DMA Form 1

DEFENSE MINERALS ADMINISTRATION
Control Slip

CONTROLLED DOCUMENT

DMA Docket No. DMEA-3147

DO NOT DETACH THIS SLIP

Action on this document is recorded and controlled in Reports and Records Branch. Any movement of this document between divisions or offices of DMA or movement outside DMA must be reported to the Reports and Records Branch. Actions taken that affect status of the case must also be reported.

This document has been recorded as
Exploration Assistance

Any action taken to change the type of request for assistance must be promptly reported to the Reports and Records Branch. Use DMA Form 2 for submitting these reports.

1 copy to USBM, 1 copy to USGS and 1 copy to Region IV

Routing Slip

To:	Code 700 Room 4640	Date	8/26/53
To:	J.P. Cook	Date	9-4-53
To:	Code 700	Date	9/8/53
To:	Code 220	Date	11/20/53
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MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

AUG 25 1953

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

Not to be filled in by applicant

Docket No. DMEA-3147
Metal or Mineral
Date Received 8-25-53
Estimated Cost
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address:

J. R. Simplot Company, (an Idaho Corporation)
Colorado Uranium Division
Norwood, Colorado

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

(*c*) If a corporation, add to above statement, titles, names and addresses of officers. See Exhibit 2 of report

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract

See page 1 of report and Appendix A of Exhibit 4

(*b*) State any mine name by which the property is known.

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

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property.

(*e*) If you own the land, describe any liens or encumbrances on it None

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. See page 2 of report and Appendix A of Exhibit 4

4. *Physical description.*—(*a*) Describe in detail any mining or exploration operations which have been or now are being conducted upon the land, including existing mine workings and production facilities. State your interest, if any, in such operations. Also describe accessibility of mine workings for examination purposes. Report page 1, Exhibit 5 page 3

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. See page 1 of report

(*c*) Describe the geologic features of the property, including mineralization, type of deposit (vein, bedded, etc.), and your reasons for wishing to explore. Illustrate with maps or sketches. Send with your application (but not necessarily as a part of it) any geologic or engineering report, assay maps, or other technologic information you may have, indicating on each whether you require its return to you. See page 1 of report & pages 4 & 5 of Exhibit 5

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

See page 2 of report and page 5 of Exhibit 5

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

See page 2 of report and page 6 of Exhibit 5

16—66551-1

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

.....

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

☐ Money ☐ Use of equipment owned by you ☐ Other

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated ....., 195...

J. R. Simplot Company
(Applicant)

By Robert Lowell
Exec. Vice President

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

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

2 Aug 27

J. R. SIMPLOT COMPANY

Colorado Uranium Division

NATURITA, COLORADO

Norwood, Colorado
July 26, 1953

Box 18

DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration

AUG 3 1953

DMEA-3147
(Uranium)

Defense Minerals Exploration Administration,
Department of the Interior,
Washington 25, D. C.

Dear Sir:

Attached to this letter you will find a form DE-103 properly executed to apply for aid in an exploration project on some uranium lands in Montrose County, Colorado.

Another executed DE-103 is bound into the accompanying report, by Louis A. Gaggini, Manager of the Colorado Uranium Division for the J. R. Simplot Company.

Mr. Gaggini's 11 page report, with which we concur, recommends an expenditure of $113,[illegible]2.00 for 2[illegible],[illegible] feet of exploration drilling on some of our Bull Canyon claims.

Included with the report are five exhibits and two figures, which are bound into the report; and four plates which are in the envelope at the back of the report.

Very truly yours,

J. R. SIMPLOT COMPANY

George A. McHugh,
Manager of Mines

GAMclam
Enclosures:
2 copies of letter with DE-103 attached
4 copies of report complete with exhibits, figures and plates.

COPY

J. R. SIMPLOT COMPANY
Colorado Uranium Division
Norwood, Colorado

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 25 1953

APPLICATION FOR AID IN AN EXPLORATION PROJECT

on the

OIL AND GAS LANDS

of the

GREAGER GROUP

July 14, 1953

by Louis P. Gaggini

J. R. SIMPLOT COMPANY
Colorado Uranium Division
Norwood, Colorado

DMEA LOAN APPLICATION - OIL AND GAS LANDS OF GREAGER GROUP

Table of Contents

Heading	Page No.
LIST OF EXHIBITS	0
LIST OF FIGURES	0
LIST OF PLATES	0
1. NAME OF APPLICANT	Exhibit 1
a. Full legal name, see letterhead and Form MF-103	Exhibit 1
b. State of Incorporation (See Form MF-103)	Exhibit 1
c. Names and addresses of officers	Exhibit 2
d. Omitted - Applicant is not a partnership	
2. GENERAL	1
Acknowledgements	1
Summary	1
3. PROPERTY RIGHTS	1
a. Legal Descriptions and (f) Nature of Title	1
b. Mine Name, See Mf-103	Exhibit 1
c. Interest in land (owner) see MF-103	Exhibit 1
d. Omitted (owner) see MF-103	Exhibit 1
e. Liens or Encumberances (none) see MF-103	Exhibit 1
4. PHYSICAL DESCRIPTION OF PROPERTY	1
a. Operations	1
b. Production and Ore Reserves	1
c. Geologic Features	1
d. Accessibility	2
e. Availability of Manpower, Equipment, Supplies, etc.	2
5. THE EXPLORATION PROJECT	2
a. Mineral Sought - Uranium, see MF-103	Exhibit 1
b. Proposed Work	2
Proposed Hole Locations	2
Basic Drilling Plan	2
c. Duration of Contract, Two Years, see MF-103	Exhibit 1
d. Ability of Applicant	2
6. ESTIMATE OF COSTS	3
7. APPLICANT'S SHARE OF COSTS	3

J. R. SIMPLOT COMPANY
Colorado Uranium Division
Norwood, Colorado

LIST OF EXHIBITS

TITLE	EXHIBIT NO.
Completed Form MF-103	1
Officials of the J. R. Simplot Company	2
Schedule of Unit Costs	3
Atomic Energy Commission's Mining Lease No. AT(05-1)-OG-44	4
Application for Aid in an Exploration Project on the Greager Group	5

LIST OF FIGURES

	FIGURE NO.
Index Map	1
Map of Part of Colorado and Utah Showing the Principal Uranium Deposits	2

LIST OF PLATES

	PLATE NO.
Topographic Map Showing Bull Canyon and Adjacent Mining Districts	1
Greager Group	2
Starlight No. 8 Area 1"=40'	3
East Greager Group 1"=200'	4

J. R. SIMPLOT COMPANY
Colorado Uranium Division
Norwood, Colorado

1. NAME OF APPLICANT

a. See letterhead and Form MF-103 attached as Exhibit 1
b. State of incorporation - Idaho - See Exhibit 1
c. Omitted - not partnership

2, GENERAL

This report with Form MF-103 (Numbers and letters in front of headings used in this report refer to parts of Form MF-103) attached as Exhibit 1, is an application for a Defense Minerals Exploration Administrations exploration project contract of the short form or unit cost type. A 27,533 feet drilling project costing $113,882.00 is proposed for exploring land which would have been included in the Application for Aid in an Exploration Project on the Greager Group, (Docket No. DMEA 3048) except that the lands were covered by an Oil and Gas lease and DMEA help would have been denied. The U. S. Atomic Energy Commission has now issued a "validating" lease on these lands to make it possible for the J. R. Simplot Company to procure a DMEA loan on them. A reproduction of A. E. C. lease No. AT(05-1)-OG-44 covering these lands is included with this report as Exhibit 4. The report which accompanied the first application for aid on the Greager Group is included as Exhibit 5.

