Division copy

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MF-200
(Revised June 1954)

Docket No. DMEA 3885

Commodity Uranium

Contract No. Idm-E 858

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

EXPLORATION PROJECT CONTRACT[1]

It is agreed this AUG 2 2 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] Dahl Uranium Mine, Inc., a corporation,

whose mailing address is 405 Hutton Building
Spokane, Washington,
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-200), the attached Exhibit "A," Annex I, and one 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 Washington, County of Spokane, and is described in Annex I.[3]

(b) The Operator represents and undertakes that:

(1) The Operator is the [4] lessee of [5] the 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] recorded in Book 54, page 626, 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: None

(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

[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."

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SPOKANE, WASH.

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of the land (lessor, seller, optionor, etc.), are attached, as follows: Consent to Lien by Leonard Dahl and Betty Dahl.

(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 8, it shall thereafter have no claim against the land or any production therefrom except for any production referred to in Article 8(b)(1).

ARTICLE 3. *The exploration project.*—The project is a search for indicated or undeveloped deposits of Uranium. The work to be performed is described in Exhibit "A." The Operator on or before SEP 15 1955 shall commence the work, and on or before November 30, 1955 (unless the Operator's obligation to prosecute the work is terminated—see Article 10) shall either have completed the work or shall have incurred allowable costs (see Article 6) in a sum not less than the estimated total allowable cost set forth in Exhibit "A."

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) *Independent contracts.*—To the extent that the allowable costs are estimated in Exhibit "A" with express reference to performance by independent contractors on a unit-price basis (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations), the work may be so performed; but if the reference in Exhibit "A" to any such independent contract requires the Government's approval thereof, payments under such contract will not be allowable costs unless the Government gives its written approval of the contract. Any such independent contract shall refer to some specific and identifiable part of the work, and shall be subject to all of the pertinent terms and conditions of this exploration contract; but the Government shall not be considered a party thereto, and its rights under this contract, including the right to terminate its contributions, shall not be affected thereby. Regardless of the provisions of any such independent contract and regardless of the Government's approval thereof, the Government will participate in payments to the independent contractor only on account of work performed in accordance with the provisions of this exploration project contract, and only to the extent that the Government deems the unit prices for the work under the independent contract to be reasonable.

(c) *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.*—The estimated total allowable cost of the project, set forth in Exhibit "A," is the sum of $ 6,300.00 The Government shall contribute 75 percent of the allowable costs as they are incurred in a total sum not in excess of $ 3,225.00 : *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 or not in excess of the amount of the Government's contribution to the cost of property which is or may become subject to disposal as provided in Article 9(c), whichever is greater. The Government will make its contribution on the basis of the monthly vouchers referred to in Article 7(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. "Costs incurred" mean costs that have been paid or have become due and payable, or that in the opinion of the Government have become an obligation. The Government may make payments directly to independent contractors and suppliers for the account of the Operator rather than to the Operator.

ARTICLE 6. *Estimated costs.*—(a) *Categories of costs.*—The allowable costs of the work to which the Government shall contribute are limited to those that are direct, reasonable, necessary, and that are estimated in Exhibit "A" by categories as specified in this article. If any category or subcategory is omitted from the estimate of costs, or if the word "none" is annexed to the listing thereof, costs under such category or subcategory are not allowable. Any excess over any estimate which is indicated as the maximum of any category, subcategory, or item, either as to requirement or related cost, and any excess over the estimated total allowable cost of the work, shall not be allowable. Any excess over the estimate of any category, subcategory, or item, either as to requirement or related cost, not indicated as a maximum shall be allowable within the limit of the estimated total allowable cost of the work. To the extent that excesses over maximums other than the estimated total allowable cost of the work may be necessary for the performance of the work, the Operator shall incur such excesses for his own account without contribution by the Government; but except for any such necessary excesses in categories, subcategories, or items thereunder the Operator is not obligated to incur more than his agreed percentage of the estimated, total allowable cost of the work.

To the extent specified in this article or in Exhibit "A" the following categories, subcategories, and elements thereof are maximums; but if not so specified either here or in Exhibit "A" they are not maximums, and may be exceeded within the limit of the estimated total allowable cost of the work:

CATEGORY (1)—INDEPENDENT CONTRACTS.—Work to be performed under independent contracts (see Article 4(b)). The estimated total amount of this category and the estimated cost of each unit of work for performance under an independent contract are maximums.

CATEGORY (2)—PERSONAL SERVICES.

Subcategory (a)—Supervision.—All elements of this subcategory (number of supervisors, periods of employment, rates of pay, and total) are maximums.

Subcategory (b)—Technical services.—All elements of this subcategory (number of technicians, periods of employment, rates of pay, and total) are maximums.

Subcategory (c)—Labor.

CATEGORY (3)—OPERATING MATERIALS AND SUPPLIES.—Includes such items as drill bits and steel, explosives, fuel, pipe, power, small tools costing less than $50 each, timber, track.

CATEGORY (4)—OPERATING EQUIPMENT.

Subcategory (a)—Rental.—The number of each object to be rented [6 mine cars, 1 truck], the rate of rental [$100 per month, $5 per hour], and the total of this subcategory are maximums.

Subcategory (b)—Purchases.—The estimated total of this subcategory is a maximum.

Subcategory (c)—Depreciation.—All elements of this subcategory (time periods, rate of depreciation, and subcategory total) are maximums.

CATEGORY (5)—INITIAL REHABILITATION AND REPAIRS.—Estimates under this category include all requirements and related costs, such as labor, materials and supplies, and supervision at a rate not higher than provided for in Category (2), and shall not be duplicated under any other category. The estimated total of this category is a maximum.

Subcategory (a)—Initial rehabilitation and repairs of existing buildings, fixtures, and installations (exclusive of mine workings).—The estimated total of this subcategory is a maximum.

Subcategory (b)—Initial rehabilitation and repairs of operating equipment.—The estimated total of this subcategory is a maximum.

CATEGORY (6)—NEW BUILDINGS, FIXTURES, AND INSTALLATIONS (EXCLUSIVE OF MINE WORKINGS).—Estimates under this category include all requirements and related costs, such as labor, materials and supplies, and supervision at a rate not higher than provided for in Category (2), and shall not be duplicated under any other category. The estimated total of this category is a maximum.

CATEGORY (7)—MISCELLANEOUS.—Repairs and maintenance (other than initial) of operating equipment, analytical work, prints and other reproductions, accounting, Operator's share of payroll taxes, liability insurance covering employment, travel, communications, and any other items of requirement or cost that do not fall within any of the first 6 categories.

THE ESTIMATED TOTAL ALLOWABLE COST of the work is a maximum.

(b) *Nonallowable costs.*—The following costs are not allowable for contribution by the Government:

(1) *Costs of the land,* such as rental, depreciation, depletion, or other cost of acquiring, owning, or holding possession;

(2) *Indirect costs,* such as general overhead, corporate management, interest, taxes (other than payroll and sales taxes), insurance (other than liability insurance covering employment), damages to persons, damages to property (other than necessary repairs or replacements of equipment or other property used in the work);

(3) *Previous work* performed or costs incurred before the date of this contract; and

(4) *Deferred payments.*—Any costs incurred by the Operator under any rental-purchase agreement, installment-purchase agreement, or any agreement for the purchase of goods under the provisions of which payment of the full purchase price is deferred more than 90 days from the delivery of the goods; unless the purchase agreement is approved by the Government in writing.

(c) *Reductions in costs.*—The Operator shall account for and give the Government credit for any incidental benefits, credits, or money received in the ordinary course of business in prosecuting the work (as by salvage or sale of materials or equipment, furnishing of room or board, furnishing of power or services to third persons, rebates or discounts on purchases, etc.), in the same ratio in which the Government contributes to costs; and such amounts shall be treated as a reduction in costs incurred so that they are available for use within the limit of the original estimated total cost. This provision does not apply to receipts from production which are subject to the Government's percentage royalty under the provisions of Article 9.

ARTICLE 7. *Reports, accounts, audits.*—(a) *Operator's records.*—The Operator shall keep suitable records and accounts of the work performed and of any production in which the Government may have an interest; and shall preserve those with respect to work performed for at least three years after final payment by the Government, and those with respect to production for at least three years after any obligation to pay royalties to the Government has terminated. The Government may inspect and audit said records and accounts at any time, either by itself or by a certified public accountant. If the Government elects to audit said records and accounts relating to the exploration work by certified public accountant, it may do so as a cost of the work to which the Operator shall contribute. The Comptroller General of the United States or his representative, until the expiration of said three-year periods, shall have access to and the right to examine any pertinent books, documents, papers, and records of the Operator. All of the Operator's vouchers and records and accounts relating thereto and the Government's payments thereof remain subject to adjustment until final audit by the Government. If work under this contract is carried on in conjunction with any other operations, or if labor, supervision, services, materials, supplies, equipment, facilities, or other requirements for carrying on the work are also used in connection with other operations, the costs shall be segregated and accounted for on a basis and by methods and accounts that are satisfactory to and approved by the Government.

(b) *Progress reports and vouchers.*—The Operator shall provide the Government with five copies of monthly progress reports in three sections as follows: (1) Operator's Monthly Report and Voucher showing detailed costs incurred during the reporting period; (2) Operator's Unit Cost and Progress Report showing the various types of work performed during the reporting period and costs incurred for each type of work; and (3) a Narrative Report of the work performed during the reporting period including adequate engineering-geological maps or sketches, drill hole logs and locations, and assay reports on samples taken concurrently with advance in mineralized ground. (Forms for reporting under (1) and (2) above will be provided by the Government.)

(c) *Final report.*—Upon completion of the work or termination of the Government's obligation to contribute to costs, the Operator shall furnish the Government with 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 related costs incurred.

(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 8. *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 7) 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 therof 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 9. *Interests in purchased property.*—(a) *Title and ownership.*—All costs under this contract shall be incurred by the Operator in the Operator's own name and for the Operator's own account; but any property acquired to the cost of which the Government contributes shall belong to the Operator and the Government jointly in proportion to their respective contributions, although title thereto shall be taken in the name of the Operator.

(b) *Preservation of property.*—Until the final disposal of any property in which the Government has an interest the Operator shall preserve and protect same for the best interest of the Government, any reasonable and necessary costs thereof to be treated as an allowable cost of the project. After the completion of the work or termination of the Government's obligation to contribute, or when such property is not in use for or needed for the work, the Operator shall neither use it without the written consent of the Government nor without paying a reasonable rental to be fixed by the Government for its interest.

(c) *Disposal of property.*—Upon the completion of the work or termination of the Government's obligation to contribute to costs, or when the property is no longer needed for the work, the Operator shall promptly dispose of salable or salvageable property in which the Government has an interest for the joint account of the Government and the Operator, either by return to the vendor, by sale to others, or purchase by the Operator or the Government at a price at least as high as could be obtained from others, unless the Government in writing waives its interest in any such property. Without advance approval of the sales price by the Government the Operator shall not sell at any price any item of property the cost of which was more than $500, and shall not sell at less than 25 percent of the purchase price any item of property which cost $500 or less. The Government, in lieu of approving the sales price for any such item, may itself purchase the item at the best price which the Operator is able to obtain or himself cares to give. Property remaining upon any termination of the work shall be considered in groups or categories (such as drill steel, or explosives, or pipe, or rails), and if the original cost of the remaining unexpended portion of any such group or category is less than $50, the Government waives its interest therein. If necessary to accomplish the disposal of any item the Operator shall dismantle and sever it from the land, the cost thereof to be treated as a cost of the project.

(d) *Default of the Operator re disposal.*—If within 90 days after the completion of the work or termination of the Government's obligation to contribute to costs, or after the property is no longer needed for the work, or after such further time as the Government may in writing allow, the Operator has failed to sell or otherwise liquidate or dispose of any property in which the Government has an interest, the Government, at any time prior to final settlement under the contract, may pursue one of the following two courses: (1) the Government, by written notice to the Operator, may place upon such property what in its opinion is a fair valuation thereof, not in excess of the cost less 1.66 percent per month from the

date such property was purchased under this contract to the termination of said 90-day period; and such property shall thereupon be considered and accounted for as having been purchased by the Operator at the valuation so fixed by the Government; or (2) the Government may enter and take possession of such property wherever it may be found, and remove and dispose of it for the joint account of the parties.

ARTICLE 10. *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: (1) the Government shall be free of all obligation to contribute to costs not then incurred other than such as may be allowable under the provisions of the contract as necessary and incidental to winding up, reporting, and accounting; and (2) 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.

(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: (1) the Government shall be relieved of all obligation to contribute to costs not incurred when the notice was given, other than such as may be allowable by the provisions of the contract as necessary and incidental to winding up, reporting, and accounting; and (2) 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 10 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 11. *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 12. *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 13. *Changes and added provisions.*—

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By [signature]
Administrator, Defense Minerals
Exploration Administration

DAHL URANIUM MINE, INC.
(Operator)

By [signature]

[signature]

"Appd. Sol. Off."

Ching
Ellis
Talbot
Selfridge

I, [signature], certify that I am the [signature] secretary of the corporation named as Operator herein; that [signature] who signed this contract on behalf of the Operator, was then [signature] 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.

[signature]

[CORPORATE SEAL]

U. S. GOVERNMENT PRINTING OFFICE 16—70617-1

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EXPLORATION PROJECT CONTRACT
DAHL URANIUM MINE, INC.
DOCKET NO. DMEA-3885

ANNEX I

The land referred to in Article 2 of the contract form consists of the NE¼ of the SW¼, and Lots 6 and 7 of the SW¼, of Section 6, T. 28 N., R. 43 E., Spokane County, Washington. The land is shown on the attached map entitled "Sketch Map to Accompany D.M.E.A. Loan Application Draft #1."

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EXPLORATION PROJECT CONTRACT
DAHL URANIUM MINE, INC.
DOCKET NO. DMEA-3885

EXHIBIT "A"

Description of the Work

The work consists of exploration by bulldozer trenching, not to exceed 200 hours, to expose autunite-bearing fracture fillings and disseminations in decomposed quartz monzonite.

The first trench shall be excavated near a group of radioactive springs, in the area between two known occurrences of ore shown on the attached sketch map. The location of other trenches will be dependent upon the results of the first and subsequent trenching. The principal effort will be directed toward determining the lateral continuity of the deposits. The work shall be done with a Caterpillar D-8 dozer or equivalent unit, operating as fully as possible. Close supervision and direction of the work in the light of information obtained as the work progresses will be necessary, and such supervision and direction shall be provided by a full-time supervising geologist working in cooperation with Government field examiners. Representative channel samples shall be taken as the work progresses and analyzed for uranium.

The location, direction, and extent of all project work are subject to the approval of the Government.

