

Thor H. Kiilsgaard (GCS)
Member, Geological Survey

cc: Docket
Code 400
Adm. Read. File
Oper. Committee
T. Kiilsgaard, USGS
H. W. DAVIS, USBM
FT, REG. 2

TLChapman/ls
10/3/55

cac

DOCKET
SURNAME
400 Rutledge
Martin
Katlin
Chamber
Selfridge
Johnson

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

FARUTLEDGE:foc 6-29-55
cc to: Docket
Code 400
Adm. Read. File
Oper. Comm.
FT. REG. II
Messrs. Katlin, USBM
Kiilsgaard, USGS

JUL - 6 1955

Mr. Spangler Richer, Executive Officer
DMEA Field Team, Region II
1605 Evans Avenue
Reno, Nevada

Re: Docket No. DMEA 3784 - Chromium
Halmie, Thomas & Janssen
Little Castle Creek mine
Shasta & Siskiyou Counties,
California

Dear Mr. Richer:

Enclosed are the original and five copies of a proposed contract for an exploration program at the above-referenced property, signed by the Administrator for the Government, together with Annex I (1 page), Exhibit "A" (2 pages), Owner's Consent to Lien, and a map.

If the terms and conditions of this proposed contract are satisfactory to you and the operator, all six copies should be signed and the usual distribution made.

If any part of this proposed contract does not have either your approval or that of the operator and cannot be amended within your delegated authority, the original and all copies of the proposed contract are to be returned to this office, together with the proposed changes for consideration.

Under Article 3, the starting date has been left blank and is to be filled in when the contract is signed by the operator.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee (JHB)

Enclosure

APPROVED:

/s/ Robert W. Geehan (JHB)
Member, Bureau of Mines

Thor H. Kiilsgaard (JHB)
Member, Geological Survey

R.C.J.

Docketed Slctr. 6/[illegible]/55

MF-500

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

REFERENCE SLIP

DMEA-3784

DATE 6/24/55

REFERRED TO:

1. ~~Solicitor's docket~~
2. ~~DMEA docket~~
3. W. S. Martin
4.

FOR:

..... Action	..... Recommendation
..... Approval	..... Record
..... Comment	of .....
..... Conference	..... Referring
..... Consideration	to .....
..... Filing	..... Reply for signa-
..... Instructions	ture of .....
..... Investigation	..... Rewriting
..... Initials	..... Signature
..... Mailing	..... Suggestions
..... Previous correspondence	..... Your information

REMARKS: Contract attached

Check (X) before the items needing attention.

HCRubin/emd

Initials of sender.

GPO 16—63815-1

Nelson doesn't like this but his memo reached us too late to help, and the thing to do now is to find out how Kiilsgaard & GCS feel about it by sending it through the Operating Committee

400

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

June 21, 1955

MEMORANDUM

To: Acting Assistant Solicitor,
Defense Minerals

From: Iron and Ferro-Alloys Division, DMEA

Subject: Preparation of contract
Docket No. DMEA 3784 - Chromium
Helmke, Thomas, & Janssen
Little Castle Creek (Brown) chrome mine
Shasta and Siskiyou Counties, California

Transmitted herewith is a draft of a proposed contract for the captioned project for your use in preparing the contract in final form.

W S Martin
W. S. Martin, Chief
Iron and Ferro-Alloys Division

Attachment

RECEIVED
JUN 23 1955
GENERAL COUNSEL
DEFENSE MINERALS
ADMINISTRATION

Docket

Rutledge
Martin

June 21, 1955

MEMORANDUM

To: Acting Assistant Solicitor,
Defense Minerals

From: Iron and Ferro-Alloys Division, DMEA

Subject: Preparation of contract
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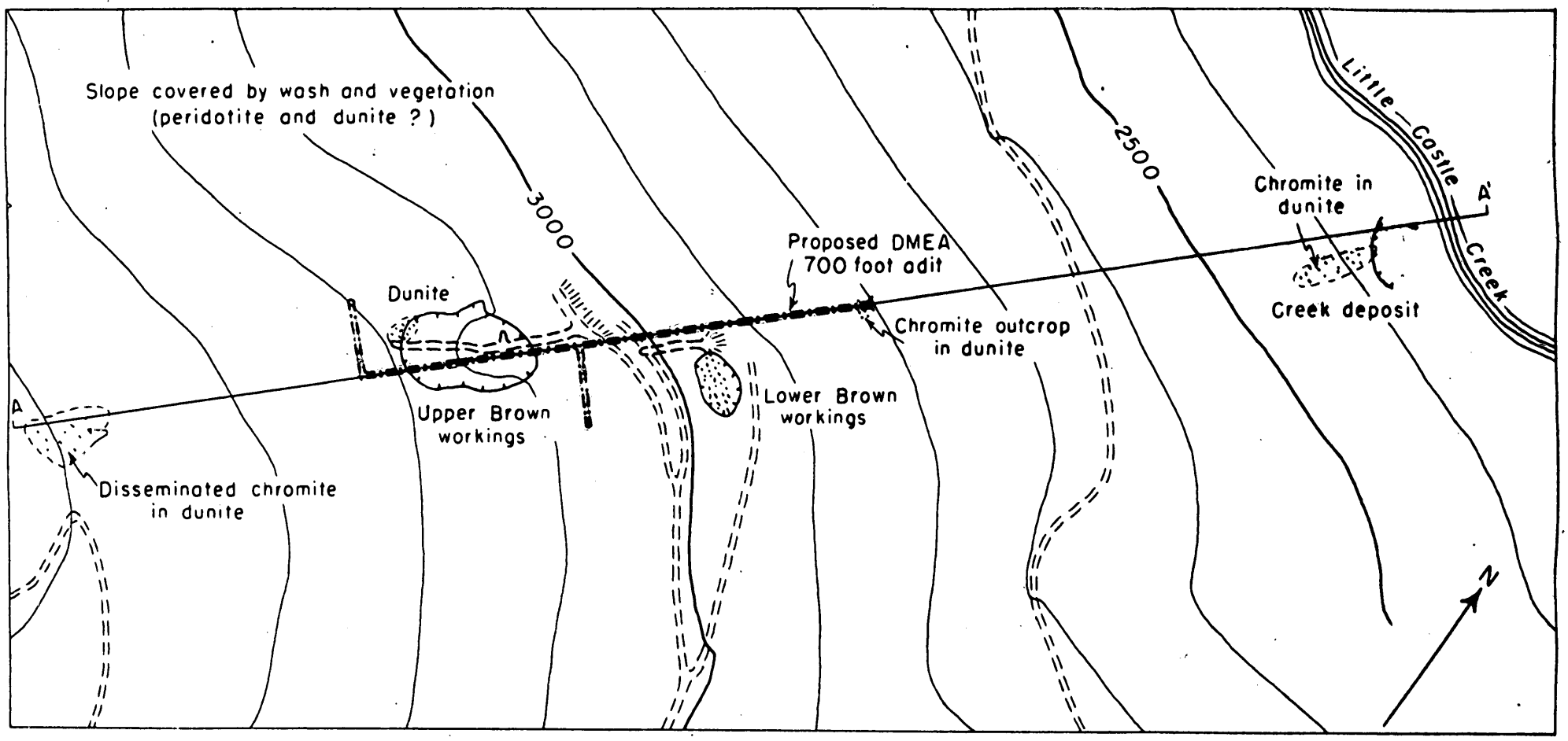
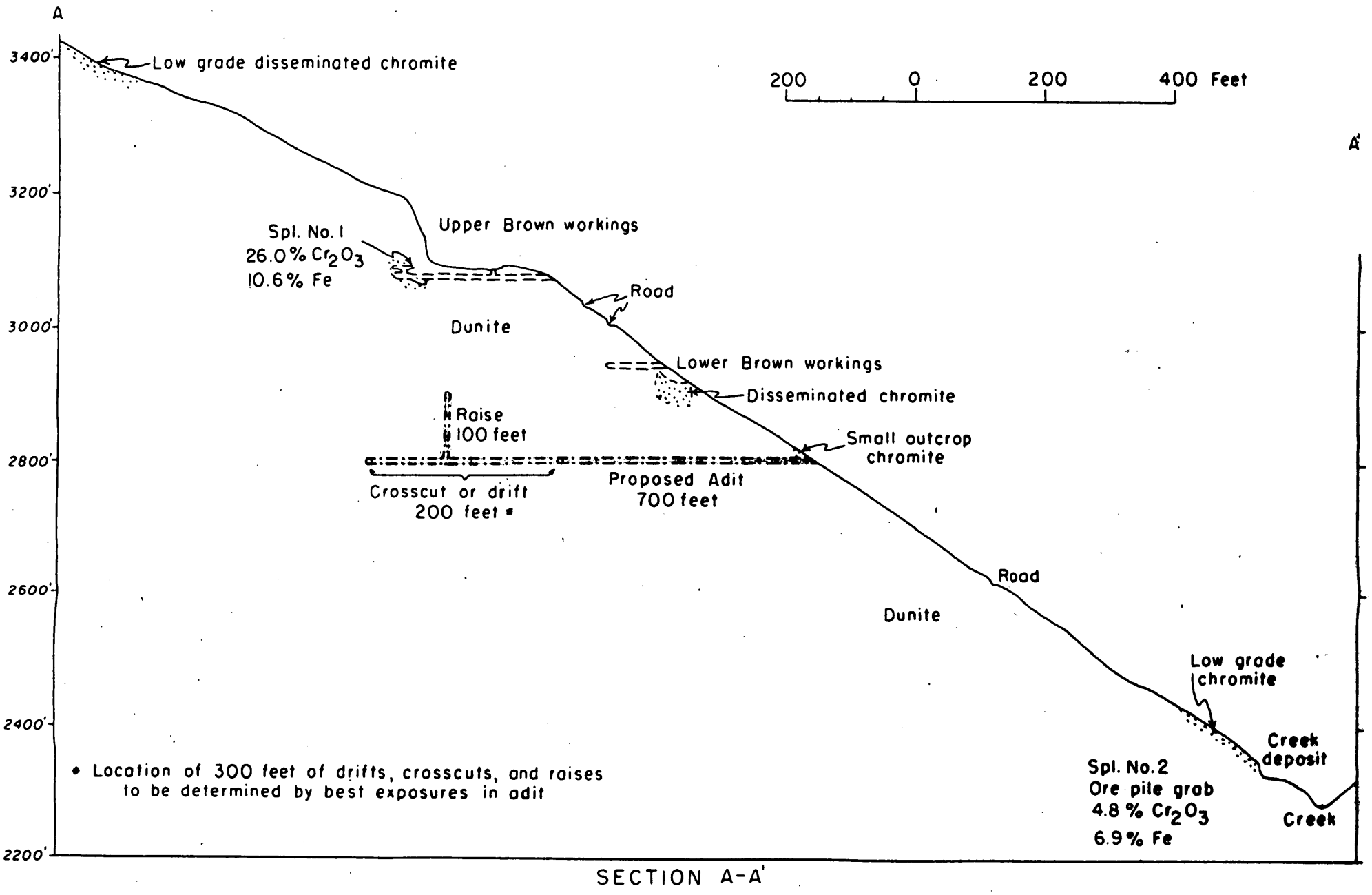
W. S. Martin, Chief
Iron and Ferro-Alloys Division