3. PROPERTY RIGHTS

a. Legal Description and Nature of Title

The unpatented claims upon which the exploration work is to be performed are all covered by Oil and Gas Lease D054351 which was applied for on August 5, 1946 and issued on August 1, 1948.

Mining Lease No. AT(05-1) -OG-44 was recorded at the Montrose County Court House in Montrose, Colorado on May 18, 1953 in Book 360 Page 25. Book, page, and date of record for the claims included in the lease are given on Appendix A of Exhibit 4. The Wonder claim which is not included in the A. E. C. lease is included in the ground covered by the proposed exploration project.

The Wonder claim which was recorded in Montrose County in Book 289, Page 345, March 2, 1940, was a valid claim at the time the Oil and Gas lease was applied for.

4. PHYSICAL DESCRIPTION OF PROPERTY

a. Operation (See Exhibit 5)

b. Production and Ore Reserves (See Exhibit 5)

c. Geologic Features

All of the drilling recommended in this application is for possible ore bodies in the first horizon. (See pages 4 & 5 of Exhibit 5). One relatively

large ore body has been discovered on these claims by the U. S. Atomic Energy Commission.

It is the writers opinion that $113,882.00 can be spent for exploration drilling on the land covered by this application with reasonable assurance that a 5% royalty on the ore discovered will reimburse the total cost.

d. Accessibility (See Exhibit 5)

e. Availability of Manpower, Equipment, Supplies, Etc. (See Exhibit 5)

5. THE EXPLORATION PROJECT

a. See MF-103 Exhibit 1 - will explore for uranium

b. Proposed work

See Pages 6-10 of Exhibit 5

Proposed Hole Locations which have been previously determined are shown on the maps (in pocket) numbered Plate 3 and 4. The writer realizes that all of the proposed locations are not necessary and that some of the proposed holes will be eliminated by the DMEA field team. An excess number of locations are shown so that the field team will have a wide variety of locations to choose from without the tedious task of plottimg holes and estimating drilling depths.

The Basic Drilling Plan recommended to the DMEA for the proposed exploration project has the same general objectives as the plan used on the unclouded portion of the Greager Group. (See Page 7 of Exhibit 5). In addition to the Class A and Class B drilling however, some Class C or wildcat drilling is recommended.

The addition of the wildcat drilling is in the writer's opinion justified by the success of previous exploration work. The 6 holes recommended are located to take full advantage of the East-West trend indicated by the drilling done to date.

c. Duration of Contract, Two years, See MF-103

d. Ability of applicant

See page 9 & 10 of Exhibit 5

Not mentioned in the full report is the previous experience of W. E. Janakka, who will supervise the exploration project. Mr. Janakka, who is a graduate of the Colorado School of Mines has had almost 4 years experience

in the uranium mining and milling industry on the Colorado Plateau in addition to over 7 years of experience as a mining engineer and mine operator in other metal mining areas.

6. ESTIMATE OF COSTS

See page 11 of Exhibit 5

7. APPLICANT'S SHARE OF COSTS

See page 11 of Exhibit 5

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED

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

Not to be filled in by applicant

Docket No. .....
Metal or Mineral .....
Date Received .....
Estimated Cost .....
Participation (Government %) .....

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address:

J. R. Simplot Company, (an Idaho Corporation)
Colorado Uranium Division
Norwood, Colorado

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

(*c*) If a corporation, add to above statement, titles, names and addresses of officers. See Exhibit 2 of report

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract

See page 1 of report and Appendix A of Exhibit 4

(*b*) State any mine name by which the property is known.

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

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property.

(*e*) If you own the land, describe any liens or encumbrances on it None

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. See page 2 of report and Appendix A of Exhibit 4

4. *Physical description.*—(*a*) Describe in detail any mining or exploration operations which have been or now are being conducted upon the land, including existing mine workings and production facilities. State your interest, if any, in such operations. Also describe accessibility of mine workings for examination purposes. Report page 1, Exhibit 5 page 3

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. See page 1 of report

(*c*) Describe the geologic features of the property, including mineralization, type of deposit (vein, bedded, etc.), and your reasons for wishing to explore. Illustrate with maps or sketches. Send with your application (but not necessarily as a part of it) any geologic or engineering report, assay maps, or other technologic information you may have, indicating on each whether you require its return to you. See page 1 of report & pages 4 & 5 of Exhibit 5

(*d*) State the facts with respect to the accessibility of the project: Access roads, distances to shipping, supply and residence points. See page 2 of report and page 5 of Exhibit 5

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power. See page 2 of report and page 6 of Exhibit 5

16—66551-1

Exhibit 1

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

.....

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

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

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

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

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

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

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

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

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

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

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

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

☐ Money ☐ Use of equipment owned by you ☐ Other

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated ....., 195...

J. R. Symmes Company
(Applicant)

By Robert L. Ingell
Exec. Vice President

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

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

J. R. SIMPLOT COMPANY

Colorado Uranium Division
~~NATURITA, COLORADO~~
Norwood, Colorado

RECEIVED

EXHIBIT 2

Officials of the J. R. Simplot Company

President	J. R. Simplot, 1500 Harrison Boulevard, Boise, Idaho
Executive Vice President	Robert I. Troxell, Continental Bank Building, Boise, Idaho
Vice Presidents	W. Grant Kilbourne, 111 Crestline Drive, Boise, Idaho Leon C. Jones, 324 Everett Street, Caldwell, Idaho L. M. Buehler, Pocatello, Idaho George R. Duff, Auburn, California Clayton Almquist, Caldwell, Idaho L. W. Hayes, Caldwell, Idaho John Rambosek, Burley, Idaho
Secretary-Treasurer	John M. Dahl, 3426 Meadow Drive, Boise, Idaho
Manager of Mines	George A. McHugh, 3501 Kootenai, Boise, Idaho
Manager of Colorado Uranium Division	Louis P. Gaggini, Norwood, Colorado
Superintendent, Bull Canyon Operations Colorado Uranium Division	W. E. Janakka, Montrose, Colorado

EXHIBIT 3 SCHEDULE OF UNIT COSTS

Item No.	Description	Drilling From - To	Estimated Total Footage	Cost Per Foot	Total Cost
2	Porta Drilling (a)	0 - 200	27233	3.50	95,315.50
3a	AX or BX Core Drilling (a) (c)	0 - 200	300	4.50	1,350.00
	Total Drilling		27533		96,665.50
Average cost per foot drilling less casing, gamma ray logging and custom assaying				3.52	
4	Casing (d)	Any depth	1200	2.00	2,400.00
5	Gamma Ray Logging (e)	Any depth	27233	.50	13,616.50
6	Custom Assaying (f)	400 samples		3.00	1,200.00
	Grand Total				113,882.00
Average cost per foot allowing for all contingencies				4.13	
Amount of DMEA Loan					102,493.80

(a) The unit cost for drilling covers all expenses for the following items: independent contractors, labor, supervision, sampling, drafting, geology, engineering, accounting, project management, operating materials, supplies, equipment depreciation, repairs, building depreciation, rent field assaying, all items mentioned in part 5, form MF-103, reasonable allowances for contingencies and all other costs directly chargeable to the exploration project.

(b) Includes all items listed above except that an independent contractor will do drilling.

(c) Work will be performed with company owned core drill. Cost of hauling water to drill included. Estimated total footage based upon experience to date with an allowance for contingencies. Footage estimated is in addition to Class A, Class B & additional footage. Out of 65 Porta-drill holes put down to date on Greager Group, only one was too wet to complete.