Estimated Cost of the Project

Category (1) Independent Contracts

200 hours bulldozer work @ $16.00/hr. $3,200.00

Category (2) Personal Services

(a) & (b) Supervision and Technical Services

Geologist-supervisor, 1½ months @ $500.00/mo. $ 625.00

(c) Labor

Laborer, 10 days @ $12.00/day	$ 120.00	$ 745.00

Categories (3) through (6)

None

Category (7) Miscellaneous

Chemical analyses, transportation, etc.	355.00
Estimated Total Cost of the Project	$4,300.00
Government Participation @ 75%	$3,225.00

MF-203
Revised March 24, 1955

For Government's Use Only
EXPLORATION PROJECT CONTRACT
Operator _____
Docket No. DMEA- _____
Contract No. Idm-E _____
Contract Date _____

CONSENT TO LIEN

To the United States of America:

Referring to that certain land in the County of Spokane, State of Washington, described as follows:1/

NE¼ and Lots 6 and 7 of the SW¼ of Section 6, T28NR 45 E

in Spokane County, State of Washington

DMEA

which is the subject of a proposed exploration project contract, hereinafter called the "contract," with the United States of America, hereinafter called the "Government;" in consideration of the contract and as an inducement to the Government to enter into it, the undersigned hereby--

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

2. Grants to the Government a lien upon all of the undersigned's right, title, and interest in the land and upon any production of minerals therefrom to secure the payment to the Government of a percentage royalty on production as may be provided for by the contract;2/ and represents and undertakes that there are no claims, liens, or encumbrances upon the undersigned's right, title, or interest in the land prior to that hereby granted to the Government other than the following:3/

None

3. Undertakes and agrees neither to commit any act nor assert any claim in conflict with the provisions of this Consent to Lien; and to give advance notice of the Government's rights under this Consent to Lien to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, or interest in the land; and

None

1/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease [redacted] dated May 12, 1955, and recorded in book 54 page 626 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/ Mining or production from the land is not required, and in the absence of production there is no obligation to repay the Government.

3/ Write "none" if that is the case. Do not leave lines blank.

4. Consents to all amendments and assignments of the contract without notice thereof, and agrees that this Consent to Lien shall extend and apply thereto.

5. Added provision: None

Dated this 27th day of June, 1955.

Leonard Dahl [Seal]

Betty Dahl [Seal]

G. C. LaDow [Seal]

I, Harwood J. Tibbits certify that I am the Secretary (Secretary, etc.) of the corporation named herein; that G. C. LaDow who signed this agreement was then President (President or Vice-President, etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

Harwood J. Tibbits

[Corporate Seal]

[x] Audited

[ ] Certified

WORK ANALYSIS SHEET - DMEA PROJECT

Analysis as of Aug. 10, 1956
Incl. Voucher for Oct.-Nov., 1955

[X] Actual Cost

[ ] Agreed Unit Costs

Name Dahl Uranium Mine, Inc.

Docket No. DMEA-3885

State Washington

Commodity Uranium

Idm-E No. 858

OPERATION	AUTHORIZED Units	AUTHORIZED Cost	COMPLETED Units	COMPLETED Cost	NET COST
Drifting & Crosscutting					
Raising					
Shafts					
Winzes					
Drilling (Specify)					
Surface Excavation		$4,300.00		$3,945.00	$3,945.00
Underground Excavation					
Roads and Trails					
Operating Equipment Purchased					
Surface Rehabilitation & Repairs					
Underground Rehabilitation					
New Building, Improvements, etc.					
Other (Specify)					
Totals		$4,300.00		$3,945.00	$3,945.00

Prepared by Michael Ching

71626

Project Summary Report

By: Michael Ching Date: August 10, 1956

1. Docket No. DMEA-3885 (Uranium)
Contract No. Idm-E858

Operator - Dahl Uranium Mine, Inc.
405 Hutton Building
Spokane, Washington

Property - The NE¼ of the SW¼, and Lots 6 and 7 of the SW¼, of sec. 6, T. 28 N., R. 45 E., W. M. & B., Spokane County, Washington.

Operator's Property Rights -
Operator is the Lessee. Consent to Lien, dated June 27, 1955, signed by owners Leonard Dahl and Betty Dahl.

2. Contract - dated August 22, 1955 (Long Form)

Work Authorized

Not to exceed 200 hours (D-8 or equivalent unit) bulldozer trenching to expose autunite-bearing fracture fillings and disseminations in decomposed quartz monozite.

Estimated Costs:

200 hrs. bulldozer work @ $16.00/hr.	$3,200.00
Labor and supervision for 1½ months	745.00
Miscellaneous	355.00
Total	$4,300.00
Government participation @ 75%	$3,225.00

Amendments - None

Work Completed

Work was started Sept. 6, and completed in October, 1955. The 200 hours of bulldozer trenching were completed and the Operator did over 100 hours for his own account. One or more trenches of varying lengths were excavated in each of six areas on the property. Costs follow:

200 hrs. bulldozer work @ $16.00/hr.	$3,200.00
Labor	120.00
Supervision 1¼ mo. @ $500/mo.	625.00
Total	$3,945.00
Government participation @ 75%	$2,958.75

3. Auditor's Report of Review - dated May 15, 1956

Total cost as billed by contractor		$3,945.00
Exceptions	None	-- --
Total accepted cost		$3,945.00
Government participation @ 75%		$2,958.75

4. Certification of Discovery - None

5. Results and Comments.

The Operator was administratively and financially competent and extremely cooperative. It completed for its own account approximately 100 hours of bulldozing, a scintillator grid survey of the property, and 1,000 feet of percussion drilling, in addition to the work covered by the contract.

Trenching in 6 separate areas exposed or explored 11 autunite occurrences, mostly in steeply dipping fracture fillings of clay, quartz fragments, and decomposed quartz monzonite. The fillings average only 2 - 3 inches in width, are northward trending and have strike lengths ranging from a few feet to as much as 120 feet. Autunite occurs as thin, discontinuous veinlets and disseminations in the fracture fillings. Drilling by the Operator failed to show that the mineralized seams increase in width or grade at depth. Although the vein material is high grade in places, the seams are too narrow and discontinuous to be mined. During the term of the contract the Operator saved less than a ton of material, a composite sample of which assayed 1.55% U_3O_8. Nevertheless, no ore reserves can be inferred as a result of the project and there is no basis for a certification of discovery.

Michael Ching, Mining Engineer
Rare and Miscellaneous
Metals Division

MChing/ai 8-13-56
cc to: Admr.'s Reading File
Docket (Original)
Mr. F. E. Johnson
Code 700
Mr. Ching

XXXXXXXXXXXXXXXXXX
Sec. 157 Howard Street
Spokane 4, Washington

August 22, 1956

Leonard and Betty Dahl

Elk, Washington

Re: Docket No. DMEA-3885 (Uranium)
Contract No. Idm-2858
Dahl Uranium Mine
Spokane County, Washington

Dear Leonard and Betty Dahl:

Enclosed is a copy of a self-explanatory letter dated August 16, 1956 from our Washington office to the Operator of the Dahl Uranium Mine, Inc., closing the subject contract.

Very truly yours,

D. F. Maclaren
for: A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region I, NW District

Enclosure

cc: DMEA (2)
USBM (2)

RECEIVED
AUG 27 1956

DMEA: as per your request of August 16, herewith are the two copies of transmittal letter.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

8/17/56

August 16, 1956

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee

From: John E. Crawford, Bureau of Mines Member
Uranium Commodity Committee

Subject: Report of Examination, DMEA Docket 3885, Dahl Uranium Mine, Inc., Dahl Uranium Mine, Spokane County, Wash.

I have reviewed the report of examination, DMEA Docket 3885, Dahl Uranium Mine, Inc., Dahl Uranium Mine, Spokane County, Washington, dated July 1956 and received in this office August 6. I have also discussed it with Joseph O. Hested, Washington representative of the Atomic Energy Commission.

The field examiners recommend that no certification of discovery or development be issued inasmuch as the exploration work did not result in the discovery or development of uranium ore.

We concur in the recommendations of the field team.

The report is being forwarded to the Chief, Division of Minerals, in accordance with the routing slip attached thereto.

John E. Crawford

RECEIVED
AUG 17 1956

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

August 16, 1956

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee

From: John E. Crawford, Bureau of Mines Member
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John E. Crawford

RECEIVED
AUG 17 1956

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

Mr. A. E. Weissenborn
Executive Officer
DMEA Field Team, Region I
Northwest District
South 157 Howard Street
Spokane 4, Washington

Re: Docket No. DMEA-3885 (Uranium)
Contract No. Idm-2058
Dahl Uranium Mine, Inc.
Dahl Uranium Mine
Spokane County, Washington

Dear Mr. Weissenborn:

Enclosed for your files are two copies of a letter to the Operator closing the subject contract.

Since a complete address for Leonard Dahl and Betty Dahl, owners who signed the Consent to Lien, dated June 27, 1955, is not available in our files, we are also enclosing an extra copy to be forwarded by your office to the proper address. Please supply us with two copies of the letter of transmittal.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

MChing/gla
8-13-56
cc to: Admr.'s Reading File
Mr. Johnson
Docket
Operating Committee
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA
Code 700
Mr. Ching
Contract Adm. & Audit Division

Enclosure

APPROVED:

FRANK D. LAMB
Member, Bureau of Mines

N. E. Nelson
Member, Geological Survey

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

254

Mr. G. C. LaDew, President
Dahl Uranium Mine, Inc.
405 Hutton Building
Spokane, Washington

Re: Docket No. DMEA-3885 (Uranium)
Contract No. Ida-2858
Dahl Uranium Mine
Spokane County, Washington

Dear Mr. LaDew:

Reference is made to your completed exploration contract with the Government.

We sincerely regret that the work performed did not result in a certification of discovery or development under the provisions of the contract. In the absence of such certification, the Government retains no claim or lien against the property subject to the contract or any future production therefrom. We, therefore, are closing our books and records on this project. Your attention, however, is called to the provisions of the contract which require the operator to keep and preserve certain records for the period indicated.

Your interest in the DMEA exploration program and participation therein are fully appreciated.

Sincerely yours,

E. O. Wittenberg

Administrator

Copy to: Leonard Dahl and Betty Dahl

MChing/gla
8-13-56
cc to: Admr.'s Reading File
Mr. Johnson
Docket
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JCHosted, Rm. 3210, GSA
Code 700
Mr. Ching
DMEA Field Team, Region I, NWDist. (2) Contract Adm.& Audit Division

[redacted]
No. 157 Howard Street
Spokane 4, Washington

July 26, 1956

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

Re: Contract No. DMEA-1085 (Uranium)
Dahl Uranium Mine, Inc.
Dahl Uranium Mine
Spokane County, Washington
Contract No. Idm-858

Dear Mr. Selfridge:

Enclosed are four copies of a Field Team final report written by Margaret R. Lisbon, Mining Engineer, Bureau of Mines, and Donald C. Alvord, Geologist, Geological Survey, on the Dahl uranium mine.

The writers state that no ore reserves can be inferred as a result of the DMEA exploration, and a Certification of Discovery or Development is not recommended.

The Field Team concurs in the recommendations of the writers.

By Field Team, Region 1, Mr Dist.

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

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

Enclosure 1 (in quad.)

cc: [redacted] (2)
[redacted]
[redacted], Salt Lake
[redacted], Spokane
[redacted]
Alvord

8-6-56

Final Field
Team Report

DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

FIELD TEAM, REGION I
Northwest District

RECEIVED
AUG - 1 1956

FINAL REPORT

Contract Idm-E858

by

Margaret R. Lickes
Mining Engineer
U. S. Bureau of Mines

Donald C. Alvord
Geologist
U. S. Geological Survey

DAHL URANIUM MINE, INC.
405 Hutton Building
Spokane, Washington

Docket No.:	DMEA-3885
Commodity:	Uranium
Contract date:	August 22, 1955
Completion date:	November 30, 1955

Reviewed by
DMEA OPERATING COMMITTEE
8-6-56
(date)

DAHL URANIUM MINE
Spokane County, Washington

Spokane, Washington

July 1956

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ILLUSTRATIONS
(In pocket)

Plate

1 Map showing location of some autunite deposits in the Mt. Spokane autunite district. Scale 1" = 4,000'

2 Dahl Uranium Lease

FINAL REPORT

DAHL URANIUM MINE, INC.
Dahl Uranium Mine
Spokane County, Washington

Contract Idm-E858

RECEIVED
AUG - 1 1956

* * * *

INTRODUCTION

This report describes an exploration project for uranium at the Dahl lease southeast of Elk, Spokane County, Washington. The project was conducted by Dahl Uranium Mine, Inc., under Defense Minerals Exploration Administration Project Contract No. Idm-E858.

Summary

The project was designed to explore for, and determine the lateral continuity of, autunite deposits at a Dahl Uranium Mine, Inc. property.

A total of 200 hours of D-8 dozing was completed under the contract. The company did an additional 100 hours of D-8 dozing on its own. This work discovered or explored 11 autunite occurrences that are for the most part in steeply dipping fractures filled with clay, quartz fragments, and decomposed quartz monzonite. The fracture fillings average only 2-3 inches in width and are northward trending with known strike lengths ranging from less than 10 feet to as much as 120 feet. Autunite occurs as thin, discontinuous veinlets and disseminations in the fracture fillings. Diamond and wagon drilling by the Operator failed to show that the autunite seams increase in width or grade at depth.

Less than a ton of ore was saved by the Operator during the term of the contract; this represented the best material available from the trenches in such quantity. A DMEA composite sample of this material chemically assayed 1.55 percent U_3O_8.

Cost of the portion of the work completed under the DMEA contract was $3,945.00.

Recommendations

No ore reserves can be inferred as a result of the DMEA exploration, and a Certification of Discovery or Development is not recommended.

Although the vein material discovered on the property is in places high grade, it is too narrow and discontinuous to be mined. Further exploration by the Operator to test the deposits at depth and to search for structures likely to have localized ore in larger deposits than those presently known, is tentatively planned. Government participation in such additional exploration, however, is not warranted with present knowledge.

LOCATION AND ACCESSIBILITY

The Dahl property comprises the NE$\frac{1}{4}$ of the SW$\frac{1}{4}$, and Lots 6 and 7 of the SW$\frac{1}{4}$, all in sec. 6, T. 28 N., R. 45 E., W.M., Spokane County, Washington.

The property can be reached from Spokane by traveling north 14.5 miles over U. S. Highway 195 to Chattaroy, Washington, thence east and northeast 12.6 miles over a paved secondary road, east 4.4 miles over a winding graveled road, and east 0.5 mile over a poorly kept dirt road.

The Dahl lease is on the northwest foothills of Mt. Carson, a subsidiary peak adjoining Mt. Spokane. Altitudes on the property range from 2,800 feet on the west to 3,150 feet on the north. The topography is rolling, with gentle to moderate slopes.

The annual rainfall is 18 to 20 inches. The climate is hot and dry during the summer, and moderately wet and snowy during the winter. Probably little difficulty due to weather would be encountered in continuing a year-round surface operation.