Attachment

cc: Docket
Code 400

ls 6/21/55





SECTION A-A'

GEOLOGIC MAP AND CROSS SECTION OF LITTLE CASTLE CREEK (BROWN)
CHROME MINE, SHASTA COUNTY, CALIFORNIA

Figure 2

Docket

IN REPLY REFER TO:

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

June 23, 1955

WSM

Re: DMEA-3784
Helmke, Thomas and Janssen
Little Castle Creek Mine
Shasta & Siskiyou Counties, Calif.
$39,500.00 - Chromium

Copy retained 400.

Memorandum

To: W. S. Martin, Defense Minerals Exploration Administration

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

Subject: Review of Field Team report

I do not agree with the recommendation of the Field Team. In other places they have bored for plums of chromite with plugged diamond bits while in serpentine or firmer wall rock and core bits when in the chromite. If the water is "coming back" the change to chromite, even disseminated, is distinct. If the water is "lost" the driller can tell by the "feel" when the bit enters harder material, and vice versa. The ground near the outcrop in the Upper Brown workings is reported as having been blocky and probably difficult to drill. That such conditions hold in the inner Upper Brown stopes where the sample was taken we are not told and of the ground to be explored below the old workings probably nothing definite is known, though company account long hole and diamond core holes, from the adit, are proposed.

Unless known to be utterly impractical, diamond drilling vertical and angle holes from the surface should be given a trial since there is no positive target for an adit, as at the Lambert (DMEA-3407) where there was some known unbottomed ore 50 feet above the proposed end of the project adit. The lone small lens found in the long adit at the Lambert, aside from the downward extension of the known ore, emphasizes the weakness of that type of prospecting. Further probing from the adit may better the results and, as expected, the adit possesses distinct development and operation value.

Unless filled with waste the flat bottom of the open cut at the Upper Brown workings might afford sites for fans of vertical and high angle holes or to the southwest, or hanging wall, there should be sites for angle holes. No large pod should be missed which cannot be said for the single, double or triple heading adit.

N. E. Nelson

N. E. Nelson

RECEIVED
JUN 24 1955

IN REPLY REFER TO:

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

June 23, 1955

Re: DMEA-3764
Helmke, Thomas and Jensen
Little Castle Creek Mine
Shasta & Siskiyou Counties, Calif.
$39,500.00 - Chromium

Memorandum

To: W. S. Martin, Defense Minerals Exploration Administration

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

Subject: Review of Field Team report

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RECEIVED
JUN 24 1955

CC: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
Charles Katlin, 3515 Int.

N. E. Nelson

N. E. Nelson
NENelson:hlm G-6/23/55

IN REPLY REFER TO:

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

June 23, 1955

Re: DMEA-3784
Nelmes, Thomas and Jamesson
Little Castle Creek Mine
Shasta & Siskiyou Counties, Calif.
$39,500.00 - Chromium

Memorandum

To: W. S. Martin, Defense Minerals Exploration Administration

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

Subject: Review of Field Team report

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N. E. Nelson
NENelson:hlm G-6/23/55

D m E a

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

RECEIVED
JUN 13 1955

1605 Evans Avenue
Reno, Nevada

June 10, 1955

Memorandum

WSM

To: Operating Committee, DMEA, Interior Building
Washington 25, D. C.

From: Executive Officer, DMEA Field Team, Region II

Subject: Docket No. DMEA-3784 - Chromium
Helmke, Thomas & Janssen
Little Castle Creek Mine
Shasta & Siskiyou Counties, California

Reference is made to your letter of May 6, 1955 on above subject docket.

Attached are four copies of a report on the property by J. D. Warne, Bureau of Mines, and H. K. Stager, Geological Survey in which an exploration program consisting of 700 feet of adit and 300 feet of drifts, crosscuts or raises is recommended at a total cost of $39,500.00 of which the Government's participation would be $19,750.00.

Roscoe Smith and I believe the property has merit, particularly in view of the highly successful DMEA project at the Lambert mine, which was also for the purpose of exploring for chromite lenses along a fairly well defined structure along which appreciable sized ore bodies had been mined on the surface. We approve of the recommendation as outlined in the report.

S. Ricker

Attach.

Reviewed by
DMEA CREDIT COMMITTEE
6-17-55
(Date)

BUREAU OF MINES
WASHINGTON, D. C.

JUN 13 9 07 AM '55

RECEIVED
JUN 13 1955

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION II

APPLICATION REPORT

DMEA-3784 - (Chromium)
Helmke, Thomas, and Janssen
Little Castle Creek Mine
Shasta and Siskiyou Counties, California

John D. Warne
Mining Engineer
U. S. Bureau of Mines

Harold K. Stager
Geologist
U. S. Geological Survey

June 9, 1955

Reviewed by
DMEA OPERATING COMMITTEE
6-17-55
(date)

RECEIVED
JUN 13 1955

CONTENTS

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Location, accessibility, local resources	3
History and production	3
Property and ownership	4
Development	5
General geology	6
Ore deposits	7
Sampling	8
Ore reserves	8
Proposed exploration	9
Exploration costs	10

ILLUSTRATIONS

Fig. 1.- Location map
Fig. 2.- Geologic map and cross section of Little Castle Creek (Brown) chrome mine, Shasta County, California

Docket No.: DMEA-3784 - (Chromium)

Name and address of applicant: Helmke, Thomas, and Janssen
320 Market Street
San Francisco 11, California

Name and location of property: Little Castle Creek Mine
Sec. 2, T. 38 N., R. 4 W., M.D.B.&M.
Shasta and Siskiyou Counties, California

INTRODUCTION

Helmke, Thomas and Janssen, 320 Market Street, San Francisco, California applied for Government assistance in a $64,828.90 program under the Defense Minerals Exploration Administration, docket number 3784, to explore for chromium at the Little Castle Creek mine, also known as the Brown mine, Shasta County, California. The applicants wish to explore a favorable northeast trending chromite horizon in peridotite with 1,200 feet of drift and 200 feet of raise.

A field examination was requested by the Operating Committee, and was made by H. K. Stager of the Geological Survey and J. D. Warne of the Bureau of Mines on April 13, 1955, accompanied by Mr. O.A. Fulgrum, mine superintendent for the applicants.

The open pits and underground mine workings were inspected and compared with published maps and cross sections. Two samples were taken by the examiners to check the grade and chrome/iron ratio of the ore.

The area of the Little Castle Creek mine was tested by a Geological Survey magnetometer survey and a Bureau of Mines trenching project in 1941, but this work did not discover outcrops of minable deposits of ore.[1/]

CONCLUSIONS AND RECOMMENDATIONS

The Little Castle Creek deposit has yielded the largest body of massive chromite yet mined in California. The geological probability of discovering other large bodies of chromite in the ground to be explored by the proposed project is good.

The applicants proposed to explore for other ore bodies by driving two adits, one 800 feet long with a 200 foot raise at the end and one 400 feet long. Following the examination, the applicants' proposed exploration program was revised and the proposed work and costs were reduced. The approved program consists of a 700 foot adit and 300 feet of drifts, crosscuts, or raises in the most favorable exposures cut by the adit. Exploratory diamond core and long hole drilling from underground stations will be carried on concurrently with this work by the company on company account. This program, which is acceptable to the applicants, is well suited to explore the deposit, and the applicants are well qualified to do the work. The

1/ Report of Investigations 4516, July 1949, Investigation of Little Castle Creek Chromite Deposit, Shasta County, Calif.; U. S. Bureau of Mines.

project site is readily accessible and facilities for accomplishing the work are available. The revised program will require 10 months to complete and the Government's share of the estimated total cost of $39,500.00 would be $19,750.00.

It is recommended that the Government enter into a DMEA contract with Helmke, Thomas, and Janssen, to provide 50 percent of the costs of the revised program.

LOCATION, ACCESSIBILITY, LOCAL RESOURCES

The Little Castle Creek chromite property is in sec. 2, T. 38 N., R. 4 W., M.D.B.&M., Shasta and Siskiyou Counties, Calif. From Dunsmuir, California, the property is reached by automobile by traveling south along U.S. Highway No. 99 for three miles, turning west a distance of one mile up Little Castle Creek Canyon to the lower workings of the mine.

Some experienced mine labor can be obtained in the area. Water, power, and timber are available in the immediate vicinity and supplies can be obtained from Redding, Calif., 50 miles distant, or from the San Francisco area. Numerous truck, bus, and train schedules afford good transportation to Castella and Dunsmuir.