(d) For casing to wet formations after the Porta-drill has failed, due to water saturating the cuttings. Complete cost of installing concentric string of AX casing inside BX casing for each hole which might have to be completed under Item 3 included. Purpose of the two strings of casing is to allow overreaming with BX tools in case AX bit gets stuck. Reasonable credit allowance has been made in estimate for recovered and reused casing.

(e) Cost based on leasing on a weekly basis, logging equipment complete with operator.

(f) Actual charge which will be made by custom assayer. Number of samples based on J. R. Simplot Company's experience on Greager Group, plus an allowance of 20% for increased success due to closer geological control.

FORM OG
2/12/53

MINING LEASE NO. AT(05-1)-OG-[illegible]

[illegible]

THIS AGREEMENT OF LEASE, effective as of the [illegible], by and between the UNITED STATES OF AMERICA [illegible] COMMISSION (hereinafter called the "Commission"), acting as agent of and on behalf of the UNITED STATES OF AMERICA, and [illegible] (hereinafter called the "Lessee");

WITNESSETH THAT:

WHEREAS, the Lessee desires to develop and produce uranium ore on certain lands which would be open to location under the mining laws except for the existence of an oil and gas lease on such property, issued under the provisions of the Act of February 25, 1920, (41 Stat. 437, 30 U.S.C., Sec. 181 et seq.), as amended; and

WHEREAS, the Commission desires to acquire source materials from those certain lands; and

WHEREAS, this agreement is authorized by and has been negotiated under the Atomic Energy Act of 1946, as amended, in the interest of the common defense and security;

NOW, THEREFORE, the parties hereto do mutually agree as follows:

1. The Commission, for and in consideration of the performance by the Lessee of the covenants and agreements hereinafter expressed, does hereby lease unto the said Lessee for the purpose of mining uranium bearing ores those certain mineral lands described as follows: [illegible]

Exhibit 4
page 1

FORM OG
2/12/53

The rights hereby granted are limited to mining within the vertical planes of the boundary lines of the above described premises.

2. The term of this lease shall be for so long as the Lessee shall comply with the lease terms.

3. In consideration of this lease, the Lessee agrees as follows:

(a) To enter upon the premises and commence work on or before _____, 19__, working the property in a manner consistent with good and economical practice and to conduct all operations with due regard for good land management and avoidance of unnecessary damage or waste.

(b) Throughout the life of the lease to sustain with reasonable diligence, skill and care, a program of development and mining of uranium deposits or a program of prospecting and exploration for such deposits in such manner as to achieve and maintain maximum production of uranium ore from the leased premises, consistent with good mining practice and the size of the deposit.

(c) To comply with all requirements of pertinent State and Federal laws applicable to the conduct of mining operations.

(d) To allow the Commission and its representatives at all reasonable times to enter upon the property and into all parts of the mine for purposes of inspection, drilling, sampling and mapping.

(e) To keep proper records of (1) shifts worked, (2) tonnage and grade of ore developed and mined, and (3) development work and drilling performed and assay data pertaining thereto.

(f) To submit reports to the Commission covering the matters referred to in 3(e) above, when requested to do so.

(g) To permit the Commission to inspect Lessee's mine maps and assay records relating to the leased premises.

(h) To conduct operations hereunder in such manner as not to interfere with the lawful operations of any third party having an interest in the premises.

FORM OG
2/12/53

4. The lease of premises for mining purposes pursuant to this agreement includes (subject to the provisions of paragraph 3(h) above) rights to use the surface of the area described only insofar as such use is reasonably necessary for the conduct of prospecting, development and mining operations for uranium, including the right of way over the surface for access to the workings. The Lessee shall have the right, to the extent required for operations, to erect buildings and structures and install machinery, and upon termination or expiration of this lease agreement it may remove any such buildings, structures and machinery placed by it on the property; provided, however, that this right of removal shall not extend to the removal of mine timbering. The Lessee hereby waives all rights, title and interest to and in all ore and tailings which have not been removed from the leased premises pursuant to Commission licensing regulations within ninety (90) days after the termination or expiration of this lease and all equipment, appurtenances, fixtures and other personal property not removed from the leased premises within such time.

5. (a) It is understood that the Commission shall not be responsible for any mechanics' or miners' liens or other liens, encumbrances or liabilities incurred by the Lessee in connection with the operation of the leased premises, and the Lessee assumes all responsibility for all claims of whatsoever nature arising from the operation or occupancy of the premises. The Lessee shall forthwith post, and at all times keep posted, in some conspicuous place upon the premises a notice stating that the premises are leased to the Lessee and that the interest of the Commission shall not be subject to any liens, claims or encumbrances arising in connection with the occupancy and operation of the premises, and that the Commission shall not be liable to any person not a party to this lease for any claims arising in connection with this lease of the leased premises.

(b) The Lessee agrees to protect and indemnify the Commission against any claims arising in connection with activities of the Lessee under this lease. The Lessee also agrees to provide (at its own cost and expense) for each workman employed by it in the conduct of its activities under the lease such protection as is required by applicable laws relating to workmen's compensation and employers' liability insurance.

6. This agreement or any interest herein may be assigned or transferred by the Lessee only upon prior written authorization from the Commission.

FORM 06
2/12/53

7. The term of this agreement shall expire, at the option of the Commission, upon failure of the Lessee to comply with any of the obligations in this lease within ninety (90) days after the receipt of a notice from the Commission specifying such failure and requesting compliance. Thereupon, the Commission or its representative may, after demand of possession in writing, enter upon the leased premises and dispossess all persons occupying the same. This lease may be terminated at any time by the Lessee by written notification to the Commission, such termination to be effective upon receipt by the Commission of the notification.

8. The Lessee does not waive any right to which he would otherwise be entitled because of the passage of subsequent legislation by entering into this agreement.

9. The provisions of the Commission's Domestic Uranium Program Circular 6 shall be applicable to ores produced from the leased premises to the same extent as if the Lessee held such land by reason of valid location under Federal and State mining laws.

10. The Lessee warrants that it has not employed any person to solicit or secure this lease upon any agreement for a commission, percentage, brokerage, or contingent fee. Breach of this warranty shall give the Commission the right to terminate this lease, or, in its discretion, charge to the Lessee the amount of such commission, percentage, brokerage, or contingent fee.

11. No member of or delegate to Congress or resident commissioner shall be admitted to any share or part of this lease or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this lease if made with a corporation for its general benefit.

12. It is expressly agreed between the parties that should any legal proceedings be instituted which would interfere with the possession and enjoyment of the premises, the Lessee shall not attempt to hold the Commission liable in damages or otherwise to the Lessee on account of such disturbed and interrupted possession and enjoyment.

13. As used in this lease agreement, the term "Commission" includes the Commission and its authorized representative or representatives.

14. In performance of work under this agreement, the Lessee agrees not to discriminate against any employee or applicant for employment because of race, creed, color or national origin.

FORM OG
2/12/53

15. The Commission agrees that the Lessee by executing this agreement does not waive any right to assert any prior existing property interest in the leased tract which could have been asserted in the absence of this lease.

IN WITNESS WHEREOF, the parties hereto have executed this agreement as of the day and year first above written, intending to be legally bound thereby.

Witnesses:

THE UNITED STATES OF AMERICA
UNITED STATES ATOMIC ENERGY COMMISSION

(Title)

Exhibit 4
page 5

ACKNOWLEDGMENT

I, L. E. [illegible], certify that I am the Assistant Secretary of the corporation named as Lessee herein; that Robert I. Arnall, who signed this agreement on behalf of the Lessee was then Executive Vice President of said corporation; that said agreement was duly signed by and on behalf of said corporation by authority of its governing body and is within the scope of its corporate powers.

IN WITNESS WHEREOF, I have hereunto affixed my hand and the seal of said corporation this 12th day of May, 1953.