The forest growth consists of fairly dense stands of pine, fir, and tamarack, with considerable deciduous underbrush. Springs and seeps, some of which are radioactive, are common.

PROPERTY

William D. Weaver leased the land included in the contract from Leonard and Betty Dahl in a lease dated May 12, 1955, and recorded in book 54, page 626 of the official records of Spokane County, Washington. Weaver assigned the lease to Dahl Uranium Mine,

Inc., Mary 31, 1955. Leonard and Betty Dahl and G. C. LaDew, president, Dahl Uranium Mine, Inc., signed the consent to lien that accompanied the contract.

During the winter of 1954-55, William D. Weaver prospected the area with a scintillator and subsequently leased it from the Dahls. Exploration prior to the contract consisted of shallow diamond drilling, prospect pits, and a limited amount of bulldozer trenching.

No production has been made from the property.

GEOLOGY

Mt. Spokane Autunite District

In the Mt. Spokane district autunite occurs as coatings and fillings of fractures and shears in quartz monzonite. Autunite was first recognized in the district in sec. 11, T. 28 N., R. 44 E., in late December 1954 (pl. 1). By April 1956 autunite deposits were known as far north as sec. 32, T. 30 N., R. 45 E., and as far south as sec. 8, T. 27 N., R. 45 E. As presently known, the deposits are mostly within a northward-trending zone, about 14 miles long and 3 miles wide, that lies about 3 miles west of Mt. Spokane.

L. D. Jarrard and W. S. Moen (Uranium in the Northwest: published by the authors, P. O. Box 136, Butte, Montana, 1955) describe the district in one page. In addition, certain aspects of glaciation affecting the autunite district are described by R. F. Flint (Pleistocene drift border in eastern Washington: Bull. of the Geol. Soc. of Am., v. 48, p. 203-232, 5 plates, 1 fig., 1937).

The geology of nearby areas is described by C. E. Weaver (The mineral resources of Stevens County: Washington Geol. Survey Bull. No. 20, 1920) and C. F. Park, Jr., R. S. Cannon, Jr., (Geology and ore deposits of the Metaline quadrangle, Washington: U. S. Geol. Survey Prof. Paper 202, 1943).

Principal features

The Mt. Spokane autunite district is underlain by a large granitic pluton that is contiguous with the plutonic masses mapped as the Kaniksu batholith of Cretaceous age on the north (Park and Cannon, 1943) and as the Loon Lake granite of Cretaceous age on the west (Weaver, 1920). The pluton has intruded sedimentary rocks of Precambrian and Paleozoic age; but except for a few small xenoliths at the north end, none of these rocks are within the autunite district. The nearest exposed contacts between the pluton and the intruded sediments are about 18 miles both to the north and to the

west. Miocene continental sediments and lavas cover the pluton 2-3 miles west of the autunite district. During Pleistocene time continental ice of the youngest (Wisconsin) stage locally lapped the foothills of Mt. Spokane and Mt. Carson to altitudes exceeding 3,000 feet (Flint, 1937, fig. 1), but in the vicinity of the autunite district glacial debris is rare above 2,700 feet.

Below the glacial drift border and within the district deposits of gravel, sand, and clay, 10-30 or more feet thick, cover much of the bedrock. These sediments constitute an obstacle to prospecting the bedrock and exert a limiting influence on the known westward extent of the Mt. Spokane autunite district.

Weathering

Pre-Wisconsin-stage weathering (Flint, 1937, p. 219) characterized by kaolinization of feldspars and bleaching of biotite has deeply altered the granitic bedrock throughout the Mt. Spokane region and in the adjacent areas of Stevens County to the west and Pend Oreille County to the north.

Within the autunite district the quartz monzonite has been locally weathered to an end product of quartz and clay. Residual soils range in thickness from a few inches to 5 or 6 feet, depending upon the slope. Outcrops of bedrock are sparse and with rare exception weathering has rendered the rock friable.

At most localities the weathering has been deep and has so softened the quartz monzonite that the upper 10-25 feet of bedrock can be trenched by dozer without drilling and blasting. The bedrock generally is least altered and toughest in those portions of the district that are below the glacial drift border; here, presumably, ice action has removed much of the weathered bedrock. Dozer trenching in these areas usually must be accompanied by drilling and blasting.

Radioactive springs

Both perennial and intermittent springs are abundant throughout the district. The waters from many of these are more radioactive than their surrounding terranes. Presumably these radioactive waters are leaching uranyl ions from uranium-bearing rock through or over which they have moved.

Country rock

The dominant rock at localities peripheral to the Mt. Spokane autunite district is biotite quartz monzonite; it is locally cut by abundant simple segregation-type pegmatites. It appears,

however, that the rock of the autunite district has been altered to a lighter colored rock, with white mica dominating over biotite. The ratio of biotite to white mica varies widely, but the more intense bleaching occurs in areas where pegmatites are abundant and where there are well-developed shear zones. Specimens containing biotite remnants in white mica are common; the contacts between the two micas are in some cases sharp, but they are usually diffuse. At some localities biotite is entirely replaced by white mica, and a white mica porphyry has been noted at scattered localities.

Probably the white mica facies, characteristic of the district, was formed from the biotite facies during a deuteric or hydrothermal stage of the consolidating pluton.

Structure

Structural features within the district include: sheet parting probably due to unloading, mineral segregation and preferred orientation of mineral grains, several sets of joints, and large flat- to moderate-dipping shear zones.

Exploration in the district has disclosed several shear zones that are closely associated with the more promising deposits and that may have controlled their localization (pl. 1). The shear zones strike westward to west-northwestward and dip 15°-45° N.; some may be nearly flat lying. They range in thickness from at least 10 to 50 feet or more and are inferred to be several thousand feet long. Gouge layers may range in thickness from an inch or less to 1 or 2 feet. Portions are strongly silicified; clay and white mica are everywhere abundant; chlorite is present in small amounts. Nothing is known regarding the displacement along these shears.

Jointing of the quartz monzonite is abundant throughout the district. A sufficient number of joints were mapped over the northern and central portions of the district to indicate two predominant sets; one strikes N. 15°-50° W. and the other strikes N. 50°-85° E. At a given locality these sets agree in strike and dip within 5° or 10°, but over the whole area their dips range from 45° to 90° in either direction. A less prominent, flat-lying set is present at most localities. Minor joints are numerous throughout the district. Many of the joints are filled with poorly sorted mixtures of clay, quartz, and granitic fragments; in places these fillings are strongly stained with limonite and in spots they are slightly calcareous.

Ore deposits

The uranium deposits are characterized by massive aggregates of autunite crystals encrusting and in places filling joints, small faults, and irregular minor fractures in the quartz monzonite. The vein fillings are commonly localized along lithologic discontinuities, such as between a pegmatitic dike and the country rock or between an aplitic dike and a pegmatitic dike. Lesser amounts of autunite occur as disseminated crystals or scales along grain boundaries and other minute openings in the quartz monzonite. The more promising deposits are found where joints, and in some cases small faults, are roughly parallel and closely spaced, dip at moderately steep angles and are cut off at depth by a moderate to gently dipping shear zone. In such deposits most of the ore occurs along the conspicuous partings in the quartz monzonite-pegmatite-aplite complex and within the upper portions (hanging-wall zone) of the underlying flat to moderately dipping shear zones; important amounts, however, may also occur throughout the width of the shear zone.

Breccia fragments and residual clay mixed with quartz fragments and white mica erratically fill portions of most of the autunite-bearing fractures. Autunite crustifications that leave the walls of the joints penetrate the clay-quartz fillings along very erratic paths. Autunite also occurs as disseminated crystals within this material.

No evidence of replacement by the autunite has been observed nor, other than the residual clay-quartz fillings mentioned above, are there minerals that might be properly classed as gangue. The only uranium-bearing mineral known in the deposits is autunite, although recent studies indicate that the individual autunite crystals may be complexes of meta-autunites and autunite containing microscropic centers of uraninite (Mary Mrose, U. S. Geol. Survey, written communications, 1955-56).

Although mining in the district has thus far been confined to shallow depths, at the Wisemore lease (pl. 1) autunite-bearing rock of probably commercial grade has been penetrated by three widely spaced drill holes at depths of 192, 250, and 300 feet, respectively (C. R. Echlin, Secretary, Dawn Uranium and Oil Company, oral communication, 12/30/55, and company maps).

Origin of the deposits

Certainly the fact that the more promising autunite deposits in the district are localized along or near well-developed shear zones that contain abundant clay, white mica, and minor amounts of chlorite, together with some strongly silicified material, indicates a possibility that the uranium was emplaced by hydrothermal

solutions. The recent preliminary observation of probable uraninite centers in crystals of autunite from the district is additional evidence of a hydrothermal emplacement; nevertheless a hypothesis involving only supergene processes can be justified.

The presence of white mica, clay, chlorite, and silicified zones in the shears suggests hydrothermal activity but is not conclusive evidence of it for these effects could have been brought about by acid ground waters. The effects of the deep weathering throughout the region greatly confuses the situation as the deposits have not been exposed at depths of more than 30 feet. Actually, hydrothermal or deuteric alteration of the rock at some localities in the district is considered probable (p. 4); this alteration, however, may have taken place during the normal cooling stages of the pluton before the emplacement of the autunite. If the uranium were carried by hydrothermal solutions, even telethermal, some evidence of these solutions should be manifested by the presence of primary minerals (or their alteration products) characteristic of such solutions, or by replacement phenomena, unusual amounts of silicified material, carbonate veins, etc. These are lacking.

The possibility that the autunite deposits are merely residual evidence of the weathering of huge masses of an average acidic pluton such as the Mt. Spokane pluton is remote. Even though sufficient uranium (3-4 ppm) is present in such rocks, why, out of thousands of square miles of similar rocks that have undergone essentially the same climatic conditions, did autunite choose to localize in economic concentrations only in the Mt. Spokane district?

It is more likely that late-stage enrichment in uranium-bearing accessory minerals (including apatite) locally produced a uranium-rich facies in the roof zone of the Mt. Spokane pluton. Weathering in pre-Wisconsin times (p. 4) produced ground waters rich in uranyl (UO_2^{++}) cations and phosphate (PO_4^{---}) anions. These uranium-rich waters percolated preferentially along the larger, more permeable openings in the underlying or surrounding country rock. Clay, limonite, and calcite, already present and contemporaneously forming within the shear zones and larger joint partings, acted as natural cation exchange cells with high exchange capacity. As the H^+ cations of phosphoric acid solutions are strongly and rapidly exchanged in such cells, the pH of the ground waters was drastically altered, effecting the coprecipitation of both the uranyl and phosphate ions. Over a period of time these ions combined with the calcium ions and water present in the shears and joints to form autunite [$Ca(UO_2)_2(PO_4)_2 \cdot 10\text{-}12\ H_2O$]. It is believed that autunite accretion is no longer taking place; local solution and redeposition, however, is taking place.

The Dahl Uranium Mine, Inc. Property (Dahl Lease)

The property is underlain by quartz monzonite that for the most part is coarse grained and intruded by a number of aplite and simple pegmatite dikes; locally the grain size of the quartz monzonite may be medium to fine, and in places aplite and pegmatite dikes are comparatively uncommon.

The bedrock is covered with from 1 to 4 feet of yellowish-gray to pale-gray loose, coarse, sandy loam that grades downward to pebble-sized fragments of "rotten" quartz monzonite intermixed with minor amounts of finer rock fragments and clay. The upper few feet of the bedrock is essentially saprolite and so strongly weathered that structural features, such as joints, are obscured. In most places the bedrock can be trenched to a depth of 10 or 15 feet without drilling and blasting; however, the overburden and soft saprolitic zone of the bedrock slough rapidly to conceal or obscure the geology of the walls and sills of trenches.

At many localities in the district deep weathering and consequent slope creep has resulted in considerable distortion of the structural features of the bedrock. This distortion is observable at many points on the property but is best illustrated in the south-trending southermost cut of Area A (pl. 2, Wall Diagram A). Examination of the walls in this cut indicates that the effect of slope creep has extended to depths approaching 15 feet.

The quartz monzonite contains about 25 percent quartz, equal amounts of potash, feldspar, and plagioclase, and 5-10 percent mica. The ratio of biotite to white mica varies widely; where the rock is freshest biotite is conspicuous, but where the rock is moderately to strongly weathered or altered, biotite may be entirely replaced with white mica. The areas most deficient in biotite contain the greater concentrations of pegmatite dikes.

The pegmatite dikes chiefly occur as irregular stringers and long narrow tabular bodies, and locally as very irregular bodies. They range in size from barely noticeable veinlets to dikes 10 feet or more wide with probable lengths of several hundred feet. Aplite dikes associated with the pegmatitic dikes are fairly common, the aplitic material most often marginal to the pegmatitic masses but sometimes transecting or enclosed within them. The contacts between the dikes and the enclosing quartz monzonite may be either sharp or gradational.

The pegmatite dikes are chiefly composed of potash, feldspar, plagioclase, quartz, and white mica; fine garnets are present in some. Much of the quartz is smoky. Most pegmatite dikes have mineral grains ranging between 1 and 2 inches in diameter, but some

contain grains of quartz and feldspars as much as 8 inches in diameter. Mineral zoning was not observed, but vermicular and graphic intergrowths are most common near the borders of the dikes.

Jointing is widespread, the two most prominent sets striking northeastward and northwestward, with moderate to steep dips in either direction. Most of the pegmatite dikes appear to have been controlled by these two joint sets. A flat to gently dipping sheet jointing was observed at almost every exposure. In a high percentage of these cases the sheet jointing closely parallels the present topography and is believed to be from relief due to erosional unloading.

Where the rock is comparatively fresh, biotite and other mineral grains have a preferred orientation.

Trench Area A

The project was started in Area A to test the ground in the vicinity of four radioactive springs or seeps and two occurrences of autunite (pl. 2).

The first cut was made between two radioactive springs at the north end of the area. At its deepest this trench was about 26 feet deep and exposed a clay-rich overburden underlain with strongly weathered pegmatitic quartz monzonite. The trench filled rapidly with water and slumped badly so that by the first geologic inspection only the south wall of the southeast end was accessible. This wall exposes a narrow seam of clay, mixed with quartz fragments and minor amounts of white mica. Autunite occurs within the seam as disseminated crystals and small clusters and veinlets. The seam is concordant with the domal surface of a mass of relatively unjointed but strongly weathered granitic pegmatite (pl. 2, Wall Diagram C). Limonite, staining the quartz-clay matrix, varies irregularly from complete absence to moderate intensity. The seam ranges in width from less than 1 inch to about 3 inches. It may represent a joint parting between the pegmatite and quartz monzonite that has been enlarged through alteration by ground waters or possibly hydrothermal waters, the sandy clay filling being a residue of the alteration effect. Locally the grade of the seam appeared to be quite high (order of 1 percent U_3O_8 or better), but it was not sampled. A diamond drill hole about 15 feet south of the seam penetrated thin autunite-bearing zones at 32 and 54 feet below the collar.