HISTORY AND PRODUCTION

The property was located in 1906 by L. H. Brown of Dunsmuir, Calif., who operated on a small scale until 1915 when owner-

ship was acquired by the California Chrome Co. During 1915-1916 this company produced about 15,000 tons of 45 to 48 percent Cr_2O_3 ore. After World War I, title to the property reverted to the Government and later acquired by Mr. M. T. Johnson, the present owner. A production of 5,000 tons of 45 to 48 percent Cr_2O_3 ore is reported from 1916 to the present time.

Various examinations, magnetometer surveys, and exploration investigations were conducted on the property by the Geological Survey and Bureau of Mines during 1940-1941, according to a report by E. J. Matson dated July 1949.[1/]

PROPERTY AND OWNERSHIP

The property consists of 79 acres, more or less, of Lot 4, SW 1/4 of the NW 1/4 of sec. 2, T. 38 N., R. 4 W., M.D.B.&M. in Shasta and Siskiyou Counties, Calif. It is owned now by Mernice T. and Ada E. Johnson, his wife, 897 South Highway, Dunsmuir, Calif.

The applicant, Helmke, Thomas, and Janssen secured a lease, contained in the application, from the owners on April 30, 1954. This company has been actively engaged in mining chrome and manganese ores for 15 years. They presently operate a mill at Castella, Calif., about 7 miles from the Little Castle Creek mine, for concentrating chrome ores produced from their various operating properties. DMEA

1/ Opp. Cit.

exploration work in progress at the Lambert Mine (Idm-E747) has been performed in rapid and satisfactory manner by the applicant.

DEVELOPMENT

No mine plant buildings or housing facilities are located on the property. The equipment now at the mine consists of a Gardner-Denver, 365 c.f.m. compressor, jackhammer, and accessory air and hand tools, but the operator has complete mining equipment which he intends to move to the property to perform exploration work. A 100-ton gravity mill, located about 6 miles from the mill, near Castella, is owned by the applicant.

The principal development area, called the Upper Brown workings, consists of a caved open pit and underground workings where chrome ore was mined from the surface to 130 feet in depth. The lowest adit is still accessible for a distance of about 250 feet. This adit is at an elevation of about 725 feet above Little Castle Creek. The lower Brown workings consist of a small open pit and an 80 foot adit at about 625 feet above the creek. About 100 feet above Little Castle Creek there are two small open cuts and an inaccessible adit known as the Creek Deposit.

The work done by Helmke, Thomas, and Janssen during 1954-1955 has consisted of reopening the upper Brown adit and surface stripping the mineralized zone at the Creek Deposit.

GENERAL GEOLOGY

The Little Castle Creek mine is in an area of high relief and the surface is almost completely covered with slope wash and dense vegetation. Because of the cover there are few outcrops. The rocks exposed in the vicinity of the mine are chiefly dunite and peridotite near the northern end of a large mass of basic igneous rocks.

The dunite consists mostly of dark green or gray olivine that weathers to a buff or buckskin color. It has been slightly serpentinized. Nearly perfect crystal cleavage in the olivine gives the rock a rough foliation that strikes NW and dips steeply N.

A well-defined fault cuts the main ore body of the deposit, strikes about N. 50° W. and dips 75° NE. There is no evidence for any vertical displacement on this fault and only about five feet of horizontal displacement had been noted. The ore bodies at the Little Castle Creek mine and the deposit at the adjoining Coggins property, on the northeast side of Little Castle Creek, are roughly aligned along a N. 50° E. trend suggesting some structural control although the nature of this control is not evident and has not been determined by geologic study.

ORE DEPOSITS

The ore bodies at the Little Castle Creek mine are of two types, massive and disseminated. Chromite, the only ore mineral present, occurs as pods and disseminated grains in dunite along a favorable horizon that strikes N. 50° E.

The principal chromium mineral is chromite that contains from 45 to 48 percent Cr_2O_3 with a chrome/iron ratio of about 2/1. Other chromium minerals are uvarovite and a pink chrome-bearing chlorite (kammererite or kotschubeite). Gangue minerals are olivine, magnetite, serpentine, talc and chrysotile asbestos.

The pod of ore mined from the Upper Brown workings in 1916 consisted of a large elongate kidney of massive chromite in a body about 150 feet long, 40 feet wide, and about 50 feet high. This body contained over 18,000 tons of chromite, with an average grade of about 48 percent Cr_2O_3, and is the largest single body of massive chromite ever mined in California.

The ore mined from the Lower Brown workings consisted of disseminated ore in a body about 65 feet long, 25 feet wide, and 8 feet thick with an average grade of over 20 percent Cr_2O_3.

The ore mined from the Creek Deposit consisted of angular blocks of nodular chromite and some disseminated chromite in a matrix of unserpentinized dunite. The grade of this material has been quite low and a grab sample of the ore pile at the time of the

examination assayed 4.8 percent Cr_2O_3.

Total production from the Little Castle Creek deposit is about 20,000 tons of chromite containing from 45 to 48 percent Cr_2O_3.

SAMPLING

Analysis of two samples by the Bureau of Mines taken at the time of this examination from locations shown in Figure 2 were as follows:

Sample No.	%, Cr_2O_3	%, Fe	Description
1	26.0	10.6	Chip sample across northeast face of sub-level 15 feet above upper Brown adit, about 225 feet from portal.
2	4.8	6.9	Grab sample of low grade chrome bearing material, mined from Creek Deposit for mill test purposes.

ORE RESERVES

The applicants estimate that the ore reserves at the property are 1,500 tons of indicated ore assaying over 20 percent Cr_2O_3 that can be economically mined and successfully concentrated at their Castella mill. About 300 tons of this ore is massive ore in the 3rd level workings below the Upper Brown open pit (fig. 2), 700 tons is disseminated ore in the walls and bottom of the open pit at the Lower Brown workings, and 500 tons is low grade disseminated ore exposed in the Creek Deposit. A review of the applicants maps and sections, a study of production records and of the exposures on the property revealed that this estimate of reserves is conservative.

Judging from the distribution of ore bodies that have been mined, it is inferred that additional ore bodies may be discovered in the block of ground to be explored by the proposed program. A tonnage of ore equal to what has been produced, about 20,000 tons, is inferred for this block. It is expected that any new ore bodies discovered would be about the same grade as the ore mined, about 48 percent Cr_2O_3.

PROPOSED EXPLORATION

The applicants proposed to drive an 800 foot exploratory adit from the hillside, about 100 feet below the Lower Brown workings (fig. 2), with a 200 foot exploratory raise at the end, and followed by a 400 foot exploratory adit about 200 feet above the Creek Deposit (fig. 2). They estimated the cost of the work would be $64,828.90.

In conference with the applicants it was agreed that the present exposures do not justify more than one exploratory adit and that the location of additional exploratory drifts, crosscuts, or raises, should be determined by the most favorable exposures cut in the adit.

The approved project work is divided into two stages:

Stage I - 700 feet of adit to be driven in an approximate S. 45° E. direction, at 100 feet below the Lower Brown workings.

Stage II - 300 feet of drifts, crosscuts, or raises to explore the most favorable chromite mineralized zones encountered by the 700 foot adit.

The operator shall perform Stage I and shall perform so much of the work under Stage II as is approved in advance by the Government.

Work will start within 60 days and be completed within 10 months from the date of an exploration contract.

The location of the work is indicated in Figure 2, Geologic map and cross section of Little Castle Creek (Brown) Chrome Mine, Shasta County, Calif.

EXPLORATION COSTS

Estimated costs submitted by the applicant in his original application were taken into consideration where applicable in the final approved program; however, separate estimates were made as follows:

(1) Independent contracts

Drifting labor, 1,000 feet @ $13.00/ft. $13,000.00

(2) Labor and Supervision

1 Engineer-Supervisor (1/2 time) at $700.00/mo., 10 months	$3,500.00	
1 Compressor and supply man, 10 months at $325.00/mo.	$3,250.00	
		$ 6,750.00

(3) Operating materials and supplies

Diesel fuel	$1,400.00	
Oil	140.00	
Explosives	2,606.50	
Timber	4,308.00	
Track	2,400.00	
Steel & bits	210.00	
Pipe	915.50	
		$11,980.00

(4) Operating equipment
(To be furnished by operator on rental basis)

Compressor (present value)	$7,500.00
Mucking machine	3,700.00
Drifter	450.00
Column, arm, saddle	100.00
Mine cars	300.00
Blower	325.00
Ventube	512.00
Hoses & pressure tank	125.00
Supply truck	750.00
Pickup truck	1,500.00
	$15,262.00

$$\frac{\$15,262.00 \times 10}{60} = \$\ 2,543.67$$

(5) Initial rehabilitation and repairs

Access road to adit site, and repair of existing road, and preparation of portal site	$ 900.00

(6) New buildings, improvements, etc.