Assistant Secretary

(CORPORATE SEAL)

Exhibit 4
page 6

APPENDIX "A"

MINING LEASE NO. AT(05-1)-OG-44

Unpatented mining claims in W½ and W½NE¼ section 4, T. 45 N., R. 18 W., N.M.P.M., said claims being described and recorded in the books and on the pages of the public record of Montrose County, Colorado, as follows:

Claim	Book	Page	Date	
Cabin No. 2	296	444	10-20-48	Lease does not include that portion in section 33, T. 46 N., R. 18 W., N.M.P.M.
Dolores	335	362	12-20-49	
Red Flag No. 5	335	386	12-20-49	Lease does not include that portion overlapping Wonder claim
Cabin Point	335	361	12-20-49	
Mutt No. 1	335	372	12-20-49	Lease does not include that portion overlapping Wonder claim.
Mutt No. 2	335	371	12-20-49	
Mutt No. 3	335	373	12-20-49	
Red Flag No. 6	335	387	12-20-49	Lease does not include that portion overlapping Starlight No. 8
Old Crow	296	533	9-8-49	Lease does not include that portion in E½NE¼ section 4, T. 45 N., R. 18 W. and section 33, T. 46 N., R. 18 W., nor that portion which overlaps Starlight 7 and 8.
Old Crow No. 2	296	534	9-8-49	Lease does not include that portion in E½NE¼ section 4, T. 45 N., R. 18 W., nor that portion overlapping Starlight No. 8.
Red Flag No. 1	335	382	12-20-49	Lease does not include that portion in section 33, T. 46 N., R. 18 W.
Red Flag No. 2	335	383	12-20-49	
Red Flag No. 3	335	384	12-20-49	Lease does not include that portion in section 33, T. 46 N., R. 18 W.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 3 1953

J. R. SIMPLOT COMPANY
Colorado Uranium Division
Naturita, Colorado

APPLICATION FOR AID IN AN EXPLORATION PROJECT

on the

GREAGER GROUP

May 15, 1953

by Louis P. Gaggini

Exhibit 5

J. R. SIMPLOT COMPANY
Colorado Uranium Division
Naturita, Colorado

DMEA LOAN APPLICATION - GREAGER GROUP

Table of Contents

Numbers and letters ahead of headings (when used) refer to parts of Form MF-103.

Heading	Page No.
LIST OF EXHIBITS	0
LIST OF FIGURES	0
LIST OF PLATES	0
1. NAME OF APPLICANT	Exhibit 1
a. Full legal name, see letterhead and Form MF-103	Exhibit 1
b. State of Incorporation (See Form MF-103)	Exhibit 1
c. Names and addresses of officers	Exhibit 2
d. Omitted - Applicant is not a partnership	
2. GENERAL	1
Acknowledgements	1
Summary	1
3. PROPERTY RIGHTS	2
a. Legal Description	2
b. Mine Name, See MF-103	Exhibit 1
c. Interest in land (owner) see MF-103	Exhibit 1
d. Omitted (owner) see MF-103	Exhibit 1
e. Liens or Encumberances (none) see MF-103	Exhibit 1
f. Nature of Title	2
4. PHYSICAL DESCRIPTION OF PROPERTY	3
a. Operations	3
Mining Operations	3
Exploration Drilling	3
b. Production and Ore Reserves	4
c. Geologic Features	4
Ore Horizons	4
Shape and Size of Ore Bodies	5
Justification of Exploration	5
Geological Reports	5
d. Accessibility	5
e. Availability of Manpower, Equipment, Supplies, etc.	6
5. THE EXPLORATION PROJECT	6
a. Mineral Sought - Uranium, see MF-103	Exhibit 1
b. Proposed Work	6
Wagon Drill	6
Porta-drill	6
Penetrating Wet Formations	7
Basic Drilling Plan	7
Geologic Control of Drilling	8
Sampling and Assaying	9

Exhibit 5

J. R. SIMPLOT COMPANY
Colorado Uranium Division
Naturita, Colorado

Table of Contents (Continued)

Headings	Page No.
Gamma Ray Logging	10
c. Duration of Contract, Two Years, see MF-103	Exhibit 1
d. Ability of Applicant	10
6. ESTIMATE OF COSTS	11
7. APPLICANT'S SHARE OF COSTS	11
BIBLIOGRAPHY	11

Exhibit 6

J. R. SIMPLOT COMPANY
Colorado Uranium Division
Naturita, Colorado

LIST OF EXHIBITS

TITLE	EXHIBIT NO.
Completed Form MF-103	1
Officials of the J. R. Simplot Company	2
Schedule of Unit Costs	3
List of Claims	4
Atomic Energy Commission's Letter of Certification	5
Summary of Drilling	6

LIST OF FIGURES

	FIGURE NO.
Index Map	1
Map of Part of Colorado and Utah Showing the Principal Uranium Deposits	2

LIST OF PLATES

	PLATE NO.
Topographic Map Showing Bull Canyon and Adjacent Mining Districts	1
Claim Map of Greager Group	2
Starlight No. 8 Area	3
Starlight No. 7 Area	4
Cabin Area	5
Big Rock - Starlight Area	6
Carnotite Area	7
Morning - Sunset Area	8
Jack's Point Area	9

Exhibit 6

J. R. SIMPLOT COMPANY
Colorado Uranium Division
Naturita, Colorado

1. NAME OF APPLICANT

a. See letterhead and form MF-103 attached as Exhibit 1
b. State of incorporation - Idaho - See Exhibit 1
c. For names and addresses of corporate officers, See Exhibit 2
d. Omitted - not a partnership

2. GENERAL

This report with Form MF-103 (Numbers and letters in front of headings used in this report refer to parts of Form MF-103) attached as Exhibit 1, is an application for a Defense Minerals Exploration Administration exploration project contract of the short form or unit cost type. A $289,145.00 project is proposed for exploring uranium lands in Montrose County, Colorado. The proposed project will consist of 87,840 feet of exploration drilling on the Greager Group of claims in the Bull Canyon District near Paradox Valley, not far from Uravan, Colorado (See Figure 1). Ten percent, or $28,914.50 of the expenditure will be borne by the J. R. Simplot Company, the applicant, leaving $262,230.50 to be loaned by DMEA.

Two types of drills are to be used in the performance of the work and the costs will vary with the applicable type of drill, drilling depths, and the amount of moisture present in the formations penetrated. The unit costs for each type and depth of drilling are definitely fixed and are listed in the schedule attached as Exhibit 3.

Proposed hole locations have been previously determined and are shown on the maps (in pocket) numbered from Plate 3 to Plate 10 inclusively. As the work progresses, however, it will likely become evident that some of the proposed holes might fall in areas geologically unfavorable for ore. The J. R. Simplot Company would, therefore, like the privilege of deciding whether or not any previously proposed hole should be drilled. It is also requested that footage saved, when proposed holes are omitted, be transferred, with the permission of the DMEA field team, to other parts of the Greager Group which might be more favorable for ore.

Acknowledgements

The writer wishes to gratefully acknowledge the assistance of Mr. E. R. Gordon, Director of Exploration, Grand Junction Operations Office, United States Atomic Energy Commission and his staff. Mr. Gordon's staff was of assistance in compiling data from Atomic Energy Commission files that was used both in drafting and in illustrating this report. The writer is also grateful to Mr. J. H. East, Jr., Regional Director, United States Bureau of Mines, Denver, Colorado, and Mr. W. H. King, Executive Officer, DMEA, Denver, Colorado, for granting a personal interview and for several informative telephone conversations. Mr. Frank Belina and Mr. Shaw, members of Mr. King's staff made several helpful suggestions during a Denver interview with the writer.