Across the road, about 100 feet northeast of this occurrence, two small cuts (not mapped) disclosed fine disseminated crystals and coatings of autunite along vertical joints in the quartz monzonite and on parting surfaces of a pegmatite.

A promising autunite-bearing seam was found in the north-trending cut on the eastern edge of Area A. This seam averages 3 inches in width, has a strike length on the order of 100 feet and dips 40° W. The autunite occurs as disseminated crystals and veinlets within a matrix of rotted rock, quartz fragments, and clay. A sample of a 21-foot autunite "shoot" along the seam averaged 1.77 percent U_3O_8. The seam is in a parting between the lower surface of a thin, tabular, quartz-rich pegmatite and the underlying quartz monzonite. The Operator reported a small autunite occurrence in a pegmatite high in the west wall at the south end of the trench.

Small, thin, generally irregular-shaped pegmatite and aplite dikes are locally present in the walls of the trench. A dominant planar jointing or parting, almost foliate in appearance, occurs in the upper few feet of the walls. This parting dips eastward, roughly parallel to the slope surface of the hill.

The trenches in the south portion of Area A explored two small autunite occurrences associated with pegmatite dikes. The northernmost of these occurrences was already partially explored before the beginning of the project. The south-bearing cut retreated this showing about 10 feet westward to its present exposure, but its extent or grade did not change significantly. Most of the autunite presently exposed occurs as very fine disseminated crystals in a 2-inch-wide, quartz-clay seam immediately above an arched pegmatite (pl. 2, Wall Diagram B). The original exposure had disclosed disseminated crystals and fine fracture fillings in strongly weathered quartz monzonite.

Autunite was discovered about 50 feet south of this occurrence at the intersection of the southernmost trenches. Initial dozer work exposed a poorly defined north-trending zone of autunite crystals disseminated in sheared and altered quartz monzonite. As the Operator continued to trench down, however, the autunite zone weakened and plunged westward away from the hanging-wall surface of a pegmatite dike (pl. 2). At present this zone is so lean that only a careful search will find even a single crystal of autunite.

In the north-central portion of Area A, near Station 14, an autunite occurrence partially exposed in a pit and explored with three diamond drill holes prior to the contract was further explored by trenching. The trenching exposed a poorly defined zone of disseminated crystals and aggregations of crystals of autunite in strongly weathered coarse-grained quartz monzonite. The zone covered an area of about 6 square feet, but its attitude could not be determined. The Operator reports that a thin autunite-bearing zone was penetrated 45 feet below the collar in one of the holes north of this deposit.

The westernmost trench of Area A disclosed a small shear in which autunite occurs as small aggregates or clusters of crystals and sparsely disseminated individual crystals. Although the shear was traced along its northwest strike for about 25 feet, only about 5 feet of it showed visible autunite, the remainder being weak to strongly radioactive. The shear varies erratically in width, from less than 2 inches to about 6 inches, and dips steeply to the northeast. Both quartz monzonite and pegmatitic material are traversed by the shear, the bulk of the autunite occurring in the country rock close to the pegmatite.

Immediately south of this occurrence the trench exposes a zone of quartz monzonite and pegmatite that is more intensely altered than the average bedrock of the area. This zone has a very pale pinkish-white cast and is much lighter than the light to pale grays characteristic of the rock in the general area. Viewed from a few feet, the rock exposed in the walls appears to have a fabric and structural features about the same as those of the average rock on the property, but when examined in a hand specimen, the individual mineral grains appear to have been partially crushed. Under the hand lens the rock is seen to consist of quartz grains and muscovite in a matrix of clay with fine sericite and occasional grains of rotten feldspar. This comparatively intense alteration may indicate the proximity of a shear zone, possibly a portion of the zone present on the Huffman lease to the west (pl. 1).

The only other evidence of an extensive shear on the property is from a diamond drill hole in the extreme southeastern corner of Area A. This hole reportedly penetrated a shear zone 15 feet wide at 45 feet and a thin zone of autunite at 54 feet.

Trench Area B

A single trench with a maximum depth of about 20 feet explores this area (pl. 2). The rock exposed in this trench is markedly fresher than the average rock of the property. Although the plagioclase grains are altered to clay on their surfaces, the orthoclase is more nearly fresh. Biotite is only moderately bleached except near aplite dikes. In addition, the lack of sloughing compared with other pits in the area is conspicuous, and the rock is generally much tougher to break, usually requiring a hammer.

Medium- to fine-grained quartz monzonite makes up the bulk of the rock in the trench although coarse-grained material is not uncommon. Pegmatite dikes are rare, but thin quartz-rich aplite dikes are locally fairly abundant.

The finer grained quartz monzonite at this trench is schistose. Due to the freshness of the rock joints are also

conspicuous. The joints strike both northeast and northwest and dip moderately to steeply in both directions.

The Operator reports a few scattered crystals of autunite in the north wall of the trench; otherwise the trench was barren. Three diamond drill holes in the floor of the trench were also barren.

Trench Area C

Exploration in Area C discovered two occurrences of autunite (pl. 2).

The northernmost autunite occurrence consisted of a fairly high-grade zone of autunite crystals in rotten rock above a small pegmatite. Both the pegmatite and the autunite zone strike northeast and dip 40° S. Hand trenching showed that the autunite zone has only a foot or two of strike and plunge length.

The autunite deposit at the southwest end of Area C consisted of disseminated autunite crystals and veinlets in a seam of quartz-clay and strongly altered country rock. Autunite is concentrated irregularly along the seam and "pairs" of samples were taken from the two best looking localities. The assay results shown in "pairs" on plate 2 are from samples gouged both along strike and down dip.

The relationship of this seam to the quartz monzonite and pegmatites was obscured both by the strong alteration of the rock and by slough material. The rock exposed in the cuts transecting the seam was quartz monzonite interpenetrated with a complex maze of pegmatitic and aplitic dikes. The long tabular pegmatite dikes to the north that were traced southwestward to the vicinity of these cuts could not be differentiated in the cut walls themselves.

Eight holes were drilled in the vicinity of the autunite occurrences of Area C; two of these holes penetrated thin seams of autunite.

No unusual radioactivity was found in the trench extending for about 1,000 feet northeast from Trench Area C. Mapping of the southern portion of this trench showed the pegmatites have a general northeast trend but are, for the most part, greatly complicated by associated aplitic dikes. The country rock is dominantly biotite deficient.

Trench Area D

About 1,600 feet of bedrock is traversed in Trench Area D (pl. 2), but unusual radioactivity was found at only one locality. This anomaly was noted near the surface, but extending the cut to a depth of 15 feet failed to disclose visible autunite.

The bedrock exposed in these trenches contains less biotite than the average rock on the property and locally is biotite free. The pegmatite dikes range in texture from aplitic to pegmatitic with grains of feldspar and quartz as great as 8 inches in diameter and mica books up to 3 inches in diameter. The pegmatite dikes have an average northwest trend but locally may strike in any direction and frequently are curved. Graphic and vermicular intergrowths are common, particularly along the margins of the pegmatite dikes.

Trench Area E

Two small trenches in Area E (pl. 2) expose a series of small north- to northeast-trending granite pegmatites cutting deeply weathered quartz monzonite. The pegmatites are abundant but generally thin and with irregular trends. Few of the pegmatites were mapped because of scale limitations and because slough material covers much of the sill and walls of the trench.

A few small blades of autunite interleaved with a white mica book in pegmatite was exposed on the south wall of the larger cut. Two holes drilled from the floor of the larger trench were barren.

Trench Area F

The trench in Area F (pl. 2) exposed strongly weathered quartz monzonite abundantly shot through with very irregular pegmatites. Locally the contacts between the country rock and pegmatite are macroscopically sharp but mostly are diffuse and transitional. The pegmatites ranged in grain size from aplitic to pegmatitic with crystals of feldspar and quartz commonly ranging in diameter between 2 and 4 inches. A small amount of pink feldspar is present in this cut.

A weak radioactive anomaly was noted during the cutting of this trench but continuing the trench to about 10 feet in depth failed to disclose autunite. Some autunite was uncovered in the road at a point just northeast of the dump of Trench "F." The autunite was present as fairly strong but discontinuous veinlets in a narrow seam of kaolin and limonite. A small amount of dozing and hand trenching showed the autunite occurrence to be limited to a very shallow zone only a few feet long.

Other areas

All of the roads shown on the map, excepting the one leading from Trench Area E northeastward off the property, were made by the Operator. These roads generally were scraped through the soil cover to expose decomposed bedrock more or less over their entire lengths. All roads made during the program were carefully traversed by the Operator with a scintillator, and the deposits found in Areas C and F were discovered in this manner.

Scintillator readings were also made on 100-foot centers over the entire property. According to the Operator no anomalies worth noting were found, and no autunite occurrences were disclosed as a result of this survey.

THE PROJECT

At the time the project was proposed, geologic justification for exploration was strong. The property is in a district containing autunite deposits, some of which appeared to be of commercial value. Practically nothing was known concerning the origin, distribution, size, and habit of these deposits nor had their potential for production been tested.

The applicant's property contained two small pits exposing autunite-bearing rock that assayed as high as 10.0 percent U_3O_8 and averaged an estimated 1.0 percent U_3O_8. Autunite had also been penetrated in a drill hole near each of these occurrences; otherwise, nothing was known of their extent. In addition, five anomalously radioactive springs on the property, and an occurrence just outside the north boundary of the property, indicated that other autunite deposits were present.

Work by the company before the contract included half a mile of bulldozer road to the property, test pits, shallow diamond drilling, and a limited amount of trenching with a small bulldozer. Results of the diamond drilling were disappointing because core recovery in the highly weathered quartz monzonite was extremely poor.

The contract, dated August 22, 1955, authorized essentially the work requested in the application: 200 hours of D-8 bulldozing. Work started September 6, 1955, with trenching just north of the company's DDH No. 1 which had shown radioactivity at 32 feet. Trench 1, in Area A, was deepened to the limit possible with the dozer, then drilled and blasted to a depth of 26 feet. The horizon sought was not reached, but autunite was disclosed in a small seam in the south wall of the trench. Trench 2 in Area A and Trench 3 in Area B were deepened to dozer capacity, and Trench 2 was also drilled and blasted.

At the suggestion of DMEA examiners the remainder of the work was spent in shallow bulldozer trenching to explore a larger area with available funds. This work exposed the best showing found during the trenching program.

Project work continued through October 31, 1955. More than 300 hours of bulldozing were completed, to 200 hours of which the Government contributed 75 percent of the cost, or $2,958.75.

The exploration failed to find autunite-bearing seams sufficiently wide or continuous to constitute ore, and no reserve calculations are warranted.

Summary of Factual Data

Units of work completed and their cost to the contract are:

Item	Units	Unit cost	Total cost
Bulldozer work	200 hrs.	$19.725*	$3,945.00

*Labor and supervision prorated.

Total amount of contract	$4,300.00
Government's share at 75 percent	$3,225.00
Total amount expended	$3,945.00
Government's participation	$2,958.75
Total amount unexpended	$ 355.00
Government's share unexpended	$ 266.25
Royalty payments received	none

There was no production from the property during the term of the contract. No equipment was purchased with Government participation.

Discussion of Conclusions

Project work was completed under contract with the Hunter Construction Co. of Spokane, Washington. Bulldozing exceeded by 50 percent the amount covered by the contract; the additional exploration was performed at company expense as was a scintillator grid survey of the property and, subsequently, 1,000 feet of percussion drilling.

The Operator was administratively and financially competent and extremely cooperative. No difficulties of any kind were encountered in the administration of the contract. The Operator's maps and final report have been received.

Exploration Possibilities

The only feature presently known that affords a target larger than the deposits themselves and that is common to the more promising deposits of the district is the gentle- to moderate-dipping shear zones. These shears strike west to northwesterly and apparently are distributed along a north-trending belt. Such zones should be detectable with conventional exploration methods such as trenching and drilling; therefore, trenches or lines of drill holes bearing south or slightly west of south, would be likely to encounter these shears, if present.

The shear zone found on the Huffman lease is very tentatively inferred to extend into the Dahl on the basis of the unusual bleaching found in the westernmost cut of Area A and from material penetrated in the diamond drill hole in the southeast corner of Area A (p. 11). It may also be tentatively inferred from the alignment of deposits west of the Dahl property on the Huffman and Long Lake Lumber properties, with the bulk of the occurrences in Areas A, B, and C of the Dahl.

The trenching and drilling presently completed on the Dahl property has adequately tested the area of this inferred shear. Additional exploration east of Areas A and B (pl. 2) might be worth-while, but it is believed that Government participation in such work is not justified at this time.

Enclosures
Distribution:
DMEA(4)
USBM(5)
USGS(SRO)
Docket
AEC, Salt Lake
AEC, Spokane
Kaiser
Alvord

Maps received with Final Field Team Report

Mr. Eccles

July 17, 1956

Memorandum

To: Administrator

From: George C. Selfridge, Special Assistant

Subject: Examination Trip
Docket No. DMEA-3885 (Uranium)
Dahl Uranium Mine, Inc.
Dahl Uranium Mine
Spokane County, Washington
Contract No. Idm-8858

The subject property was visited June 1, 1956, with Messrs. Weissenborn of the Survey, Burdill of the Bureau of Mines, and P. L. Weis and K. L. Boudette, the last two of which have been mapping on the Spokane Indian Reservation for the Geological Survey.

A number of the trenches bulldozed under the DMEA contract were visited. They have been described in the interim field reports and the Operator's final report. Little of interest was seen. Autunite in local concentrations occurred either as disseminations or in very narrow veinlets.

The project will not be certified.

After visiting the Dahl Uranium occurrences, the party visited the Daybreak property approximately one mile to the west. (See map with contract in Docket No. DMEA-3885.) Here autunite occurs in coarsely twinned crystals in veinlets or stringers ranging up to several inches in thickness in a mixture of granite and mica pegmatite. Occasionally the wider stringers exhibit vugs which, at least, are lined on one side with autunite crystals. The autunite has a dark green to yellowish color in mass. It also occurs with a yellow color in minute fractures in the rock. This latter autunite appears to be definitely secondary and deposited by meteoric waters. X-ray diffraction patterns of the coarsely crystalline autunite indicate the presence of the uraninite lattice. The origin of the coarsely crystalline autunite is still unsolved. It could be possible that the veinlets and stringers of coarsely crystalline autunite represent oxidized stringers of primary pitchblende that cut the granitic material. The writer has seen pitchblende stringers cutting

granitic rocks in Portugal and it is conceivable that such stringers could be oxidized in place. The deposit has been cross sectioned by an open cut and is really phenomenal in appearance. One other unsolved question relates to the source of the phosphorus which occurs in the phosphate radical combined with the uranium. It is not known whether the granite carries abundant apatite. None was noted by the writer.