Tool house and supply storage at portal site	$ 200.00

(7) Miscellaneous

Equipment maintenance & repair	$450.00	
Vehicle maintenance & repair	175.00	
Accounting 10 months @ $100/ month	1,000.00	
Workman's compensation, payroll taxes, etc.	1,500.00	
		$ 3,125.00

(8) Contingencies

For possible equipment failure, delays, etc. @ $100/mo,, 10 mo.	$1,000.00
TOTAL COST	$39,498.67

Estimated cost per foot = $39.50
(Including timbering at an estimated cost of $7.50 per foot)

Resume of estimated costs:
Estimated costs of project
Fixed Unit Costs

Stage I

700 feet of adit @ $32.00/ft.	$22,400.00	
700 feet of timbering in adit, as required, @ $7.50/ft.	5,250.00	
		$27,650.00

Stage II

300 feet of drifting, crosscutting, or raising @ $32.00/ft.	$9,600	
300 feet of timbering in drifts, cross-cuts, or raises as required @ $7.50/ft.	$2,250	
		$11,850.00

Estimated total cost of project	$39,500.00
Government participation at 50%	$19,750.00

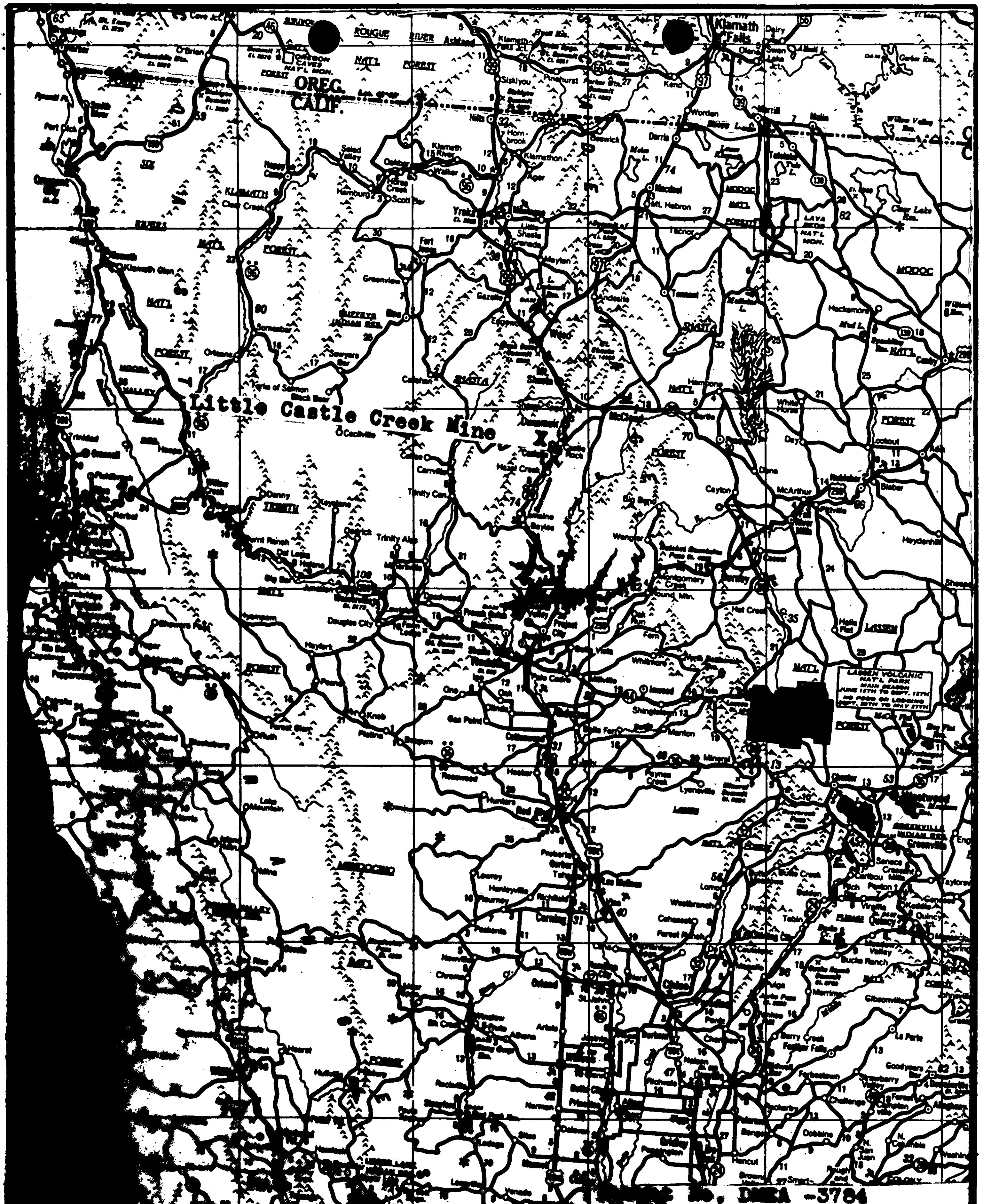
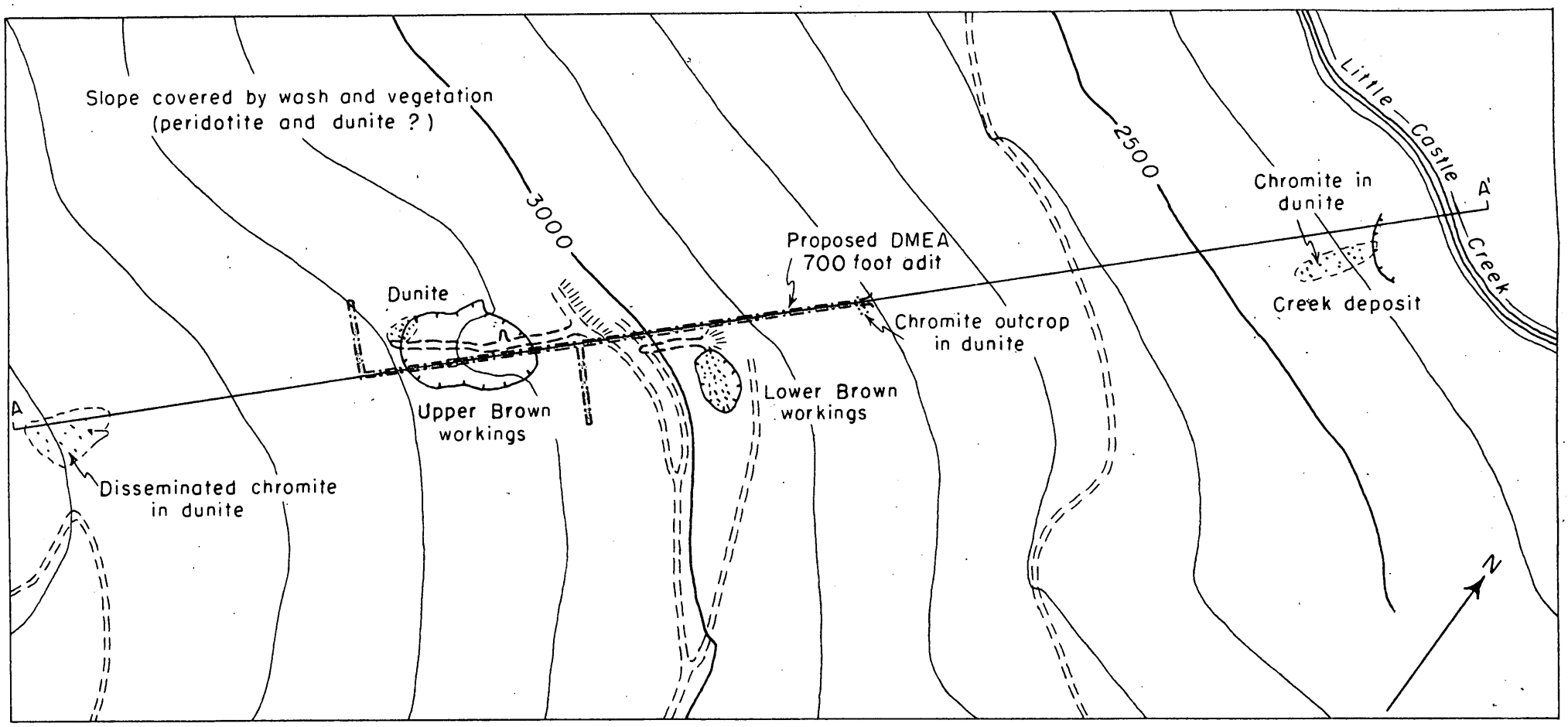
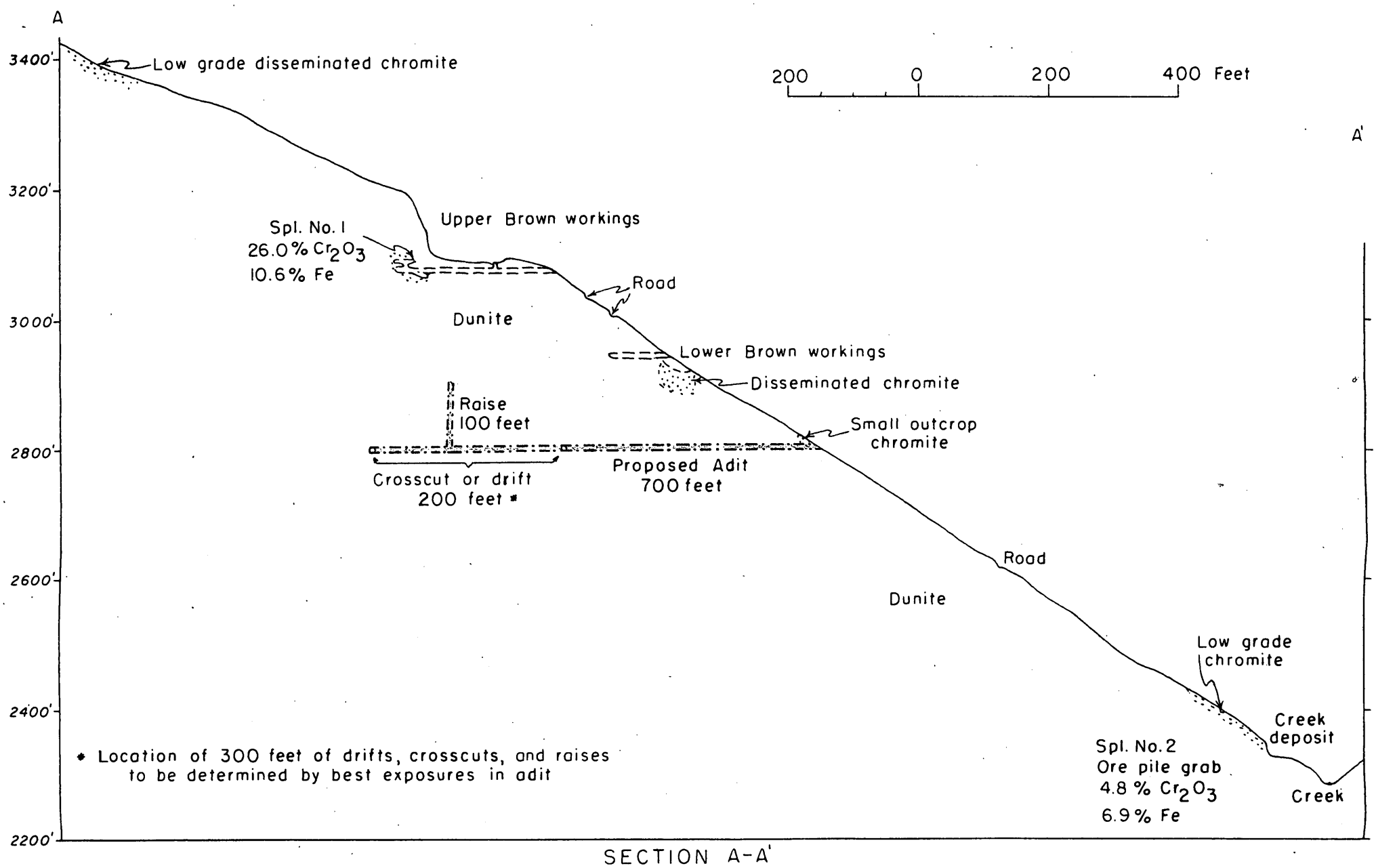