Exhibit 6

Mr. R. P. Fischer, District Supervisor of the Colorado Plateau District, for the United States Geological Survey in Grand Junction was consulted many times by the writer of this report. The basic plan of drilling proposed herein was suggested by Mr. Fischer, who has had a long, successful career in the field of carnotite exploration. Mr. Boardman, Geologist for the U.S.G.S. in Grand Junction also made several helpful suggestions regarding the contents of this report.

Summary

The Greager Group is at present producing 200 tons of uranium ore per month. It has, in the writer's opinion, the potential to become a much larger producer after it is explored thoroughly. The group is located just 1 mile west of the Uravan Mineral Belt[1] and thus can be considered just slightly less favorable than the best uranium producing land on the Colorado Plateau (See Figure 2). Because the group is located near the heart of the uranium producing region, a good supply of skilled labor, materials and equipment necessary for the project are assured. The writer, who will manage the exploration project has had almost ten years experience in uranium exploration and mining with a good record of discoveries and correct appraisals of speculative areas. The J. R. Simplot Company which will undertake the exploration is an aggressive organization active in many mining enterprizes.

3. PROPERTY RIGHTS

a. Legal Description

Exhibit 4 gives a list of the claims upon which the exploration work is to be performed. All claims are located in the Bull Canyon Mining District of Montrose County, Colorado. To avoid legal questions which might delay or prevent processing of this application, land covered by oil and gas lease No. D054351 is excluded, as are portions of claims lying in an area contested by the United States Vanadium Company (See Plate 2).

For further information regarding legal title to land covered by this application the DMEA is referred to Mining Property certification No. D.U.P. C6-C-200 which certifies the property for receiving a bonus for new production from the United States Atomic Energy Commission. The letter which resulted from the title search of the Atomic Energy Commission is attached as Exhibit 5.

b. c. d. e. See M.F.103 Attached as Exhibit 1

f. Nature of Title

The 45 unpatented claims selected for the DMEA project are recorded at the Montrose County Courthouse in Montrose, Colorado. Book and page, date of location and data of record are included in Exhibit 4. Twenty-seven of the

claims were conveyed to J. R. Simplot Company by warranty deed executed on September 13, 1949 and recorded in the office of the County Recorder of Montrose County on September 20, 1951, in Book 348, page 401. The additional 18 claims were staked by the J. R. Simplot Company in 1949 to consolidate and protect the group.

4. PHYSICAL DESCRIPTION OF PROPERTY

a. Operations

At the time of the writing of this report there were three active mining operations on the claims covered by this application. An exploration program conducted by the United States Atomic Energy Commission on these lands and on lands covered by oil and gas lease D054351 has been quite successful.

In addition to the Atomic Energy Commission drilling on the Greager Group, the J. R. Simplot Company has drilled, since September 1952, about 7000 feet with a Porta-drill owned by the company and about 20,000 feet with a wagon drill provided by an independent contractor.

Mining Operations: The Starlight #8 mine, oldest of the active operations on the Greager Group, is being operated by an independent contractor for the J. R. Simplot Company. (See Plate 3). Another independent contractor is working on the Starlight #7 claim where a drift which has been driven to AEC ore hole BC 895 will be continued to intercept an ore body blocked out by the J. R. Simplot Company around AEC diamond drill hole BC 752. An open cut on the Hobo claim is being worked directly by the J. R. Simplot Company. (See Plate 2)

Underground workings of the Starlight and Big Rock Claims (See Plate 6) were abandoned recently to preserve the ore for open cut mining. All other abandoned mines and prospects on the Greager Group are open and easily accessible. The most extensive of these are the Morning, Morning No 1 and Sun Set Mines shown on Plate 8.

All known occurrences of ore or uraniferous and/or vanadiferous sandstone are shown on Plate 2. Occurrences around which drilling is recommended are shown on the appropriate detail maps (Plates 3 to 9 inclusive), prepared especially for this report. Many of the occurrences around which drilling is recommended were not known until the detail mapping at the extreme east, west and central portion of the group was started. It is the writer's opinion that if such mapping were continued, many other occurrences would be found along the outcrops of sandstones occurring at one of the four ore horizons known to exist on the Greager Group (See Plate 2).

Exploration Drilling: The major part of the drilling done by the Atomic Energy Commission on the group has been with diamond core drills on the lower ore horizon. Holes have ranged in depth from about 80 ft. to 150 ft. A

wagon drill used by the Atomic Energy Commission to block out ore discovered by the core drills was not too successful because of damp ground. Like the Atomic Energy Commission, the J. R. Simplot Company has had little success with its wagon drill on the lower ore horizon, but found it very satisfactory for penetrating the upper ore horizons. The Porta-drill, however, has been very successful on the lower horizon, and one 300 ft. hole passing through the third, second and first horizons, was completed with ease.

For the proposed DMEA project, the J. R. Simplot Company plans to use both a wagon drill and Porta-drill. Since the wagon drill is so well known and generally accepted as a means of exploration on the Colorado Plateau, no further description is given in this report. The Porta-drill and its effectiveness as an exploration tool is discussed under section 5 b. on page 6 of this report.

b. Production and Ore Reserves

Since April of 1948, the Greager Group has produced about 4,500 tons of ore containing about .25% U_3O_8 and about 1.50% V_2O_5. Figures for production prior to April 1948 are not available, but the tonnage produced was probably less than the recorded production, but the average grade was probably higher. On Plate 2 an estimate of all production by ore horizons is given. The 4,500 tons produced in 1948, came from several ore bodies, varying in size from about 20 tons for one very small outcrop on the fourth horizon, to about 3000 tons from the large stope shown on Plate 3.

Location of discoveries, made by the recent Atomic Energy Commission and the J. R. Simplot Company drilling programs, are shown on Plate 2.

c. Geologic Features

Carnotite deposits of the Bull Canyon district occur in the Morrison Formation, the major producing formation of the Colorado Plateau. Overlying the ore bearing Salt Wash Member are the typical variegated bentonitic mudstones of the Brushy Basin Member of the Morrison Formation which sometimes has an ore bearing sandstone near its base. Because it is bentonitic, the unit has a tendency to swell when drilled with conventional equipment using water as a drilling fluid.

The Entrada sandstone, which lies at the base of the ledgy slope formed by the Salt Wash Member and the underlying Wannakah Member and Summerville Formation, is the prominent pink "slickrim" sandstone which is commonly used as a key bed for defining ore horizons.

<u>Ore Horizons</u>: Ore bodies of the Greager Group occur in four different stratigraphic zones which are called herein ore horizons. A part of Plate 2 shows the position and span of these ore horizons on a stratigraphic column. Numbers assigned to ore horizons are those used by the J. R. Simplot Company for ease in reference, and are not, by any means, to be considered official

or general nomenclature.

Size, Shape and Orientation of Ore Bodies: So little exploration work has been done on the Greager Group that any definite statements as to the general size, shape and orientation of ore bodies would be premature. For this reason, a plan of wildcat exploration, at first considered, has been abandoned in favor of the present plan which is confined to exploration near known ore bodies or deposits of uraniferous and/or vanadiferous material. A cursory examination of production figures, drilling data, and maps available indicates that many ore bodies averaging from 2000 to 3000 tons in size might be expected. It also appears that the ore bodies might occur in clusters or groups, such that several ore bodies might be reached with the same shaft, adit or incline. There is little reason to believe that any of the ore, which might be discovered by the proposed program, will be too deep for commercial exploitation.