There are approximately 15 reported uranium occurrences in the area around Mt. Spokane. This should not be confused with Spokane Mountain, in Stevens County.

George C. Selfridge

George C. Selfridge

GCSelfridge/esf
7/17/56
cc to: Docket
Admr. R. File
Messrs: Johnson
Ellis
Selfridge

5/31/56 W

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

Budget Bureau No. 42-R1036.5

RECEIVED
MAY 31 1956

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

Month of Oct. - Nov., 1955 Docket No. DMEA 3885 Contract No. Ion - E 858
Operator's Name PAUL URANIUM MINE, INC. Minerals Uranium
Address 405 Hutton Bldg., Spokane 4, Washington
Contract Amount, $ 4,300 Government Participation: 75 % Amount, $ 3,225

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling						
Bulldozing	$3200.00	0	$3200.00	3200.00	-0-	3200.00
Crosscutting						
Drifting						
(2) Labor and Supervision:						
Labor	$120.00	0	$120.00	120.00	-0-	120.00
Supervision	$625.00	0	$625.00	625.00	-0-	625.00
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis						
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
TOTALS	$3945.00		$3945.00	3945.00	-0-	3945.00

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

Date 1-10-56 *Payee Paul Uranium Mine Inc.

Per [signature] Title President

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

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

(Instructions on reverse)

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

$ 2958 75

Signature MZP
(Authorized Certifying Officer)

Date 5/23/56 Vou. No. 1781
(See other side)

Final

1 cy. 1044 sent to Washington Jan 19-1956

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. 6858 in accordance with the terms of the contract.

Signature /S/ M. R. Luckes Title Mining Engr Date 4/21/56

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature /S/ Irving G. Agnew Title Acting Exec Officer Date 5/21/56

MONTHLY REPORT OF OPERATOR

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

RECEIVED
MAY 28 1956

XXXXXXXXXXXXXXXXXXX
1201 N. Division Street
Spokane 22, Washington
May 22, 1956

Mrs. Myrtle Purdy, Certifying Officer
DMEA Field Team, Region I, NW District
1201 N. Division Street
Spokane 2, Washington

Re: Docket No. DMEA 3885
Contract No. Idm-E858
Dahl Uranium Mine, Inc.

Dear Mrs. Purdy:

Work under the subject contract has been completed to the satisfaction of the Government. A final report evaluating the results of the exploration program has been presented by the Operator and accepted by the Executive Officer.

The Government has no equity in equipment or supplies used at the project.

A Certification of Discovery or Development covering this project will not be recommended by the Field Team.

A final Report of Review dated May 15, 1956, by DMEA Auditor C. A. Turner has been received.

As all contract requirements have been met, it is requested that final settlement of our account with the Operator be made.

Sincerely yours,

Wing C. Agnew, Acting Exec.
Officer, DMEA Field Team, Reg. I
Northwest District

cc: DMEA (2)
USGS (2)

5/21/56

DEFENSE MINERALS EXPLORATION ADMINISTRATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

REPORT OF REVIEW

RECEIVED
MAY 17 1956

I have examined the Monthly Reports of:

Dahl Uranium Mine, Inc.
405 Hutton Building
Spokane, Washington

pertaining to Exploration Project Contract No. Idm-E858, Docket No. DMEA 3885, without amendments, dated August 22, 1955, for the months of October and November 1955, covering a project for the exploration of uranium on property known as the Dahl Uranium Mine located in Spokane County, State of Washington.

My review included an examination of the Monthly Reports (Forms MF-104) and supporting documents attached thereto, comparison of the costs claimed with the contract and pertinent schedules, consultation with the Government representative who visited and examined the project, and a determination of the reasonableness and propriety of the costs.

This review was made in lieu of a final audit of the Operator's accounts and records for the following reasons:

(a) The administrative cost to the Government of an audit would be excessive in relation to the estimated amount of possible disallowances thereunder;
(b) the Monthly Reports were supported by documentary proof of the costs incurred under the contract's provision for contribution by the Government on the basis of actual costs incurred; and
(c) a major portion ($3,200.00) of the accepted costs covered work performed at unit rates under an approved independent contract.

The review disclosed the following facts in regard to the amount paid or to be paid the contractor:

Total Cost as billed by Contractor	$3,945.00
Exceptions	None
Total Accepted Cost	$3,945.00

The contract calls for a 75 percent participation of exploration expenses by the United States Government. Therefore, payment to the Contractor by the Government in the amount of Two thousand nine hundred fifty eight and 75/100 Dollars

--$2,958.75--

is considered valid and proper provided that the Regional Executive Officer, the Administrator, or other competent official has accepted or will accept the project as having otherwise met the terms of the contract.

C. A. Turner, Auditor

May 15, 1956

Audit Report
of Review

RECEIVED
APR 23 1956

xxxxxxxxxxxxxxxxxx

1201 N. Division St.
Spokane 2, Washington
April 2, 1956

MEMORANDUM

To: DMEA Field Team, Region I, Northwest District

From: M. R. Lickes, Mining Engineer, Bureau of Mines

Subject: Final inspection, Docket No. DMEA-3885 (uranium), Dahl Uranium Mine, Inc., Spokane County, Washington, Contract No. Idm-E858

Final inspection of the Dahl Uranium Mine revealed the following status of work completed:

Unit of Work	Authorized	Completed
Bulldozing, D-8 or larger	200 hours	200 hours
Geologist-supervisor @ $500/mo.	1½ mo.	1½ mo.
Laborer	10 days	10 days
Miscellaneous: sampling, etc.	$355.00	none

No equipment was purchased in which the Government has an equity.

In addition to the units completed with Government participation, an additional 100 hours of D-8 dozing was completed by the Operator at his own expense. Since completion of the contract, percussion drilling has been done by the Operator.

Samples taken on the last inspection assayed:

No.	Material	% U_3O_8
MRL-1	Composite high-grade	1.55
MRL-2	Channel sample (Granite Pt.)	0.70

A certification of discovery will not be recommended.

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

M. R. Lickes

4-9-56

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
[redacted] C.
So. 157 Howard Street
Spokane 4, Washington

RECEIVED
APR 9 - 1956

March 30, 1956

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

Re: Docket No. DMEA-3805 (Uranium)
Dahl Uranium Mine, Inc.
Spokane County, Washington
Contract No. Ida-2853

Dear Mr. Selfridge:

Enclosed are the original and one copy of the final report of the operator, received in this office on March 28, 1956; it is acceptable to the Field Team.

Our final report is about 50 percent completed.

By Field Team, Region I, NW Dist.

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

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

Enclosure 1 (in dup.)

cc: [redacted] (2)
[redacted] (AD)
Alvord

Ops. final
report.
recd.4-9-56
Rep.datedNone

NARRATIVE REPORT

RECEIVED
APR 9 - 1956

Docket No. DMEA-3885 (Uranium)
Dahl Uranium Mine, Inc.
Spokane County, Washington
Contract No. Idm. E. 853

The exploration of the Dahl Uranium Mine Inc. Lease on the NE 1/4 of the SW 1/4 and Govt. lots 36 and 47 of Sec. 6 T 28N R 45EWM was initiated on cut No. 1, shown on the accompanying map. The exploration plan had been formulated during the course of several conversations with Paul Weis of the USGS, and consisted of bulldozing on known ore structures which had been exposed by previous dozing, hand trenching, and drilling operations. At cut No. 1 ore had been discovered at a depth of twenty-six feet from the roadbed by probing a thirty-six foot drill hole with a Precision Model 120 drill hole Geiger-Mueller counter.

From the outset, it was apparent that inadequate dump area was going to be the primary limiting factor in the exploration program. However, cut No. 1 was advanced to the requisite depth by dint of several stream diversions and by moving the muckpile twice. All logging, preparatory to trenching, was provided by Dahl Uranium at no cost to the government. Inclosure No. 2 shows cut No. 1 in plan and section, and the dip of the ore zone. It was determined from this exposure that possibly the structure could be picked up on the east side of the knoll, since an ore zone had been discovered at forty-six feet from the upper roadbed by probing a ninety-two foot drill hole.

Cut No. 2 was completed as scheduled and the ore stringer, which varied in width from one sixteenth inch to one and a half inch, was exposed for a distance of eighty feet. No definite physical evidence for following the structure any farther was found, and the operation was moved to the upper ore showing at Point "A", and cuts Nos. 3, 4, and 5, were advanced to the point where it seemed that no additional information would be obtained from continuing the project in this area.

The ore showing at Point "B" was explored by cuts Nos. 6 and 7, and two more minute stringers were exposed at Point "C". Cuts Nos. 8, 9, and 10 were so placed that any near surface extensions of the known ore zones could be detected by scintillometer surveying. No significant anomalies were discovered.

Cut No. 11 was proposed and executed as a prospecting cut and ore was exposed at Points "E" and "F". The company had performed a scintillometer grid survey of the entire property to provide adequate information with which to plan the exploration program and these ore occurences had produced no anomalies. The same was true of cut No. 12, although at this point only scattered crystals of autunite in a feldspathic clay matrix were found.

Cut No. 13 was placed so as to intersect the mineralizing source of two of the radioactive springs, and scattered crystals were found here also. Cuts Nos. 14 and 15 produced no ore showing whatever, and cuts Nos. 16 and 17 showed only a few crystals in a pegmatite stringer.

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MAR 28 1956
U. S. G. S.
SPOKANE, WASH

At this point it was evident that further bulldozer trenching was not justified without additional information. In addition to the 200 hours of bulldozing authorized by the contract, the company had paid for an additional 100 hours of D8 work which was done concurrently with the contract work. Also, the company provided a full-time supervisor and all logging and extra labor.

In all, from the standpoint of economic geology, the information derived from this contract has been relatively inconclusive, and the thousand feet of wagon drilling completed by the company following the contract work is likewise non-definitive. It has exposed several ore strngers at varying depths, as well as zones of altered and decomposed granite underlying hard, unsheared, unaltered granites from twenty to thirty feet in depth which may be related to the apparent flow structure. The apparent flow structure may be inferred from the attitude of the exposed pegmatite stringers, and the drag along some lines of shearage which conform to the borders of certain larger pegmatite zones.

The persistence of several of the ore structures, as well as the amount of exposed ore, seem to warrant additional drilling to determine if a sizeable subsurface shear zone exists which could have precipitated sufficient mineral to constitute a commercial ore body. To this end the company plans additional drilling on the southward projection of the ore exposed in cut No. 2.

William D. Weaver

WILLIAM D. WEAVER
Geologist

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

Dear Sir:

We attach "Review of Application for Exploration Assistance" on:

Applicant _____

Docket No. _____

Commodity _____

Amount $ _____

Please expedite consideration of the application with particular reference to the points raised in the attached "Review".

Sincerely yours,

Chairman, Operating Committee
Defense Minerals Exploration
Administration

APPROVED:

_____
Member, Bureau of Mines

_____
Member, Geological Survey

13759

1-23-56 [illegible]

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

RECEIVED
JAN 23 1956

Month of Oct.- Nov. 1955 Docket No. DMEA 3885 Contract No. Idm - E 858
Operator's Name DAHL URANIUM MINE, INC. Minerals Uranium
Address 405 Hutton Bldg., Spokane 4, Washington

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT	
							Units	Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core								
Churn								
Auger								
Stripping								
Trenching	1 Hour	$3945.00	200	$3945.00	200	$19.73	200	~~$21.50~~
Test Pits								
Roads and Trails								
TOTAL DISTRIBUTED COSTS		$3945.00		$3945.00				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		$3945.00		$3945.00				$4300

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

Date 1-10-56 Operator Dahl Uranium Mine Inc

Per [signature] Title President

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

(Instructions on reverse)

(For Government use only)

REMARKS:

1/19/56

No narrative received yet.

Operator expects to send in quite a complete final report and wants to use this as a narrative also. Said it would probably be 6 weeks or two months before it comes in.

Payment being held up for final audit, etc.

INSTRUCTIONS

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

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

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

GPO 872894

RECEIVED
DEC - 5 1955

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1201 N. Division St.
Spokane 2, Washington
November 16, 1955

MEMORANDUM

To: DMEA Field Team, Region I, Northwest District

From: M. R. Lickes, Mining Engineer, Bureau of Mines

Subject: Interim inspection, Docket No. DMEA-3885 (uranium), Dahl Uranium Mine, Spokane County, Washington, Contract No. Idm-8858

An inspection of the Dahl Uranium Mine property in Spokane County was made on October 31. Mr. G. C. LaDow, company president, accompanied me on the inspection, and Mr. Don Alvord, geologist, USGS, who was mapping recently exposed areas, was contacted.

Although no MF-104's have been submitted for payment, more than 450 hours of D-8 bulldozing have been completed. Under the terms of the contract the Government has agreed to contribute 75 percent of the cost of 200 hours of such dozing; the remainder has been done on company account. The company has completed dozing for the season and both machines were leaving the property on October 31.

Percussion drilling by the company is expected to start within a few days. Ten drill hole sites have been tentatively located.

At the suggestion of the inspecting engineers the bulldozing program was changed in the later stages from deep trenches in the vicinity of radioactive springs and mineralized areas, to shallow dozing over a more extensive area. In the shallow dozing the best occurrence of autunite yet seen was uncovered in an area that showed no anomaly in a scintillator grid survey made by Mr. LaDow. A channel sample was taken in the only part of the area relatively unspoiled by high-grading operations, and a composite sample of the high-grade material being saved was taken. Assay results will be reported when available.

M. R. Lickes

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

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DEC - 5 1955

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1201 N. Division St.
Spokane 2, Washington
November 16, 1955

MEMORANDUM

To: DMEA Field Team, Region I, Northwest District

From: M. R. Lickes, Mining Engineer, Bureau of Mines

Subject: Interim inspection, Docket No. DMEA-3885 (uranium), Dahl Uranium Mine, Spokane County, Washington, Contract No. Idm-8856

An inspection of the Dahl Uranium Mine property in Spokane County was made on October 31. Mr. G. C. LaDew, company president, accompanied me on the inspection, and Mr. Don Alvord, geologist, USGS, who was mapping recently exposed areas, was contacted.

Although no MF-104's have been submitted for payment, more than 450 hours of D-8 bulldozing have been completed. Under the terms of the contract the Government has agreed to contribute 75 percent of the cost of 200 hours of such dozing; the remainder has been done on company account. The company has completed dozing for the season and both machines were leaving the property on October 31.

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M. R. Lickes

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

XXXXXXXXXXXXXXXXX

1201 S. Division St.
Spokane 2, Washington
October 7, 1955

[illegible]

To: [illegible] Field Team, Region I, Northwest District

From: [illegible] Dickes, Mining Engineer, Bureau of Mines

Subject: Interim Inspection, Docket No. [illegible] 3885 (uranium), Dahl Uranium Mine, Spokane County, Washington, Contract Im-[illegible]

The Dahl Uranium Mine property was inspected on October 6. Mr. Richard Weaver, superintendent, was interviewed as he was leaving the property but I was unaccompanied on the inspection.