FIG. I LOCATION MAP

RECEIVED
JUN 13 1955





SECTION A-A'

GEOLOGIC MAP AND CROSS SECTION OF LITTLE CASTLE CREEK (BROWN)
CHROME MINE, SHASTA COUNTY, CALIFORNIA

Figure 2

RECEIVED
JUN 13 1955

DOCKET
SURNAME
Rutledge
Kadlin
Martin
Trace
Crawford

400

MAY - 6 1955

Haleim, Thomas & Jennson
320 Market Street
San Francisco, California

Re: Docket No. DMEA 376h - Chromium
Little Castle Creek mine
Shasta & Siskiyou Counties,
California

Gentlemen:

The above-docketed application for exploration assistance has been reviewed by the Iron and Ferro-Alloys Division of the Defense Minerals Exploration Administration and referred to Mr. Spangler Richer, Executive Officer, DMEA Field Team, Region II, 1605 Evans Avenue, Reno, Nevada, for review and possibly a field examination of the property.

Any assistance that you can give the members of the Field Team will be appreciated.

Sincerely yours,

Frank E. Johnson

ACTING Administrator

FARutledge:foc
5-6-55
cc to: Docket
Code 400
Adm. Reading File
Operating Comm.
FT. REG. II
Charles Catkin, USBM
Thor H. Kiilsgaard, USGS

R.C.G.

DOCKET
SURNAME
400 Rutledge
Koelin
Martin
Crawford
B. Jameson

MAY - 6 1955

Mr. Spangler Richer, Executive Officer
DMEA Field Team, Region II
1605 Deane Avenue
Reno, Nevada

Re: Docket No. DMEA 378A - Chromium
Rubin, Thomas & Jackson
Little Castle Creek mine
Shasta & Siskiyou Counties,
California

Dear Mr. Richer:

Reference is made to the above-designated application for exploration assistance that is being referred to your office for review and a field examination of the property if required.

Two copies of a relevant memorandum dated May 2, 1955, by K. E. Nelson, Geological Survey, are enclosed for your information.

Sincerely yours,

W. S. Martin

ACTING Chairman, Operating Committee (JHB)

APPROVED:

John E. Crawford (JHB)
Director, Bureau of Mines

/s/ R. D. Trace (JHB)
Director, Geological Survey

FARutledge:foc 5-6-55
cc to: Docket
Code 400
Adm. Reading File
Operating Comm.
FT. REG. II
Charles Catlin, USBM
Thor H. Kiilsgaard, USGS

R.C.R.

Docket

IN REPLY REFER TO:

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 3 - 1955

May 2, 1955

Re: DMEA-3784
Helmke, Thomas & Janssen
Little Castle Creek Mine
Dunsmuir, Siskiyou County, California
$64,828.90 - Chromium

Copy retained 400

WSay

Memorandum

To: W. S. Martin, Defense Minerals Exploration Administration

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

Subject: Review of application

The subject of this application has been the scene of repeated attempts to find an ore body comparable to the notable Upper Brown kidney-shaped lens from which 15,000± tons of relatively high grade chromite ore was mined before and during World War I. Probably the last investigation was that of the U. S. Geological Survey and U. S. Bureau of Mines in 1942 and '43.

The three Little Castle Creek or Brown deposits and those at the Coggins mine to the northeast and across the creek are nearly in line. This feature suggests a control and a fracture, theoretical unless demonstrated since World War II has been provided. Fracture or no and lacking other controls, the work proposed by the applicants would seem to have been layed out in the most promising vertical plane. As for horizons the vertical distance between the Creek showing and the Upper Brown has been trisected.

typo in here?

In general underground openings afford better opportunities for detecting obscure indications of ore deposition than do diamond drill cores. As proposed the drifts and raise will be logged meaning close inspection and mapping of the fresh faces will be required. Poor coring of the serpentinized wall rock could be expected, but many diamond drill holes of the length required could be drilled for the money requested for drifting and raising. The targets are small and consideration should be given this type of blind probing as a preliminary to the drifting and raising.

New information concerning this chromite belt may be available to the Field Team. A review of the application by it is suggested and here recommended.

N. E. Nelson

N. E. Nelson

April 22, 1955
Subject: DMEA 3784
Re: Exploration Assistance
Little Castle Creek Mine

Helmke, Thomas & Janssen
320 Market Street
San Francisco, California

Gentlemen:

The receipt of your application dated April 15, 1955 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA 3784 and referred to the Iron and Ferro-Alloys Division.

Kindly identify all future correspondence relating to your application by this docket number.

Sincerely yours,

Robert E. Adams, Chief
Operations Control and
Statistics Division

60932

April 22, 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region II

From: Chief, Operation's Control and Statistics Division

Subject: Assignment of Docket Number

There is listed below the assigned docket number to an application recently received from Region II.

DMEA-3784 Helmke, Thomas & Janssen

Robert E. Adams,
Chief, Operation's Control
and Statistics Division

DMEA

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

Defense Minerals Administration
RECEIVED
APR 21 1955

1605 Evans Avenue
Reno, Nevada

April 18, 1955

Memorandum

To: Operating Committee, DMEA, Interior Building
Washington 25, D.C.

From: Executive Officer, DMEA Field Team, Region II

Subject: Loan Application
Helmke, Thomas & Janssen
Little Castle Creek Mine (Chromium)
Siskiyou and Shasta Counties, California

Attached are three sets of MF-103, Application for Aid forms relative to above subject. The fourth set has been retained in our files.

Two extra Owner's Consent to Lien forms, MF-203 are also attached.

This is a similar proposal to that currently active under Docket DMEA-3407, and I believe it warrants favorable consideration.

S. Ricker

Attach.

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 21 1955

1605 Evans Avenue
Reno, Nevada

April 18, 1955

Memorandum

To: Operating Committee, DMEA, Interior Building
Washington 25, D.C.

From: Executive Officer, DMEA Field Team, Region II

Subject: Loan Application
Helmke, Thomas & Janssen
Little Castle Creek Mine (Chromium)
Siskiyou and Shasta Counties, California

Attached are three sets of MF-103, Application for Aid forms relative to above subject. The fourth set has been retained in our files.

Two extra Owner's Consent to Lien forms, MF-203 are also attached.

This is a similar proposal to that currently active under Docket DMEA-3407, and I believe it warrants favorable consideration.

S. Ricker

Attach.

SRicker:gh
cc: H. C. Miller
R. M. Smith
File

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

Defense Minerals Administration
RECEIVED
APR 21 1955

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

Not to be filled in by applicant

Docket No. 3784
Metal or Mineral Chromium
Date Received 4-21-55
Estimated Cost $64,828.90
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: HELMKE, THOMAS & JANSSEN 320 Market Street, San Francisco, California
A legal co-partnership in the state of California
R. F. Helmke, partner 320 Market Street, San Francisco, California
C. R. Janssen. partner 320 Market Street, San Francisco, California

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

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract Lot 4, SW 1/4 of the NW 1/4 of Section 2, Township 38, Range 4 West of MDM containing 79 acres more or less

(*b*) State any mine name by which the property is known. Little Castle Creek Mine

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

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property. Copy of Lease and Owner's Consent to Lien attached.

(*e*) If you own the land, describe any liens or encumbrances on it Do not own.

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. No unpatented claims.