Justification of exploration: The Greager Group is located near the Uravan Mineral Belt, the area which is generally recognized as containing most of the more valuable uranium ore bodies in the Morrison Formation (See Figure 2). Recent exploration drilling performed by both the Atomic Energy Commission and the J. R. Simplot Company has been successful. The area is still withdrawn for further Atomic Energy Commission drilling. It is very likely, therefore, that the government will spend more money in drilling on the Greager Group with no help from private enterprise and with no likelihood of direct repayment. It is respectfully submitted that the proposed DMEA project is a good proposition for the government in that the J. R. Simplot Company will assume ten percent of the exploration costs and will probably eventually repay the total cost at the rate of 5% on subsequent production. All of the present production of the Greager Group is coming from claims which will be obligated under the DMEA contract. Repayment of the loan will begin, therefore, as soon as the contract is executed.

It is the writer's opinion that $289,145.00 can be spent for exploration drilling on the Greager Group with very reasonable assurance that a 5% royalty on the ore discovered will reimburse the total cost.

Geological Reports: Applicable illustrations from the Union Mines Report[2] prepared for the Manhattan Project, are included herein as parts of figures and plates.

d. Accessibility

The Greager Group is readily accessible over an unpaved road which joins Colorado Highway 90 in Paradox Valley 17 miles from the claim group. The access road has been graveled to within 9 miles of the group, but is an unimproved dirt road for the remainder of the distance.

A postoffice, permanent settlement and motor freight depot are located in Naturita, the nearest town, which is 30 miles away. The nearest railhead

and air line terminals are at Grand Junction, which lies at a distance of 120 miles by road and 60 miles by air. (See Index Map, Figure 1). The Atomic Energy Commission maintains an airstrip on Monogram Mesa, 10 miles from the Greager Group.

e. Availability of Manpower, Equipment, Supplies, etc.

Manpower skilled in performing the type of drilling planned is readily available in the area, as are dependable outlets for materials and supplies.

Most of the equipment to be used is already in Bull Canyon under contract to, or owned by, the J. R. Simplot Company.

Water is usually available at nearby springs, or if the summer is a dry one, it may be necessary to haul water from the Dolores River, 27 miles from the Greager Group.

There are no power lines in the area. Electricity for camp use on the Greager Group is at present provided by a 5kw gasoline light plant which will be available for the same purpose on the proposed project.

5. THE EXPLORATION PROJECT

a. See MF103 Exhibit 1 - will explore for uranium

b. Proposed work

A wagon drill will be used to explore to depths of 125ft., wherever possible. A Duclone dust collector will be used to collect samples from the wagon drill for geologic logging and assaying.

Porta-drill: For deeper holes and holes located where wagon drilling is not practical, a Winter-Wiess Porta-drill, owned by the J. R. Simplot Company, will be used. This drill utilizes a conventional tri-cone roller rock-bit, with air as the drilling fluid. Dust samples are collected from the Porta-drill holes in a tarp spread around the stand-pipe. This method is being very successfully used at the present time by the J. R. Simplot Company.

The Porta-drill was approved for and used by the J. R. Simplot Company on one DMEA project in Utah. For further information as to the effectiveness of the drill on this project, the DMEA is referred to William Young, of Salt Lake City, Utah, who was the United States Bureau of Mines representative on the DMEA field team which supervised the project identified by (DMA Docket 1685-X).

The J. R. Simplot Company has also used the Porta-drill to explore gold bearing rhyolite in Idaho, where all cuttings produced by the drilling were carefully weighed. Results obtained on the Idaho project indicated that

samples collected by the methods described above amounted to over 90% of the material cut.

Drills using roller rock bits and compressed air are being used extensively in the Grants, New Mexico area, where they are, according to Atomic Energy Commission personnel, doing excellent work as a uranium exploration tool[3].

Penetrating Wet Formations: Although the Porta-drill will penetrate some formations which contain enough moisture to stop a wagon drill, it will not penetrate very wet ground. Drilling in these very wet areas will be accomplished by using the Porta-drill to the wet horizon and then setting a BX casing in the hole followed by AX casing inside the BX casing. A conventional core drill will then be used to complete the unfinished holes. This system is being used successfully on the Colorado Plateau by several contractors. Drills employing roller rock bits, start the holes and penetrate the bentonitic Brushy Basin Member, after which conventional core drills are used for coring the uranium bearing formation. For more details regarding the completion of wet holes see Exhibit 3.

The Basic Drilling Plan recommended to the DMEA for the proposed exploration project was suggested by R. P. Fischer, District Chief Geologist for the United States Geological Survey at Grand Junction, Colorado, and is considered an excellent exploration plan by the writer of this report. The four objectives of the recommended drilling plan are as follows:

1. To find uranium ore.

2. To determine the general shape, size and orientation of ore bodies.

3. To learn more about the geologic criteria which might be used to enlarge drilling targets by delineating favorable areas, so that subsequent "wild-cat" exploration can be intelligently planned.

4. To provide, if possible, geologic guides which might aid in finding ore with a minimum number of holes after favorable areas have been delineated.

The very reasonable plan suggested by Mr. Fischer to accomplish these objectives is one of drilling near known ore occurrences with holes at random locations on equal spacings. More specificly the plan recommended is divided into two categories as follows:

1. Class A drilling: Holes spaced 50 feet apart within a radius of 100 feet from known occurrences of ore or uraniferous and/or vanadiferous material.

2. Class B drilling: Holes spaced 100 feet apart within a radius of 100 feet

to 300 feet from known occurrences of ore or uraniferous and/or vanadiferous material.

Such drilling around all of the known uranium occurrences of the Greager Group would result in much more drilling than is necessary to accomplish all of the objectives outlined above. It was, therefore, decided to limit the Class A and Class B drilling to three areas in each of the three more prolific horizons and one area in the fourth relatively non-productive horizon. The areas selected in the first, second and third horizons are spaced so as to test each horizon at the eastern and western portions of the group, with other areas selected in each horizon near the center of the group. The areas are numbered and shown on Plate 2 as follows: 1A, 1B, 1C, 2A, etc. In each case the figure indicates the horizon number and the letter indicates the position beginning with A at the extreme western portion of the group.

The total footage to be drilled in each area is summarized in the table attached as Exhibit 6. The total planned footage for holes to be drilled at locations shown on the Plates is 43,670 feet. An additional equal amount of footage is recommended to be used for Class A drilling around discoveries made by holes in the Class B category and for additional Class B drilling within a radius of 100 feet to 300 feet from such discoveries. Use of this additional footage would, of course, be at the discretion of the DMEA, and at locations approved by the field team. With the United States Geological Survey member of the field team located at Grand Junction or at some field camp near Bull Canyon, a good liaison system for the approval of such recommendations is easily possible.

Geologic Control of Drilling: The DMEA is asked to allow the J. R. Simplot Company the privilege of not drilling any of the proposed holes shown on Plates 3 to 9 inclusive, if in the opinion of the company's project manager they fall in areas, which, based on previous drilling information, are considered unfavorable. Footage thus saved would be used in more favorable areas, at locations approved by the DMEA field team. The criteria used to determine unfavorableness will in general, be the same as those used by the United States Geological Survey and by the United States Atomic Energy Commission in their drilling programs. These are discussed in a report by Doris Blackman Wier[4] and the reader is referred to her publication for the information lacking in the brief discussion given below.

From a cursory study of the data produced by the recent drilling performed by the J. R. Simplot Company on the Greager Group, it appears that, of the criteria listed in Mrs. Wier's paper, color of the drill cuttings produced from an ore horizon, sandstone thickness and color of the mudstone, at the base of an ore bearing sandstone can be regarded as the most important criteria available for the geologic control of drilling on the proposed project.