One hundred fifty-five hours of bulldozing have been completed with the D-8 dozer, out of this amount only 95 hours were done with Government participation, the other 60 hours having been done on company account. This amount of dozing has completed 6 trenches.

Trenches 1 and 2 were excavated in the area where radioactive springs were found. Minor occurrences of autunite were disclosed in both trenches, and both were drilled and blasted to a depth of 20 feet. Trench 3, on the northern boundary of the property, found no autunite, but three diamond drill holes with the company drill are planned from this trench. The first hole had been started at the time of the inspection.

Trenches 4, 5, and 6 were cut on the hillside above trenches 1 and 2, and although no autunite was visible the Operator advised that good scintillator readings in these trenches extended over a larger area than in trenches 1 and 2. He also advised that in some areas of good scintillator readings on the property where no autunite was visible to the naked eye, fluorescence observed under a black light indicated very finely-divided uranium minerals, probably autunite.

Plans are being made to have drilling done on the property by a percussion drill that drills dry where no water is available, and wet after water has been intersected in the hole. Cost of this drilling is reported to be $1.65 per foot--less than the company diamond drilling costs. Maximum depth that can be drilled with this machine is 200 feet.

Mr. Weaver was advised that no invoices to the Government can be processed for payment until the subcontract with Hunter Construction Co. for the bulldozing has received Government approval.

Orig. & 3 cys - addr.
cys (2)
cys (2)
[illegible] Dickes
[illegible]

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D. C.~~
No. 157 Howard Street
Spokane 4, Washington

RECEIVED
OCT 10 1955

September 23, 1955

Memorandum

To: DMEA Field Team, Region 1, Northwest District

From: Donald C. Alvord, Geologist, U. S. Geological Survey

Subject: Interim Report, Docket No. DMEA-3885 (uranium), Dahl Uranium Mine, Inc., Spokane County, Washington, Contract No. Idm-2958.

I visited the property on the afternoon of September 22, 1955, in company with Anthony B. Gibbons, Field Assistant, Geological Survey. William D. Weaver, company geologist and engineer, accompanied us during the initial phase of the examination.

About 1,350 feet of dozer trenching has been completed (see attached map). The northernmost trench averages about 4 feet in depth and cuts through 1½ to 2 feet of soil to expose decomposed quartz monzonite abundantly shot through with small irregularly shaped pegmatite dikes. The next trench south was also silled in pegmatitic quartz monzonite but was cut as deeply as the competency of the rock would permit. It has an average depth of 10 feet, the central part being as much as 16 feet in depth. The pegmatites exposed in these cuts, although irregular in shape, trend roughly north or slightly west of north, dipping vertically or steeply westward. A dominant planar jointing, almost foliate in appearance, dips gently to the northwest. Scintillator scanning disclosed only one anomalous zone (see map) consisting of a few square inches of a small pegmatite. Reportedly a book of muscovite bearing small crystals of autunite was taken from this zone.

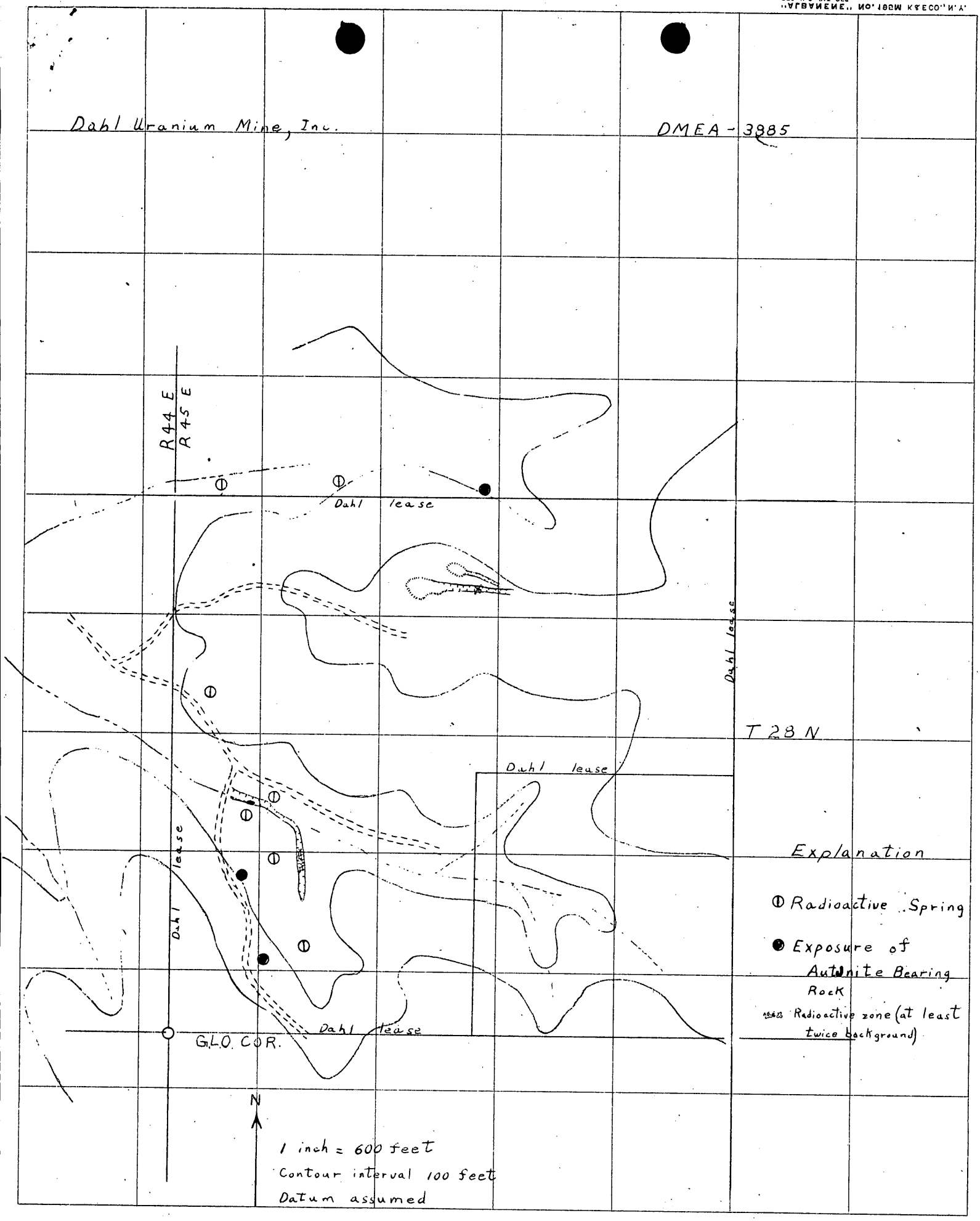
The trench in the southeastern part of the property cuts clay-rich overburden and pegmatitic quartz monzonite, locally to depths as great as 35 feet, and occasionally extends below local water tables. Pegmatite dikes are not as abundant as in the trenches to the north. As at the northern cuts, the quartz monzonite is strongly fractured or jointed, the planar fractures dipping roughly downslope and parallel with the local topography. The only autunite observed in the cut is

exposed at its north end on the south wall (see map). Disseminated autunite crystals and small clusters and veinlets of autunite occur along and within a clay seam. The clay seam is roughly concordant with the dorsal surface of a mass of relatively unjointed but strongly weathered quartz monzonite. This seam is at the approximate contact between strongly fractured and weathered quartz monzonite and the relatively unfractured but weathered quartz monzonite. Scintillator scanning disclosed anomalous radioactivity in the west wall of the south end of the cut (see map). Here a radioactive zone 2 to 4 times background follows roughly a limonite-rich zone about 50 feet long. The limonite zones seem coplanar with the dominant planar jointing of the area. Both occurrences are downslope from nearby radioactive springs and a relationship to groundwater flow seems evident.

On the basis of present knowledge the original plan of exploration (trenching between the known occurrences) should be continued. Certainly, however, it is now more apparent that an attempt should be made to cut the trenches to likely perched water tables (paleo and contemporary) inferred from lithologic and structural evidence and from known water table conditions.

Attachment

Distribution:
- DMEA (orig. & 3)
- USGS (2)
- USBM (AD)
- Dunkut
- Alvord
- RC (2)


Dahl Uranium Mine, Inc.
DMEA - 3885
R44E
R45E
Dahl lease
Dahl lease
T 28 N
Dahl lease
Dahl lease
Dahl lease
G.L.O. COR.
Explanation
Radioactive Spring
Exposure of Autunite Bearing Rock
Radioactive zone (at least twice background)
N
1 inch = 600 feet
Contour interval 100 feet
Datum assumed

RECEIVED
OCT 10 1955

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RECEIVED
OCT 10 1955

1201 N. Division St.
Spokane 2, Washington
September 9, 1955

MEMORANDUM

To: DMEA Field Team, Region I, Northwest District

From: M. R. Lickes, Mining Engineer, U. S. Bureau of Mines

Subject: Interim inspection, Docket No. DMEA 3885 (uranium), Dahl Uranium Mine, Spokane County, Washington, Contract Idm-E858

The Dahl Uranium Mine property was visited on September 6 and September 9, 1955, with Mr. Paul Weis, Geologist, Geological Survey. Mr. G. C. LaDow, president of the company, was present on both occasions. Mr. Wm. Weaver, company geologist, was present on September 6 and on both occasions his brother, Richard Weaver, was also present.

Bulldozing was started on September 6. A trench just north of DDH #1, having its southern bank touching the cellar of the hole, was started. On September 9, 22 hours of bulldozing had deepened the trench to 26 feet, at which point the ore horizon found in DDH #1 was 8 feet lower. The bottom of the trench was in bedrock, and it is probable that if the ore horizon in DDH #1 is to be uncovered in the trench, the rock will have to be drilled and blasted. Two minor showings of autunite crystals in the south bank of the trench were seen.

Mr. Weis discussed with company officials the location of additional trenches.

Bulldozing is being done with a D-8 dozer under contract with Hunter Construction Co. of Spokane. It was explained to both Mr. LaDow and Mr. Wm. Weaver that Government approval of the subcontract is necessary.

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

M. R. Lickes

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

RECEIVED
AUG 31 1955

No. 15[illegible] [illegible] Street
Spokane 4, Washington

August 29, 1955

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

Re: Docket No. DMEA-3885 (Uranium)
Kahl Uranium Mine, Inc.
Spokane County, Washington

Dear Mr. Selfridge:

Enclosed are the Government, Docket, and Division copies of Contract No. 1dm-5853.

The starting date has been inserted under article 3 as on or before September 15, 1955. Distribution of this contract is being made in the usual manner.

Sincerely yours,

A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region I, [illegible] District

Enclosures
cc: Finance Office w/encl.
DMEN (2)
Reis

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

Mr. [illegible] Weisenborn
Executive Officer
Land Field Team, N. W. District
Region 1
Room 127 Howard Street
Spokane 1, Washington

Re: Docket No. DMEA-3885 (Uranium)
Small Uranium Mine, Incorporated
Small Uranium Mine
Okanogan County, Washington

Dear Mr. Weisenborn:

Enclosed are the original and five copies of a proposed long-form contract between the Government and the subject operator, signed by the Administrator.

If you find the contract in order, it is ready for forwarding to the operator for signature, subject to the insertion of a suitable final starting date under Article 3.

The contract was made long form inasmuch as no units of work in the form of lineal or volumetric measurements were provided for in the Field Team report. Since the location, direction and extent of much of the work will be dependent on the results attained as the operations proceed, it is suggested that our examiners keep in close touch with the work and give their approval to each major step before the work is actually begun.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

Enclosures

A. Privat:

/s/ Robert W. Geehan

Member, Bureau of Mines

Thor H. Kiilsgaard

Member, Geological Survey

Wdington
8-16-55
cc to: Admr. Reading File
Operating Committee
Docket
Messrs. J. E. Crawford, Rm. 3641
T. H. Kiilsgaard, Rm. 5222
J. O. Hostel, Rm. 3210, GSA
Code 700
Mr. Ching

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SOLICITOR
WASHINGTON 25, D. C.

AUG 12 1955

Memorandum

To: The Administrator, DMEA
Attention: Mr. E. W. Ellis

From: Acting Assistant Solicitor, Defense Minerals

Subject: Docket No. DMEA-3885, Dahl Uranium Mine, Inc. Uranium

Pursuant to Mr. Ching's memorandum of August 4, we have prepared the attached contract in satisfactory legal form for execution subject to the attachment of the map referred to in the contract and the attachment of the original Consent to Lien to the Government's copy of the contract.

J. L. Hofflund

J. L. Hofflund
Acting Assistant Solicitor
Defense Minerals

Attachments

HCRubin/emd

Copy to: DMEA Docket
Solicitor's Docket
E. W. Ellis
J. L. Hofflund
chron.

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

August 4, 1955

Memorandum

To: Acting Assistant Solicitor, DMEA

From: Michael Ching, Mining Engineer
Rare and Miscellaneous Metals Division

Subject: Docket No. DMEA-3885 (Uranium)
Dahl Uranium Mine, Inc.
Dahl Uranium Mine
Spokane County, Washington

Will you kindly prepare a long form contract between the Government and Dahl Uranium Mine, Inc., in accordance with the attached draft. The map referred to is being photostated.

Michael Ching

Attachments

MChing:am
cc to: Docket
Code 700
Mr. Ching

MF-200
(Revised June 1954)

Docket No. DMEA 3885

Commodity Uranium

Contract No. Idm-E

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

EXPLORATION PROJECT CONTRACT[1]

It is agreed this ..... 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] Dahl Uranium Mine, Inc.,

whose mailing address is 405 Hutton Building
Spokane, Washington,
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-200), the attached Exhibit "A," Annex I, and one 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 Washington, County of Spokane, and is described in Annex I.[3]

(b) The Operator represents and undertakes that:

(1) The Operator is the [4] Lessee of [5] the 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] recorded in Book 54, page 626, 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: None

(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

[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."

of the land (lessor, seller, optionor, etc.), are attached, as follows: .....

.....Consent to Lien by Leonard Dahl and Betty Dahl.....

(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 8, it shall thereafter have no claim against the land or any production therefrom except for any production referred to in Article 8(b)(1).

ARTICLE 3. *The exploration project.*—The project is a search for indicated or undeveloped deposits of .....Uranium..... The work to be performed is described in Exhibit "A." The Operator on or before ..... shall commence the work, and on or before ....November 30, 1955..... (unless the Operator's obligation to prosecute the work is terminated—see Article 10) shall either have completed the work or shall have incurred allowable costs (see Article 6) in a sum not less than the estimated total allowable cost set forth in Exhibit "A."