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

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

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

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

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

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

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

(*c*) The work will start within 60 days and be completed within 12 months from the date of an exploration project contract.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated April 15th, 1955

HELMKE, THOMAS & JANSSEN
(Applicant)

By R. F. Helmke
Lawrence B. Janssen

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

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

Mehlke, Thomas & Jensson
320 Market Street
San Francisco, California

4. PHYSICAL DESCRIPTION

(a) The Little Castle Creek mine has been to date one of the largest producers of chromite ore in California. It was discovered and located in 1906 by L. K. Brown of Dunsmuir, California on the south side of Little Castle Creek canyon in Sec 2, Twn 38 N, R 4 W Shasta and Siskiyou Counties, California. The original discovery of chromite was made at what is presently known as the Upper Brown workings which is a vertical distance of 800 feet above Little Castle Creek. Mr. Brown started producing ore from this area by drifting and square set stoping. While this activity was in progress, the open pit of the Lower Brown workings was developed, downslope on the apparent strike of the ore zone, a vertical distance of approximately 125 feet below the Upper Brown workings. Mr. Brown continued producing from these areas until 1915 when he sold to the California Chrome Company. This company drove a drift along the apparent strike of the Upper Brown lense some 15 feet below the previous workings. As this drift was driven at what was then considered to be the lower limit of the ore body, a modified system of caving was instituted to take the ore. The Upper Brown pit was the result of this caving. Meanwhile, a drift was driven paralleling the strike of the Lower Brown ore body. Ore from these areas that would not make shipping grade was concentrated by jigging. In 1916 the decline in price paid for domestic chromite forced the operators to close the mine. The company was then dissolved and through this action, title to the property reverted to the United States Government. The property was subsequently homesteaded and it is this title that has been acquired by the present owner, Mr. M. T. Johnson, who resides at the property. The property was inactive from 1916 until the demand for domestic chromite brought the property again into production early in World War II. At that time, the U. S. Bureau of Mines examined the mine and reported their findings in R. I. 4516 Investigation of Little Castle Creek Chromite Deposit, Shasta County, California. Leasers operated the

4. PHYSICAL DESCRIPTION (Continued)

property for several years during this period, principally taking ore left exposed by the earlier work. A limited amount of work was done on the creek deposit which heretofore had only been prospected. In April 1954, Helmke, Thomas & Janssen negotiated the lease which they presently hold on the property. The work done by Helmke, Thomas & Janssen since signing their lease in 1954 has consisted of cleaning the Upper Brown pit by bulldozing, opening the Upper Brown tunnel, exposing the ore zone at the creek deposit by surface stripping, and moving a small lot of ore from the dumps to the company mill at Castella for mill test work. Except for some debris on the floors and sloughing of the walls, the pits of the Upper and Lower Brown workings can be readily examined. The drifts are open and the underground workings are accessible except where stopes were purposely caved for mining. The area stripped at the creek deposit is now clean.

(b) Production figures are based on data given in California Division of Mines' Bulletin No. 76 and the U. S. Bureau of Mines R. I. 4516 Investigation of Little Castle Creek Chromite Deposit, Shasta County, California.

Production through 1916	15,000 tons	45% to 48% Cr_2O_3
Production since 1916	5,000 tons	45% to 48% Cr_2O_3

The property is not presently producing but production is planned for the immediate future from the creek deposit. There has not been sufficient work done to date to accurately estimate the ore reserves of the property. However, a possible 1500 tons of plus 20% Cr_2O_3 ore is indicated as readily available.

Helmke, Thomas & Janssen
320 Market Street
San Francisco, California

4. PHYSICAL DESCRIPTION

(c) The chromite of the Little Castle Creek mine occurs within an ultramafic intrusive which skirts the eastern edge of the Castle Crags in a northeast-southwest direction. The mine is located on the south side of the canyon of Little Castle Creek. The topography of the area is very rugged with high relief varying from 2300 feet at the creek deposits to 3150 feet at the upper limit of the open pit of the Upper Brown workings. The horizontal difference between the creek and the southwesterly limits of the Upper Brown open pit is approximately 1360 feet. In spite of the high relief, a heavy soil mantle covers the area obscuring many of the geologic features. For this reason, little can been seen except in the areas where this cover has been removed in the course of mining, and in the underground workings. The chromite appears to occur where the intrusive has been altered to dunite. The chromite occurs as disseminated ore, "bean chrome" and massive lenses. All of the ore bodies and the surrounding host rocks where exposed have been highly fractured into small blocks of somewhat pyramidal shapes. A system of clay and gouge filled fractures ranging from a few inches to a few feet in width and generally paralleling the apparent strike of the ore bodies may be observed in the exposed areas. Generating from these fractures at a low angle is another system of fractures of a lesser magnitude which forms the pyramidal shaped blocks just mentioned. Some of the joints of these blocks are serpentinized, but as yet no apparent pattern for the serpentinization has been established. All of the joints are filled with mud and/or gouge; a condition which due to the small size of the blocks makes timbering a necessity in underground work. All of these features seem to present the possibility of compression faulting, the location and attitude of such faulting being obscured by the subsequent erosion and the soil covering of the area. From what can be seen in the exposed areas, no struc-

Helmke, Thomas & Janssen
320 Market Street
San Francisco, California

4. PHYSICAL DESCRIPTION

(c) Continued

tural control, if any, for the deposition of the ore can be determined. At a point some 80 feet below the lower Brown workings and 20 feet above the elevation of the portal site, where 800 feet of exploration drift is proposed to be driven, a small outcropping of chromite has been exposed. This outcropping together with the Lower Brown ore body and the Upper Brown ore body tends to establish a trend to the ore occurences in this area. A drift at this elevation driven along this apparent trend to a point beyond the vertical limits of the Upper Brown workings would explore what may be considered the most favorable block of ground in this area. A raise to the elevation of the present lower limits of the upper Brown workings will make it possible to explore the downward extension of what has been the major ore body of the mine to date. The limited vertical distance now exposed at the creek deposit makes it difficult to select a portal site for a drift to properly explore the area between the creek deposits and the proposed exploration drift for the upper area. A site some 200 feet above the present upper limits of the creek deposits has been tentatively selected. The selection of this site is based upon the little information available to date about the trend of the ore body in the creek deposit. The scheduled mining in the creek deposit can very readily develop information which would better establish the proper portal site.

(See Supplement appended)

(d) The Little Castle Creek mine is reached by turning west off Highway 99 where the highway crosses Little Castle Creek approximately three miles south of Dunsmuir, California. It is one mile from the highway, up Little Castle Creek Canyon to the creek deposit workings of the mine. The road to this point has no unfavorable grades. To reach the Lower and Upper Brown workings from the creek deposit, it is necessary to travel approximately two miles over a road which

4. PHYSICAL DESCRIPTION

(d) Continued

climbs the south side of Little Castle Creek Canyon. There are some places where the grade is as much as 27% but these can be corrected without too much expense. The maximum haul for ore, which would be from the Upper Brown workings to the Helmke, Thomas & Janssen mill at Castella, would be seven miles. The nearness of the mine to Dunsmuir makes it possible for employees to find living accommodations and also provides a source of supply for many required operating items. The numerous truck, bus, and train schedules operating through Castella and Dunsmuir make the supply houses of the San Francisco-Bay Area a ready source of supplies for those items not obtainable locally.

(e) Even though the principal industry of the Dunsmuir area is lumbering, there is enough mining activity in the vicinity to make available a sufficient number of men with mining experience to properly execute an exploration project. Timber requirements can be readily supplied by the local sawmills. Necessary supplies that are not obtainable from local sources can be readily procured from supply houses in the Bay Area. Present plans call for the use of diesel power for all contemplated mining. In the event future developments should warrant it, power could be obtained from the California-Oregon Power Company whose lines are within a mile and a half of the property. Necessary water for mining operations is no problem as Little Castle Creek flows through the property and the present owner has a sufficient water right to satisfy any foreseeable needs.

4. Physical Description.

(C) (Supplement)

It is recognized that steeply dipping mineral occurrences are less susceptible to erosion than flat lying mineralized zones. In the case of massive chromite, many flat lying deposits are recognized after erosion only by residual float, as at Chrome Ridge, Swede Basin in Southern Oregon. Certain deposits contain massive chromite in steeply dipping fracture or shear zones undisturbed by erosion except where streams have cut through these zones, as at The Lambert Mine, Butte County, Californua, and The Tyson Mine in Del Norte County, California. It is indicated by the shape and dip of the mined ore bodies at The Little Castle Creek Mine, as well as study of the fracture zone where exposed on the surface, that the massive chromite found there occurs in a steeply dipping zone.

The tunnel now being driven at the Lambert Mine under DMEA Exploration Contract No. Idm-E747, has intersected a small occurrence of massive chromite on dip below a surface outcrop. It has also intersected an important new ore body which probably has no surface indication. Both new occurrences are found within a steeply dipping fracture or shear zone on the same general strike and dip as the main workings of the Lambert Mine. These new discoveries are so close to the northwest as to virtually prove the continuation of the previously known mineralized zone over a distance at least 600' to the northwest and at least 60' deeper than the deepest workings in the mine.

Considering the steeply dipping known ore bodies and fracture zones at the Little Castle Creek Mine, and noting their similarity to the above mentioned chromite deposits, conditions are believed to be favorable at the Little Castle Creek Mine for the discovery, by the work covered in this application, of new occurrences of massive chromite within the fracture zone below the big lens (or lenses) mined at the Upper Brown workings. Favorable conditions are also believed to be present for the discovery of new lenses of massive chromite contained within the fracture zone, but which do not extend to the surface as in the case of the new discovery at The Lambert Mine.

Lehnke, Thomas & Jansson
320 Market Street
San Francisco, California

5. THE EXPLORATION PROJECT

(b) The proposed exploration project is for a total of 1200 feet of drifting and 200 feet of raising. 800 feet of drift to be driven from a point 100 feet below the Lower Brown workings in a southwesterly direction along the indicated trend of the ore of this area as established by the mining in the Upper and Lower Brown workings and the outcrop below the Lower Brown workings. 200 feet of raise to be driven from the end of this drift to the elevation of the lowermost workings of the Upper Brown workings. 400 feet of drift to be driven in a southwesterly direction at a point approximately 200 feet above the workings of the creek deposit. The final location of this portal site is dependent upon information developed in the presently scheduled mining activity for the creek deposit. All drifts are to be 5 feet by 7 feet in the clear and the raise to be a two compartment squareset raise, each compartment to be 4 feet by 4 feet in the clear inside. The nature of the ground to be explored indicates that drifts will have to be timbered, standard drift sets lagged top and sides being required. This same condition necessitating squareset timbering for the raise.