Limonite and mudstone are the principal ingredients responsible for imparting color to the drill cuttings. The presence of limonite in specks,

splotches or uniform grain coatings in the sandstone, or impregnating fossil plant material in both sandstone and mudstone, has long been considered evidence of favorableness. It is reasonable to believe that the limonite was formed by the same solutions which altered the red mudstone to gray. On the proposed project limonite stained or "rusty" cuttings and cuttings which have a grayish cast due to the presence of altered mudstone will be considered as altered or favorable material. Cuttings with a reddish cast will be considered unfavorable. Clean white sandstone, which might be considered as neutral, will be placed in the "altered" zone if they occur between two layers of altered material, and in the unaltered zone if they are above or below material with a reddish cast. For each ore horizon an isopach map of the altered zone will be prepared and previously proposed holes will be eliminated if they are likely to fall in areas where the continuous altered zone might be less than 10 feet thick. Isolith maps will be used to show the ratio of "unaltered" to altered material at an ore horizon and previously proposed holes will be eliminated if they are likely to fall in areas where this ratio is less than 3 to 1. Similarly the ratio of reddish material to other material occurring at an ore horizon will be mapped and holes eliminated if they fall in areas where this ratio is greater than 1 to 3.

Thickness

similarity of constituents.

Isopach maps will also be prepared for the ore bearing sandstones and holes eliminated that are likely to cut the sandstone where it is less than 20 feet thick. This very important and usually easy to use criteria will be difficult to apply at the first horizon, because the litology at this horizon is predominately sandstone, and mudstones of notable thickness are absent, thus making the upper and lower limits of the sandstone to be isopached difficult to define. For this reason sandstone isopach maps will not be attempted for the first horizon. The criteria based on color of cuttings, however, have been successfully applied to finding ore in the first horizon.

The thickness of gray-green mudstone at the base of sandstone occurring at an ore horizon is one of the best criteria for delineating favorable ground. The lack of gray-green mudstone at the base, however, does not, if other evidences of alteration are present, constitute strong enough evidence to eliminate any drilling.

When Class B holes penetrate one foot or more of gray mudstone at the base of a sandstone, potentially ore bearing, the J. R. Simplot Company will recommend to the DMEA field team Class A drilling around such holes. Footage for such Class A drilling would come from the additional footage included in the estimate or from footage saved through the elimination of holes.

Sampling and Assaying: Samples will be collected when the megascopic appearance of cuttings indicates that the rock might contain even the slightest amount of uranium or vanadium. This method of sample selection is now being successfully used by the J. R. Simplot Company and has been successfully used by practically all of the uranium companies that have used noncoring drills for exploration. Proof of the effectiveness of the method lies in the fact

that very little radioactive material has been detected by gamma ray detecting instruments in holes that had not been sampled.

The maximum width for any single sample interval will be 1 foot: with smaller intervals used, if necessary, to detect marked changes in grade.

Because chemical uranium determinations are difficult and expensive, all of the samples taken, by the thorough and detailed methods described above, will not be analyzed chemically for uranium. All samples will be prepared, however, and will be tested for equivalent U_3O_8 with a laboratory scaler and all will be analyzed chemically for V_2O_5.

Weighted composites of individual adjacent samples from the same hole will be prepared and analyzed chemically when the grade and width of the composite samples based on the radiometric determination is such that it might be interesting from a mining standpoint.

Gamma Ray Logging: For wagon drill holes a geiger counter and probe owned by the J. R. Simplot Company will be used for gamma ray logging. For the Porta-drill holes, a more desirable graphic log will be prepared by Schlumberger or some other oil well logging organization who will be contracted to produce gamma ray logs. The $4\frac{1}{4}$" hole drilled by the Porta-drill is large enough to accommodate the conventional oil well logging gamma ray probe. Gamma ray logging or probing of holes although not essential is, in the writer's opinion, certainly economically justified. Many ore bodies have been discovered by offsetting holes where the only evidence of the nearby ore body was the radio-activity detected by a counter or logging unit. Use of the gamma-ray detecting equipment also affords a constant check on the megascopic logging and sampling of the drill crews.

c. See MF-103

d. Ability of Applicant

The J. R. Simplot Company is an aggressive company active in many mining enterprises. Phosphate rock, flourspor, iron, barite, uranium and other minerals are being mined by the company at the present time.

George A. McHugh, Manager of Mines for the J. R. Simplot Company has had wide experience in exploration, development and mining of a greatly diversified list of minerals. Mr. McHugh, who has had experience with top management for one DMEA project, is the writer's immediate supervisor and will exercise authority over policy matters with regard to the contract proposed herein.

The writer, Louis P. Gaggini, is Manager of the Colorado Uranium Division of the J. R. Simplot Company, and in that capacity will manage the exploration work on the project. The writer's experience with "carnotite" began in 1943 when he started working for the Union Mines Development Corporation, a contractor for the Manhattan project. Over 6 months of the time spent with Union Mines was

spent in the Bull Canyon District. Part of this time was spent in geological studies on the Greager Group. Subsequent experience in carnotite exploration included almost two years with the Exploration Branch of the Atomic Energy Commission in Grand Junction and 6 months with the United States Vanadium Company. During the Atomic Energy Commission work, the writer prepared a report recommending the Bull Canyon District for an Atomic Energy Commission drilling project. Later as geologist for the United States Vanadium Company, he conducted a very successful core drilling program in the Bull Canyon District, Following the United States Vanadium employment, the writer was for two years, Mine Superintendent of the Dulaney Mining Company, where he was in charge of all mining and exploration. This company is at present mining large tonnages from ore bodies which were discovered during this period.

The present position has occupied Gaggini since August 1952.

6. ESTIMATE OF COSTS

It is the desire of the J. R. Simplot Company that this exploration project contract be placed on a unit cost basis. The Schedule attached as Exhibit 3 gives the exact amount bid per unit by the J. R. Simplot Company for performing the exploration work.

7. APPLICANT'S SHARE OF COST

In accordance with DMEA regulations, the J. R. Simplot Company is prepared to assume 10% of the cost of the project in the following manner:

> The company will perform all of the necessary work and pay for all of the labor, materials and supplies used. Reimbursement by DMEA will be in accordance with the schedule of unit costs submitted as Exhibit 3, less 10%, i.e., the amount to be loaned by the Government for each unit of work performed will be 10% less than the amounts shown on Exhibit 3, Schedule of unit costs.

BIBLIOGRAPHY

1. R. P. Fischer and L. S. Hilpert, "Geology Of The Uravan Belt", U. S. Geological Survey Bull. 988A, 1952

2. John F. Emerson, "Report On Bull Canyon District Dolores Plateau Area", Colorado Union Mines Development Corporation, 1945.

3. Paul E. Melancon, District Geologist, United States Atomic Energy Commission, Grants, New Mexico. Personal communication.