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) *Independent contracts.*—To the extent that the allowable costs are estimated in Exhibit "A" with express reference to performance by independent contractors on a unit-price basis (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations), the work may be so performed; but if the reference in Exhibit "A" to any such independent contract requires the Government's approval thereof, payments under such contract will not be allowable costs unless the Government gives its written approval of the contract. Any such independent contract shall refer to some specific and identifiable part of the work, and shall be subject to all of the pertinent terms and conditions of this exploration contract; but the Government shall not be considered a party thereto, and its rights under this contract, including the right to terminate its contributions, shall not be affected thereby. Regardless of the provisions of any such independent contract and regardless of the Government's approval thereof, the Government will participate in payments to the independent contractor only on account of work performed in accordance with the provisions of this exploration project contract, and only to the extent that the Government deems the unit prices for the work under the independent contract to be reasonable.

(c) *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.*—The estimated total allowable cost of the project, set forth in Exhibit "A," is the sum of $4,300.00..... The Government shall contribute ..... percent of the allowable costs as they are incurred in a total sum not in excess of $3,225.00.....: *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 or not in excess of the amount of the Government's contribution to the cost of property which is or may become subject to disposal as provided in Article 9(c), whichever is greater. The Government will make its contribution on the basis of the monthly vouchers referred to in Article 7(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. "Costs incurred" mean costs that have been paid or have become due and payable, or that in the opinion of the Government have become an obligation. The Government may make payments directly to independent contractors and suppliers for the account of the Operator rather than to the Operator.

ARTICLE 6. *Estimated costs.*—(a) *Categories of costs.*—The allowable costs of the work to which the Government shall contribute are limited to those that are direct, reasonable, necessary, and that are estimated in Exhibit "A" by categories as specified in this article. If any category or subcategory is omitted from the estimate of costs, or if the word "none" is annexed to the listing thereof, costs under such category or subcategory are not allowable. Any excess over any estimate which is indicated as the maximum of any category, subcategory, or item, either as to requirement or related cost, and any excess over the estimated total allowable cost of the work, shall not be allowable. Any excess over the estimate of any category, subcategory, or item, either as to requirement or related cost, not indicated as a maximum shall be allowable within the limit of the estimated total allowable cost of the work. To the extent that excesses over maximums other than the estimated total allowable cost of the work may be necessary for the performance of the work, the Operator shall incur such excesses for his own account without contribution by the Government; but except for any such necessary excesses in categories, subcategories, or items thereunder the Operator is not obligated to incur more than his agreed percentage of the estimated, total allowable cost of the work.

To the extent specified in this article or in Exhibit "A" the following categories, subcategories, and elements thereof are maximums; but if not so specified either here or in Exhibit "A" they are not maximums, and may be exceeded within the limit of the estimated total allowable cost of the work:

CATEGORY (1)—INDEPENDENT CONTRACTS.—Work to be performed under independent contracts (see Article 4(b)). The estimated total amount of this category and the estimated cost of each unit of work for performance under an independent contract are maximums.

CATEGORY (2)—PERSONAL SERVICES.

Subcategory (a)—Supervision.—All elements of this subcategory (number of supervisors, periods of employment, rates of pay, and total) are maximums.

Subcategory (b)—Technical services.—All elements of this subcategory (number of technicians, periods of employment, rates of pay, and total) are maximums.

Subcategory (c)—Labor.

CATEGORY (3)—OPERATING MATERIALS AND SUPPLIES.—Includes such items as drill bits and steel, explosives, fuel, pipe, power, small tools costing less than $50 each, timber, track.

CATEGORY (4)—OPERATING EQUIPMENT.

Subcategory (a)—Rental.—The number of each object to be rented [6 mine cars, 1 truck], the rate of rental [$100 per month, $5 per hour], and the total of this subcategory are maximums.

Subcategory (b)—Purchases.—The estimated total of this subcategory is a maximum.

Subcategory (c)—Depreciation.—All elements of this subcategory (time periods, rate of depreciation, and subcategory total) are maximums.

CATEGORY (5)—INITIAL REHABILITATION AND REPAIRS.—Estimates under this category include all requirements and related costs, such as labor, materials and supplies, and supervision at a rate not higher than provided for in Category (2), and shall not be duplicated under any other category. The estimated total of this category is a maximum.

Subcategory (a)—Initial rehabilitation and repairs of existing buildings, fixtures, and installations (exclusive of mine workings).—The estimated total of this subcategory is a maximum.

Subcategory (b)—Initial rehabilitation and repairs of operating equipment.—The estimated total of this subcategory is a maximum.

CATEGORY (6)—NEW BUILDINGS, FIXTURES, AND INSTALLATIONS (EXCLUSIVE OF MINE WORKINGS).—Estimates under this category include all requirements and related costs, such as labor, materials and supplies, and supervision at a rate not higher than provided for in Category (2), and shall not be duplicated under any other category. The estimated total of this category is a maximum.

CATEGORY (7)—MISCELLANEOUS.—Repairs and maintenance (other than initial) of operating equipment, analytical work, prints and other reproductions, accounting, Operator's share of payroll taxes, liability insurance covering employment, travel, communications, and any other items of requirement or cost that do not fall within any of the first 6 categories.

THE ESTIMATED TOTAL ALLOWABLE COST of the work is a maximum.

(b) *Nonallowable costs.*—The following costs are not allowable for contribution by the Government:

(1) *Costs of the land,* such as rental, depreciation, depletion, or other cost of acquiring, owning, or holding possession;

(2) *Indirect costs,* such as general overhead, corporate management, interest, taxes (other than payroll and sales taxes), insurance (other than liability insurance covering employment), damages to persons, damages to property (other than necessary repairs or replacements of equipment or other property used in the work);

(3) *Previous work* performed or costs incurred before the date of this contract; and

(4) *Deferred payments.*—Any costs incurred by the Operator under any rental-purchase agreement, installment-purchase agreement, or any agreement for the purchase of goods under the provisions of which payment of the full purchase price is deferred more than 90 days from the delivery of the goods; unless the purchase agreement is approved by the Government in writing.

(c) *Reductions in costs.*—The Operator shall account for and give the Government credit for any incidental benefits, credits, or money received in the ordinary course of business in prosecuting the work (as by salvage or sale of materials or equipment, furnishing of room or board, furnishing of power or services to third persons, rebates or discounts on purchases, etc.), in the same ratio in which the Government contributes to costs; and such amounts shall be treated as a reduction in costs incurred so that they are available for use within the limit of the original estimated total cost. This provision does not apply to receipts from production which are subject to the Government's percentage royalty under the provisions of Article 9.

ARTICLE 7. *Reports, accounts, audits.*—(a) *Operator's records.*—The Operator shall keep suitable records and accounts of the work performed and of any production in which the Government may have an interest; and shall preserve those with respect to work performed for at least three years after final payment by the Government, and those with respect to production for at least three years after any obligation to pay royalties to the Government has terminated. The Government may inspect and audit said records and accounts at any time, either by itself or by a certified public accountant. If the Government elects to audit said records and accounts relating to the exploration work by certified public accountant, it may do so as a cost of the work to which the Operator shall contribute. The Comptroller General of the United States or his representative, until the expiration of said three-year periods, shall have access to and the right to examine any pertinent books, documents, papers, and records of the Operator. All of the Operator's vouchers and records and accounts relating thereto and the Government's payments thereof remain subject to adjustment until final audit by the Government. If work under this contract is carried on in conjunction with any other operations, or if labor, supervision, services, materials, supplies, equipment, facilities, or other requirements for carrying on the work are also used in connection with other operations, the costs shall be segregated and accounted for on a basis and by methods and accounts that are satisfactory to and approved by the Government.

(b) *Progress reports and vouchers.*—The Operator shall provide the Government with five copies of monthly progress reports in three sections as follows: (1) Operator's Monthly Report and Voucher showing detailed costs incurred during the reporting period; (2) Operator's Unit Cost and Progress Report showing the various types of work performed during the reporting period and costs incurred for each type of work; and (3) a Narrative Report of the work performed during the reporting period including adequate engineering-geological maps or sketches, drill hole logs and locations, and assay reports on samples taken concurrently with advance in mineralized ground. (Forms for reporting under (1) and (2) above will be provided by the Government.)

(c) *Final report.*—Upon completion of the work or termination of the Government's obligation to contribute to costs, the Operator shall furnish the Government with 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 related costs incurred.

(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 8. *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 7) 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 therof 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 9. *Interests in purchased property.*—(a) *Title and ownership.*—All costs under this contract shall be incurred by the Operator in the Operator's own name and for the Operator's own account; but any property acquired to the cost of which the Government contributes shall belong to the Operator and the Government jointly in proportion to their respective contributions, although title thereto shall be taken in the name of the Operator.

(b) *Preservation of property.*—Until the final disposal of any property in which the Government has an interest the Operator shall preserve and protect same for the best interest of the Government, any reasonable and necessary costs thereof to be treated as an allowable cost of the project. After the completion of the work or termination of the Government's obligation to contribute, or when such property is not in use for or needed for the work, the Operator shall neither use it without the written consent of the Government nor without paying a reasonable rental to be fixed by the Government for its interest.

(c) *Disposal of property.*—Upon the completion of the work or termination of the Government's obligation to contribute to costs, or when the property is no longer needed for the work, the Operator shall promptly dispose of salable or salvageable property in which the Government has an interest for the joint account of the Government and the Operator, either by return to the vendor, by sale to others, or purchase by the Operator or the Government at a price at least as high as could be obtained from others, unless the Government in writing waives its interest in any such property. Without advance approval of the sales price by the Government the Operator shall not sell at any price any item of property the cost of which was more than $500, and shall not sell at less than 25 percent of the purchase price any item of property which cost $500 or less. The Government, in lieu of approving the sales price for any such item, may itself purchase the item at the best price which the Operator is able to obtain or himself cares to give. Property remaining upon any termination of the work shall be considered in groups or categories (such as drill steel, or explosives, or pipe, or rails), and if the original cost of the remaining unexpended portion of any such group or category is less than $50, the Government waives its interest therein. If necessary to accomplish the disposal of any item the Operator shall dismantle and sever it from the land, the cost thereof to be treated as a cost of the project.

(d) *Default of the Operator re disposal.*—If within 90 days after the completion of the work or termination of the Government's obligation to contribute to costs, or after the property is no longer needed for the work, or after such further time as the Government may in writing allow, the Operator has failed to sell or otherwise liquidate or dispose of any property in which the Government has an interest, the Government, at any time prior to final settlement under the contract, may pursue one of the following two courses: (1) the Government, by written notice to the Operator, may place upon such property what in its opinion is a fair valuation thereof, not in excess of the cost less 1.66 percent per month from the

date such property was purchased under this contract to the termination of said 90-day period; and such property shall thereupon be considered and accounted for as having been purchased by the Operator at the valuation so fixed by the Government; or (2) the Government may enter and take possession of such property wherever it may be found, and remove and dispose of it for the joint account of the parties.

ARTICLE 10. *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: (1) the Government shall be free of all obligation to contribute to costs not then incurred other than such as may be allowable under the provisions of the contract as necessary and incidental to winding up, reporting, and accounting; and (2) 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.

(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: (1) the Government shall be relieved of all obligation to contribute to costs not incurred when the notice was given, other than such as may be allowable by the provisions of the contract as necessary and incidental to winding up, reporting, and accounting; and (2) 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 10 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 11. *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 12. *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 13. *Changes and added provisions.*—

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By .....

.....
(Operator)

By .....

.....

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—70617-1

Draft
MChing:am
8-4-55

ANNEX I

The land referred to in Article 2 of the contract consists of the N E ¼ of the S W ¼ and Lots 6 and 7 of the S W ¼ of Section 6, T. 28 N., R. 45 E., Spokane County, Washington. It is shown on the attached map entitled, "Sketch Map to Accompany D.M.E.A. Loan Application Draft #1."

Draft
MChing:am
8-4-55

EXHIBIT "A"

Description of the Work

The work consists of exploration by bulldozer trenching to expose autunite-bearing fracture fillings and disseminations in decomposed quartz monzonite.

The first trench shall be excavated near a group of radioactive springs, in the area between two know occurrences of ore shown on the attached sketch map. The location of other trenches will be dependent upon the results of the first and subsequent trenching. The principal effort will be directed toward determining the lateral continuity of the deposits. The work shall be done with a Caterpillar D-8 dozer or equivalent unit, operating as fully as possible. Close supervision and direction of the work in the light of information obtained as the work progresses will be necessary, and such supervision and direction shall be provided by a full-time supervising geologist working in cooperation with Government field examiners. Representative channel samples shall be taken as the work progresses.

The location, direction, and extent of all project work are subject to the approval of the Government.

Estimated Cost of the Project

Category (1) Independent Contracts		
200 hrs. bulldozer work @ $16.00/hr.		$3,200.00
Category (2) Personal Services		
Geologist-supervisor 1¼ mos. @ $500.00/mo.	625.00	
Laborer 10 days @ $12.00/day	120.00	745.00
Categories (3) through (6)		None
Category (7) Miscellaneous		
Chemical analyses, transportation, etc.		355.00

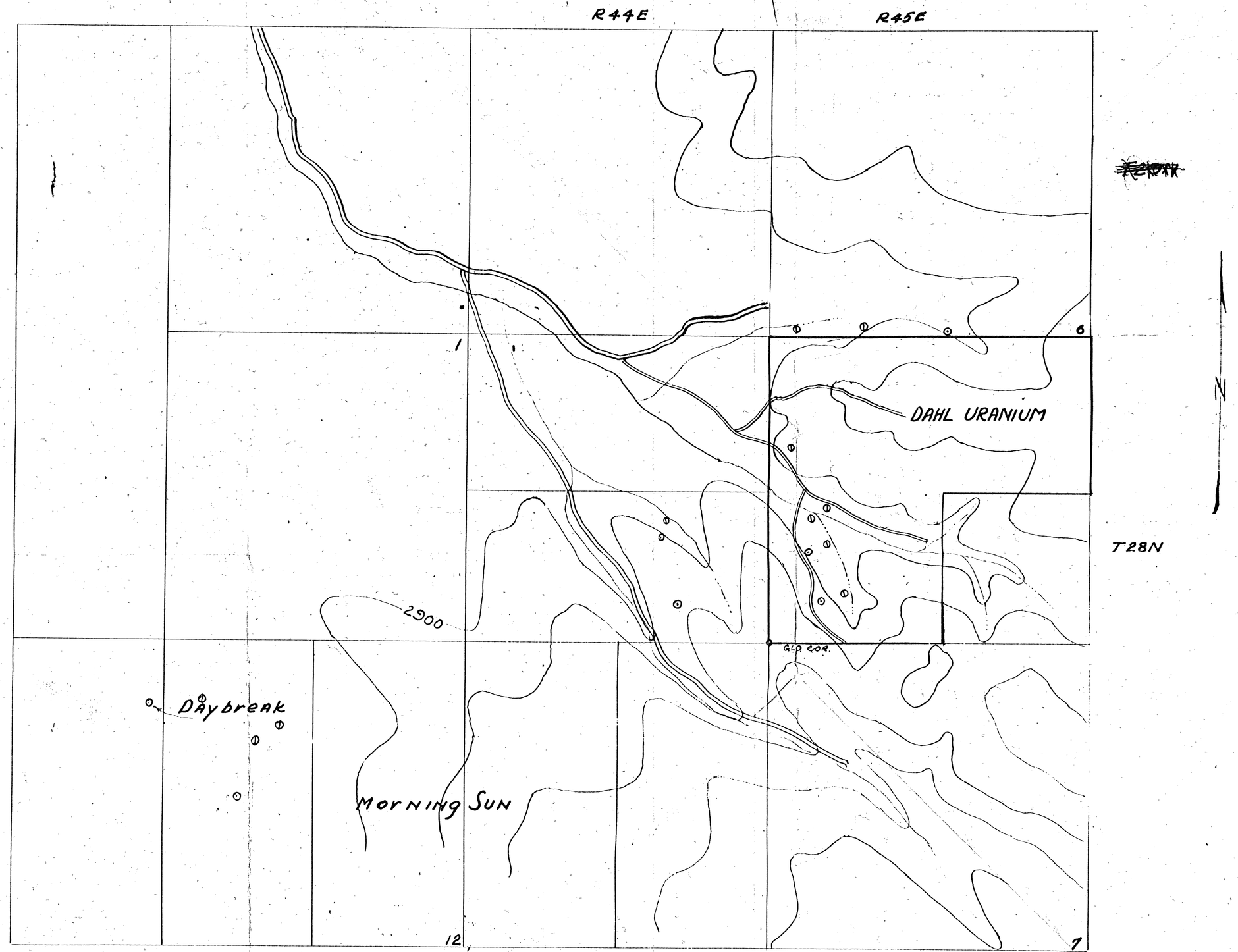
Estimated Cost of the Project

Continued

Estimated total cost of the project	$4,300.00
Government participation @ 75 percent	$3,225.00

DAHL URANIUM MINE INC.