Helmke, Thomas & Janssen
320 Market Street
San Francisco, California

5. THE INFORMATION PROJECT

(d) Helmke, Thomas & Janssen have been actively engaged in the mining of chrome and manganese ores in California continuously for the past 15 years. They have been one of the few companies which has produced domestic chrome ore continuously during the post-World War II years. They presently own and operate a mill at Castella, California for the concentrating of chrome ores produced from their operating properties. Mr. R. F. Helmke has personally directed much of these mining activities. He has had wide experience in both the mining and marketing of chrome ores and has been a member of the National Advisory Council on chrome and manganese. Mr. Oren L. Palghum, Superintendent of Mining for Helmke, Thomas & Janssen, has since 1937 been engaged in the operation of both underground and open pit mining in the Western United States.

Helmke, Thomas & Janssen
320 Market Street
San Francisco, California

6. ESTIMATE OF COSTS.----

1200 feet of drifting

(a) Drifting labor 1200 ft @ $15.00/ft			
(Probably will be contracted)		$18,000.00	
			$18,000.00
(b) Wages and salaries listed in (b) based on 10 months.			
Superintendent and engineering (½ time)	$350.00/month	$ 3,525.00	
Surface man (Full time)	1.75/hr	4,020.00	
Supply man (½ time)	150.00/month	1,500.00	
			9,045.00
(c) Diesel		$ 1,680.00	
Oil		168.00	
Explosives		3,129.00	
Timber		5,172.00	
Track		2,880.00	
Steel and bits		252.00	
Pipe		1,099.00	
			14,380.00

(d) All items listed in (d) are now owned by the company and are to be used on this exploration project.

Compressor	$ 7,500.00	Present value	
Mucking machine	3,700.00	"	"
Drifter	450.00	"	"
Column, arm and saddle	100.00	"	"
Mine cars (2)	300.00	"	"

Helmke, Thomas & Janssen
320 Market Street
San Francisco, California

6. ESTIMATE OF COSTS.---- (Continued)

(d) Continued----

Blower	325.00	Present value		
Ventube	512.00	"	"	
Hoses and pressure tank	125.00	"	"	
Supply truck	750.00	"	"	
Pickup truck	1,500.00	"	"	
	$\frac{15,262.00 \times 10}{60}$			2,543.67

(e) Access road	$ 900.00	
Tunnel site preparation	325.00	
		1,225.00

(f) Tool house and supply storage at portal site	200.00	
		200.00

(g) Equipment maintenance and repair	$ 450.00	
Vehicle maintenance and repair	175.00	
Accounting @ $125.00/month	1,250.00	
Workmen's compensation	3,373.00	
Payroll taxes	1,352.00	
		6,600.00

(h) Contingencies. For possible major equipment failures and/or losses due to Act of God.	$ 2,500.00	
		2,500.00

Total cost = $54,493.67

$54,493.67 or $45.411/ft of drift

Helmke, Thomas & Janssen
320 Market Street
San Francisco, California

6. ESTIMATE OF COSTS.----

200 feet of raise.

(a) Raise labor 200 ft @ $15.00/ft		$ 3,000.00	
			$ 3,000.00
(b) Wages and salaries listed in (b) based on 2 months.			
Superintendent and engineering (½ time)	$350.00/month	700.00	
Surface man (full time)	1.75/ hr	804.00	
Supply man (½ time)	150.00/month	300.00	
			1,804.00
(c) Diesel		320.00	
Oil		32.00	
Explosives		521.50	
Timber		2,800.00	
Steel and bits		48.00	
Pipe		157.00	
			3,878.50

(d) All items listed in (d) are now owned by the company and are to be used on this exploration project.

Compressor	$ 7,500.00	Present	Value
Drifter	450.00	"	"
Stoper	200.00	"	"
Column, arm and saddle	100.00	"	"
Mine cars (2)	300.00	"	"
Tugger hoist	500.00	"	"

Helmke, Thomas & Janssen
320 Market Street
San Francisco, California

6. ESTIMATE OF COSTS.---- (Continued)

(d) (Continued)

Blower	325.00	Present	Value	
Ventube	512.00	"	"	
Hoses and pressure tank	125.00	"	"	
Supply truck	750,00	"	"	
Pickup truck	1,500.00	"	"	
	12,262.00 X 2 / 60			408.73

(e) None.

(f) None.

(g) Equipment maintenance and repair	100.00	
Vehicle maintenance and repair	50.00	
Accounting @ $125.00/month	250.00	
Workmen's compensation	599.00	
Payroll taxes	245.00	
		1,244.00

(h) None.

Total cost = $10,535.23

$10,535.23 or $51.676/ft of raise

Lelmke, Thomas & Janssen
520 Market Street
San Francisco, California

7.

(b) Helmke, Thomas & Janssen are prepared to meet their share of the costs of this project.

THIS AGREEMENT OF LEASE entered into this 30th day of April, 1954, by and between Mernice T and Ada E. Johnson his wife, hereinafter called the Lessors, and Helmke, Thomas & Janssen, a partnership, hereinafter called the Lessees.

W I T N E S S E T H

That in consideration of the sum of Ten Dollars, receipt of which is hereby acknowledged, and of the covenants hereinafter contained by Lessees to be kept and performed, Lessors lease unto the Lessees that certain mining property hereinafter described, with the exclusive right to prospect and explore for, and to mine, produce, mill, beneficiate and take and sell any and all minerals and metals of value therefrom, with all other rights necessary, incidental or convenient to the mining operations of the Lessees thereon, including without limiting other rights granted or implied, the right of ingress and egress, the right to water, to cut timber for Lessees' mining use, to store or dispose of tailings on the property, and the right to construct such buildings, plants, works and roads on such sites and such locations as Lessees may deem necessary or convenient.

Lessors reserve the right of entry and the right to occupy the land or lease the same, subject, however, to this lease and without interference with the rights or operations of Lessees hereunder.

The mining properties are situated in the County of Siskiyou and Shasta, State of California, and more particularly described as follows:

Lot 4, SW 1/4 of the NW 1/4 of Section 2, Township 38, Range 4 West of MDM containing 79 acres more or less

To have and to hold for a term of Ten Years from and after the date hereof, and upon condition that Lessees are not in default under any of the terms hereof, Lessees shall have the option to extend the aforesaid term for an additional Ten Years.

And in consideration of these premises Lessees agree:

To commence the work of prospecting, exploring or mining of ores in or on said real property within ninety days from date hereof, and thereafter to carry on and prosecute the same with reasonable deligence, and to ~~and~~ perform said mining work in a manner consistent with good mining practices. Provided, that if for any reason it becomes unprofitable to operate the mine and/or mill on the property, the Lessees shall have the right to suspend mining and/or milling operations and shall not be held in default by reason of such suspension, and the term of this lease shall be extended the same number of days said suspension or suspensions are in effect, and Lessees agree to resume said mining and/or milling operations when in their opinion it is economically sound to do so. Provided, however, the Lessees shall not be charged with failure of performance if the same is due to strikes, action of the elements, accidents, rules or

regulations of any Governmental Agency, civil disturbances, war, or any other cause or event, whether of the kind or kinds herein enumerated or not, beyond the reasonable control of the Lessees.

Lessees agree to pay as rent a royalty in the following amounts:

(1) Upon ores mined, shipped and sold Lessees shall pay Lessors 10% of the amount received by Lessees, less the cost of hauling and/or transportation.

(2) Upon ores that are milled, concentrated, beneficiated or smeltered, the Lessees shall pay Lessors 10% of the amount received by Lessees less hauling and/or transportation charges, milling, concent ating, beneficiating, and/or smelter charges.

Lessees agree to pay unto Lessors the above royalties on or before the 20th day of the month following for all ores shipped and sold during the preceding calendar month. Each royalty check to Lessors shall be accompanied by a settlement statement setting forth the weight, value, and quantity of ores shipped and sold from said property during such previous calendar month.

Lessees agree to comply with all applicable laws and to assume all responsibility in case of accident to themselves and to keep all employees fully insured with Workmen's Compensation Insurance, at the sole cost and expense of Lessees.

Lessees agree to pay taxes assessed against all mine and mill equipment installed by Lessees on said property.

Lessors shall be in no way responsible for debts contracted by said Lessees, and shall not be responsible for money due for work, materials or supplies, done or used on said premises, and said Lessees shall at all times hold harmless and protect the said Lessors against any and all claims or liens for labor or material furnished to said Lessees during the term of this lease.

Lessors shall post upon said property notices permitted by law, stating and giving notice that said Lessors shall not be liable for any labor or materials furnished to said Lessees.

Lessors shall have the right at reasonable times to enter upon all parts of leased property for the purpose of inspection.

Lessees agree to keep true and accurate books of account showing the tonnage and value of any and all ore mined, milled, shipped and sold from said property.

Lessors agree that they own the entire mining interest in said property and agree to protect Lessees in quiet possession and enjoyment thereof.

All machinery, equipment, tools, building and improvements brough upon the property or installed thereon by Lessees shall remain the property of the Lessees and may be removed by Lessees at any time.

In the event of the breach of any covenant hereof by Lessees, Lessors shall give Lessees written notice of such alleged breach and Lessees shall remedy same within 60 days after receipt of such notice. Upon Lessees' failure to do so, Lessors shall have the option to terminate this lease within 120 days by written notice to Lessees.

In the event of any dispute between Lessees and Lessors relative to the grades of ore, concentrate, milled or smeltered product, and said ore, concentrate, milled or smeltered product has been sold to any agency of the United States Government, the certificate of said agency shall be conclusive upon the parties hereto. If said ore, concentrate, milled or smeltered product is sold in the open market the certificate of Abbot A. Hanks, 624 Sacramento Street, San Francisco, or George Zetzsche, 1020 Market Street, Redding, shall be conclusive upon the parties hereto.

In the event of any other dispute relative to the terms hereof, Lessors and Lessees upon the written demand of either shall each select an arbitrator, and these two arbitrators so selected shall select a third arbitrator, and the decision of any two arbitrators shall be binding on the parties hereto.

Lessees may terminate this lease at any time by payment to Lessors of the sum of $10.00 and delivering to Lessors a quit claim deed of all Lessees' right, title and interest herein, and thereupon Lessees shall have no further obligations hereunder except to account for any unpaid royalty on ore theretofore shipped and sold from said premises.

In case Lessees do not commence work within 90 days from date hereof as hereinabove provided, at Lessors' option this lease shall terminate and Lessees shall deliver to Lessors upon receiving written notice of the exercise of such option, a quit claim deed of all Lessees' right, title and interest herein and thereupon Lessees shall have no further obligations hereunder.

Lessees may assign this Lease to any partnership, syndicate or corporation created by them or in which they may become interested, provided, however, that any such partnership, syndicate or corporation shall agree in writing to be fully bound by the terms hereof, and the assignor shall be released and discharged of any further liability under said lease.

All notices shall be sent to Lessors at 897 South Highway, Dunsmuir. and to the Lessees at 320 Market Street, San Francisco.

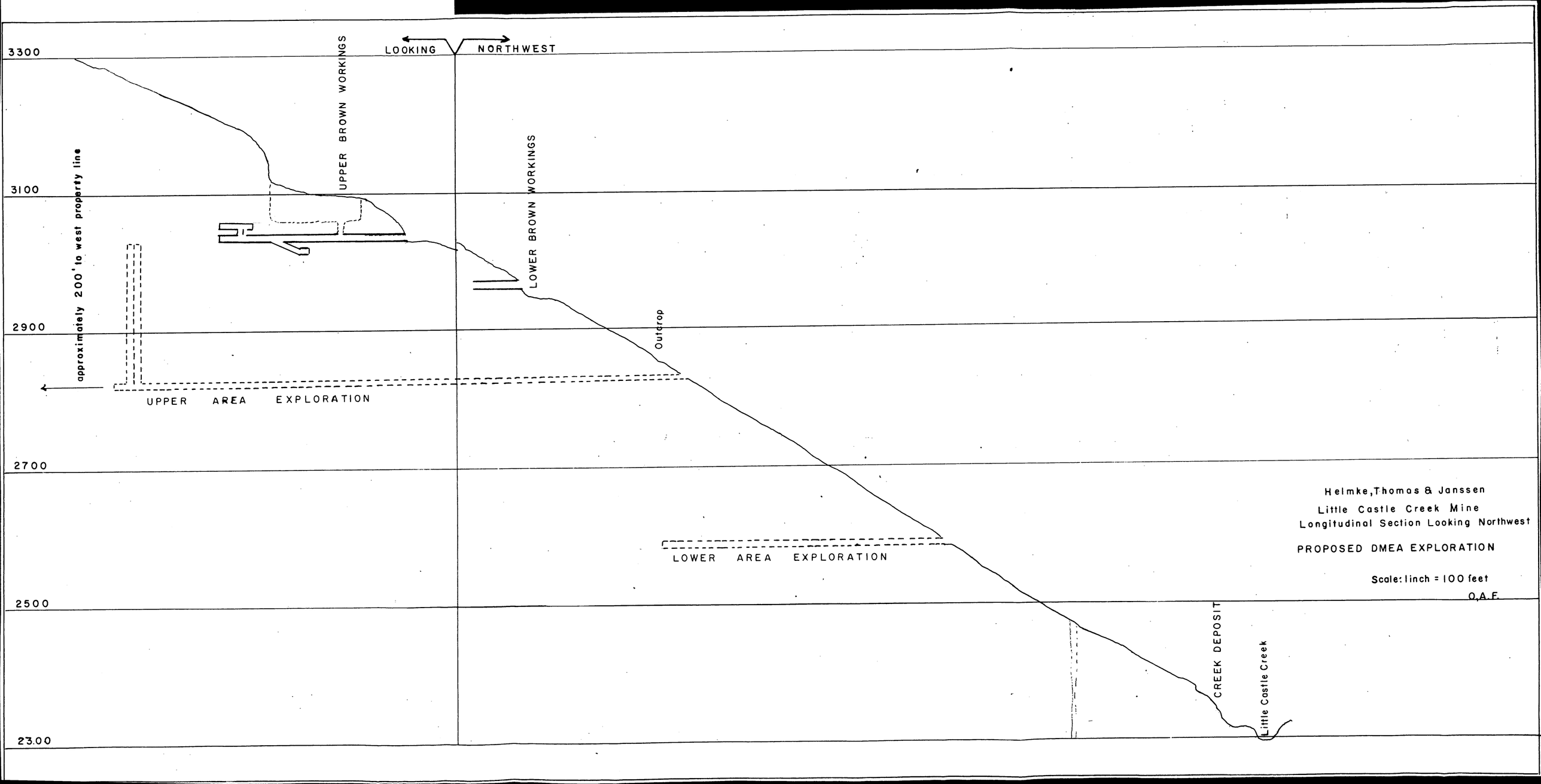
This lease applies to, inures to the benefit of, and binds all parties hereto, their heirs, legatees, divisees, administrators, executors, successors and assigns.

Lessees shall deliver all moneys required to be paid as royalties to Lessors at above address or to such other agency as Lessors may designate in writing.

HELMKE, THOMAS & JANSSEN
320 MARKET ST.
SAN FRANCISCO 11, CALIF.

Lessees P. F. Helmke
Clayton R. Jansen

Lessors Merrill P. Johnson
Ella E. Johnson


3300
3100
2900
2700
2500
23.00
LOOKING
NORTHWEST
UPPER BROWN WORKINGS
LOWER BROWN WORKINGS
approximately 200' to west property line
Outcrop
UPPER AREA EXPLORATION
LOWER AREA EXPLORATION
CREEK DEPOSIT
Little Castle Creek
Helmke, Thomas & Janssen
Little Castle Creek Mine
Longitudinal Section Looking Northwest
PROPOSED DMEA EXPLORATION
Scale: 1 inch = 100 feet
O.A.F.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
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DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS
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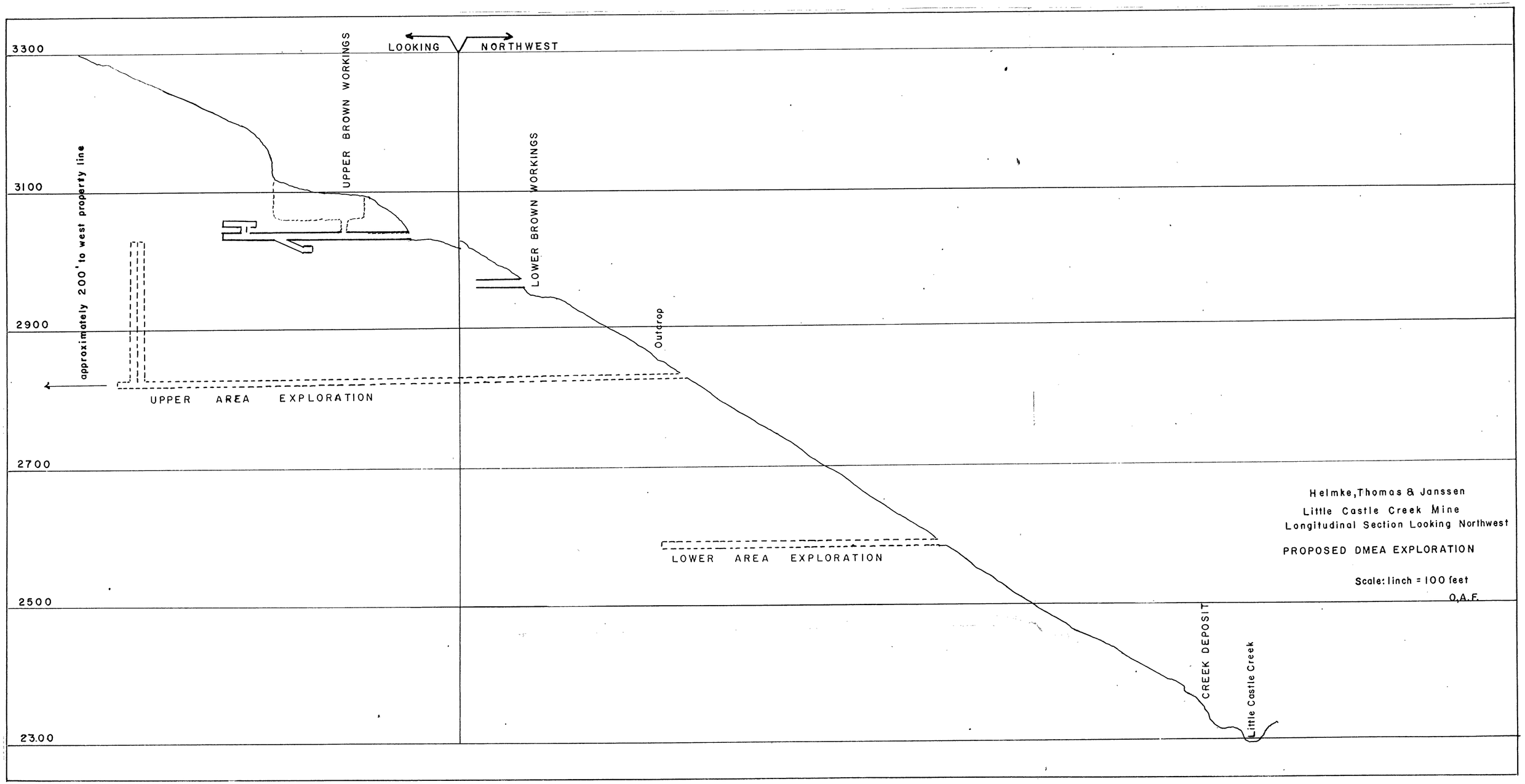
Map

~~Mr. C. O. Mittendorf~~, ~~Administrator~~
Defense Minerals Exploration Administration
Department of the Interior
Washington 25, D. C.

map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