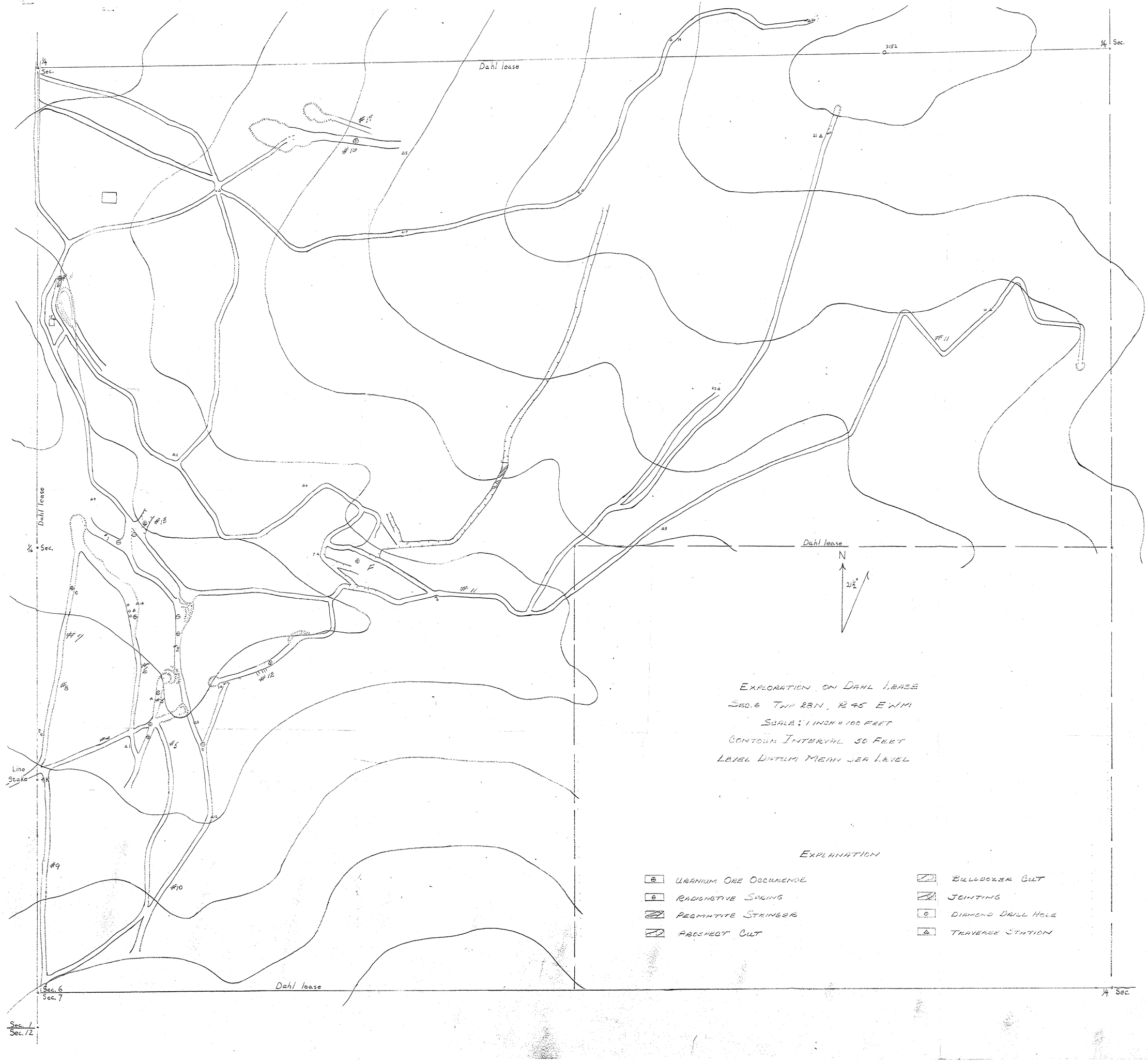
Sketch Map to Accompany D.M.E.A. Loan Application. Draft #1



LEGEND

⊙ Radioactive Springs
⊙ Known Exposures of Autunite Ore

Scale – 1 inch = 600 feet
Contour Interval, 100 feet
Topography from aerial photographs


1/4 Sec.
Dahl lease
3152
1/4 Sec.
#14
#15
#13
#11
Dahl lease
1/16 Sec.
Dahl lease
N
21½°
#7
#8
#12
#4
#5
Line Stake
#9
#10
Sec. 6
Sec. 7
Dahl lease
1/4 Sec.
Sec. 1
Sec. 12
EXPLORATION ON DAHL LEASE
SEC. 6 TWP 28N, R 45 E WM
SCALE: 1 INCH = 100 FEET
CONTOUR INTERVAL 50 FEET
LEVEL DATUM MEAN SEA LEVEL
EXPLANATION
URANIUM ORE OCCURRENCE
RADIOACTIVE SPRING
PEGMATITE STRINGER
PROSPECT CUT
BULLDOZER CUT
JOINTING
DIAMOND DRILL HOLE
TRAVERSE STATION

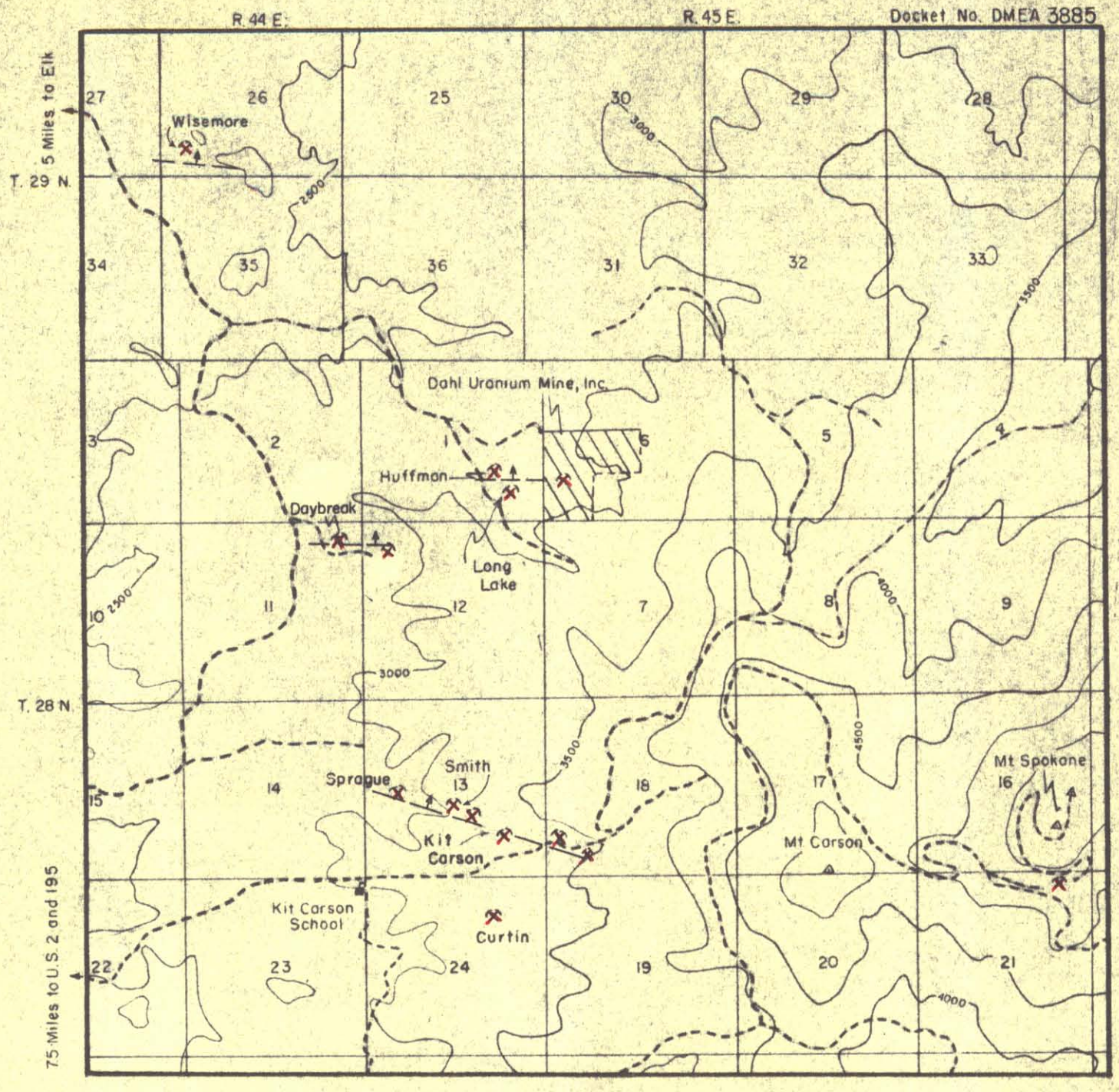


Plate 1 - Map showing location of some autunite deposits in the Mt. Spokane autunite district
Spokane County, Washington

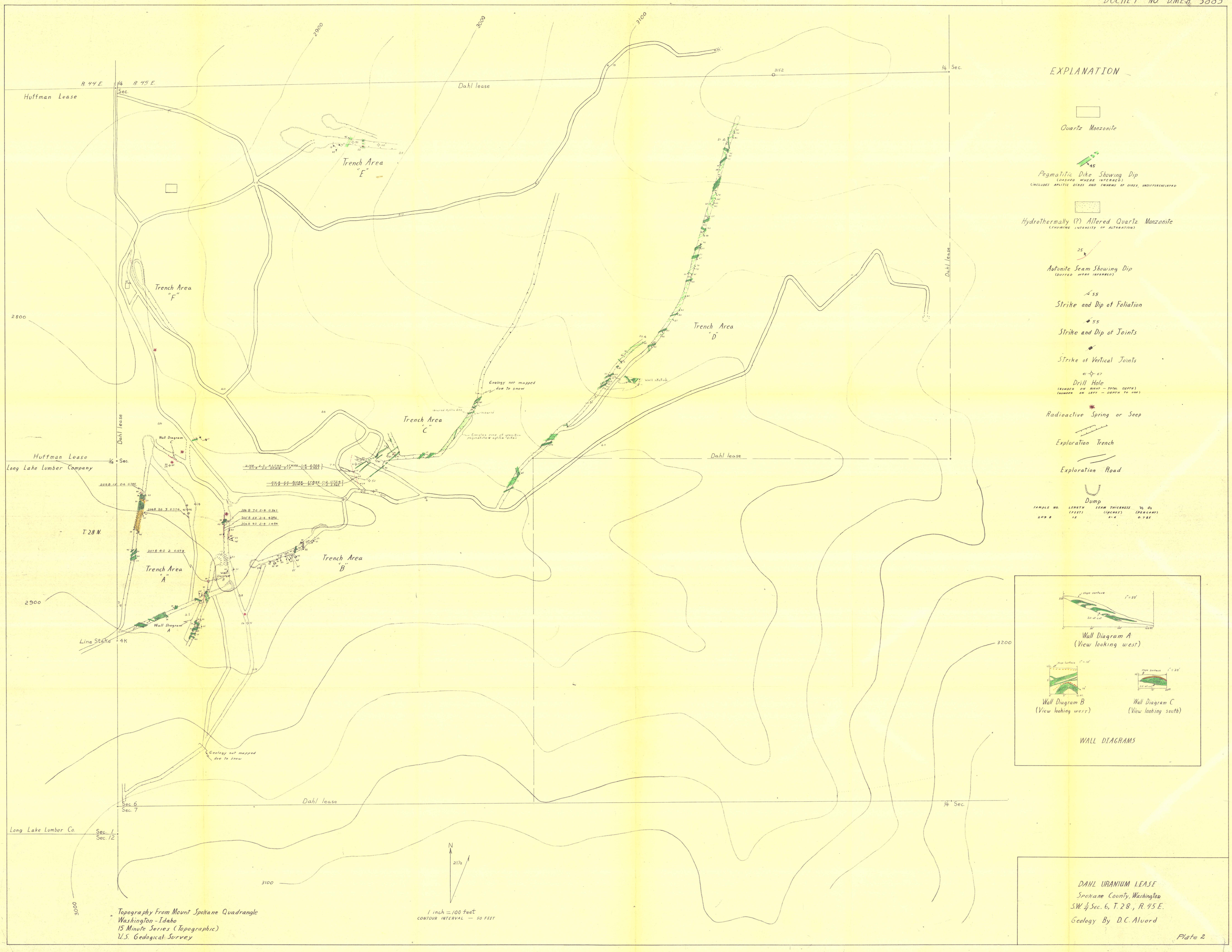
One inch = 4000 ft.
Contour interval: 500 ft.
Datum is mean sea level.

EXPLANATION

Inferred shear zone showing direction of dip

Autunite deposit

DOCKET NO. DMEA 3885



Topography From Mount Spokane Quadrangle
Washington - Idaho
15 Minute Series (Topographic)
U.S. Geological Survey