4. Wier, Doris Blackman, 1952, "Geologic Guides To Prospecting For Carnotite Deposits On Colorado Plateau", U. S. Geological Survey Bull. 988-B

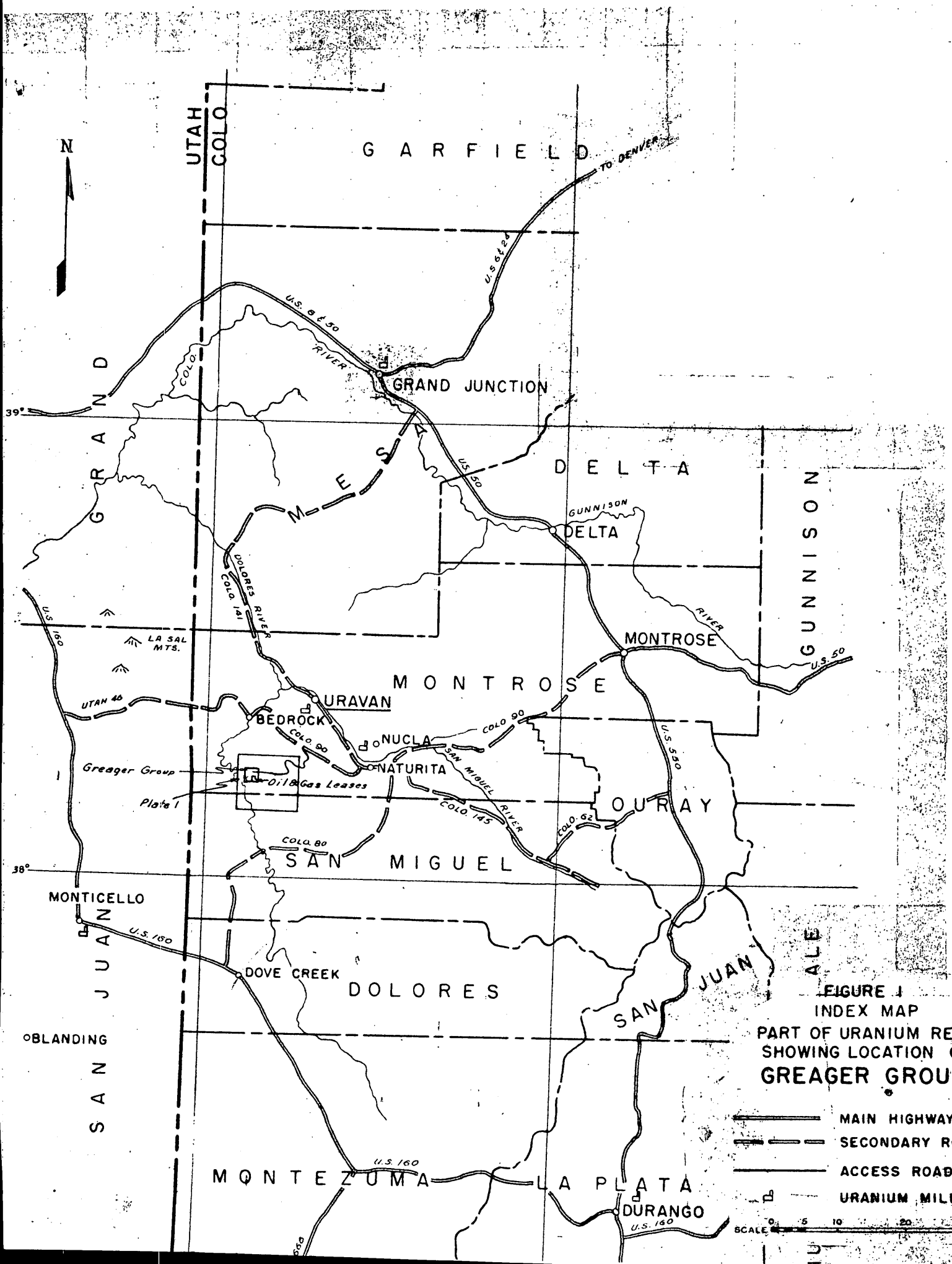
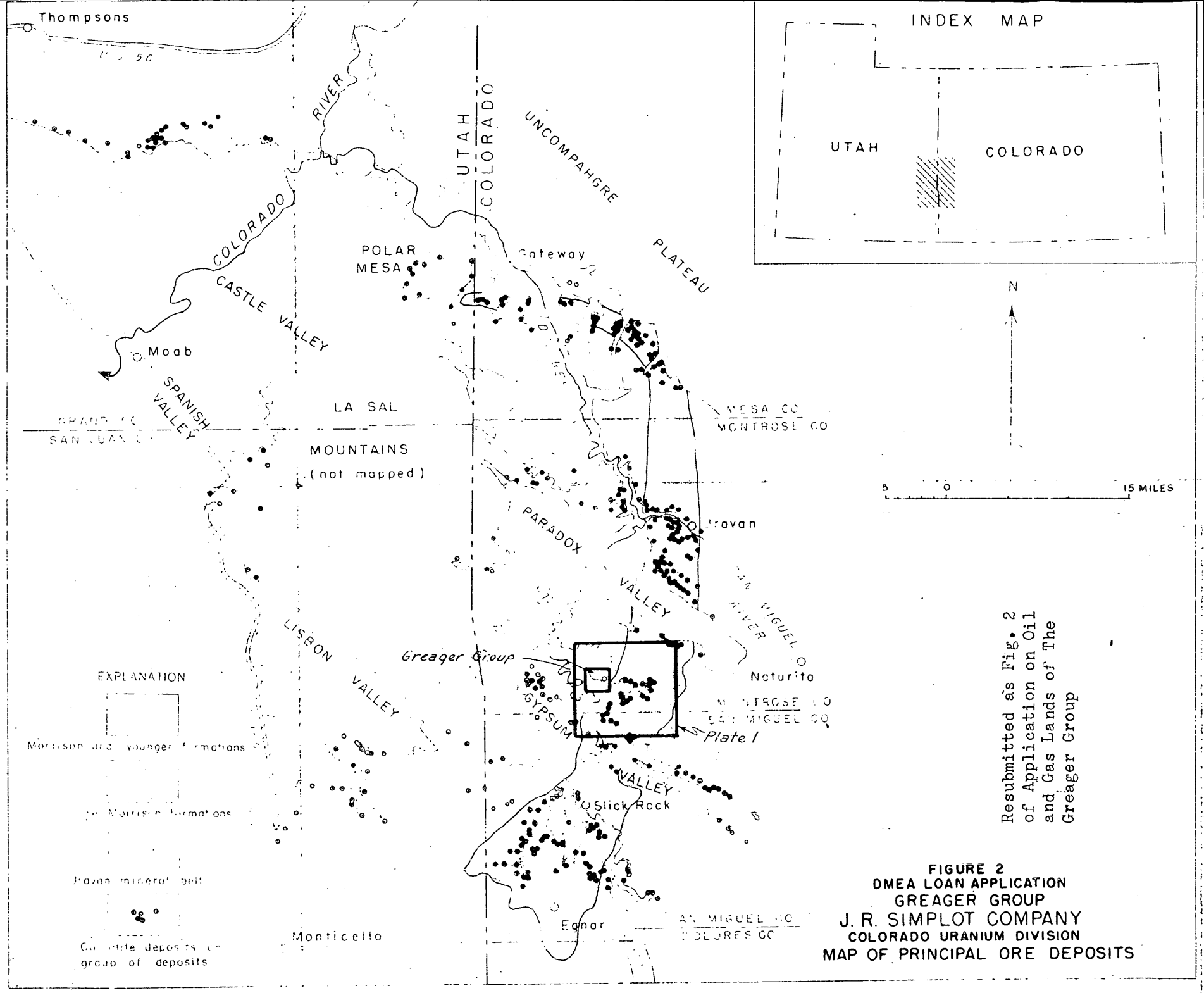


FIGURE 1
INDEX MAP
PART OF URANIUM REGION
SHOWING LOCATION OF
GREAGER GROUP



MAP [illegible] SHOWING THE PRINCIPAL DEPOSITS

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

November 20, 1953

Memorandum

To: Mr. Robert E. Adams, Chief
Operations Control & Statistics Division

From: Ernest Wm. Ellis, Chief
Rare & Misc. Metals Division

Subject: Docket No. DMEA-3147 (Uranium)
J. R. Simplot Company
Greager Group
Montrose County, Colorado

Your attention is directed to the Operating Committee's letter to Mr. W. H. King, Executive Officer, Region IV, under date of September 4, 1953, first paragraph, as follows:

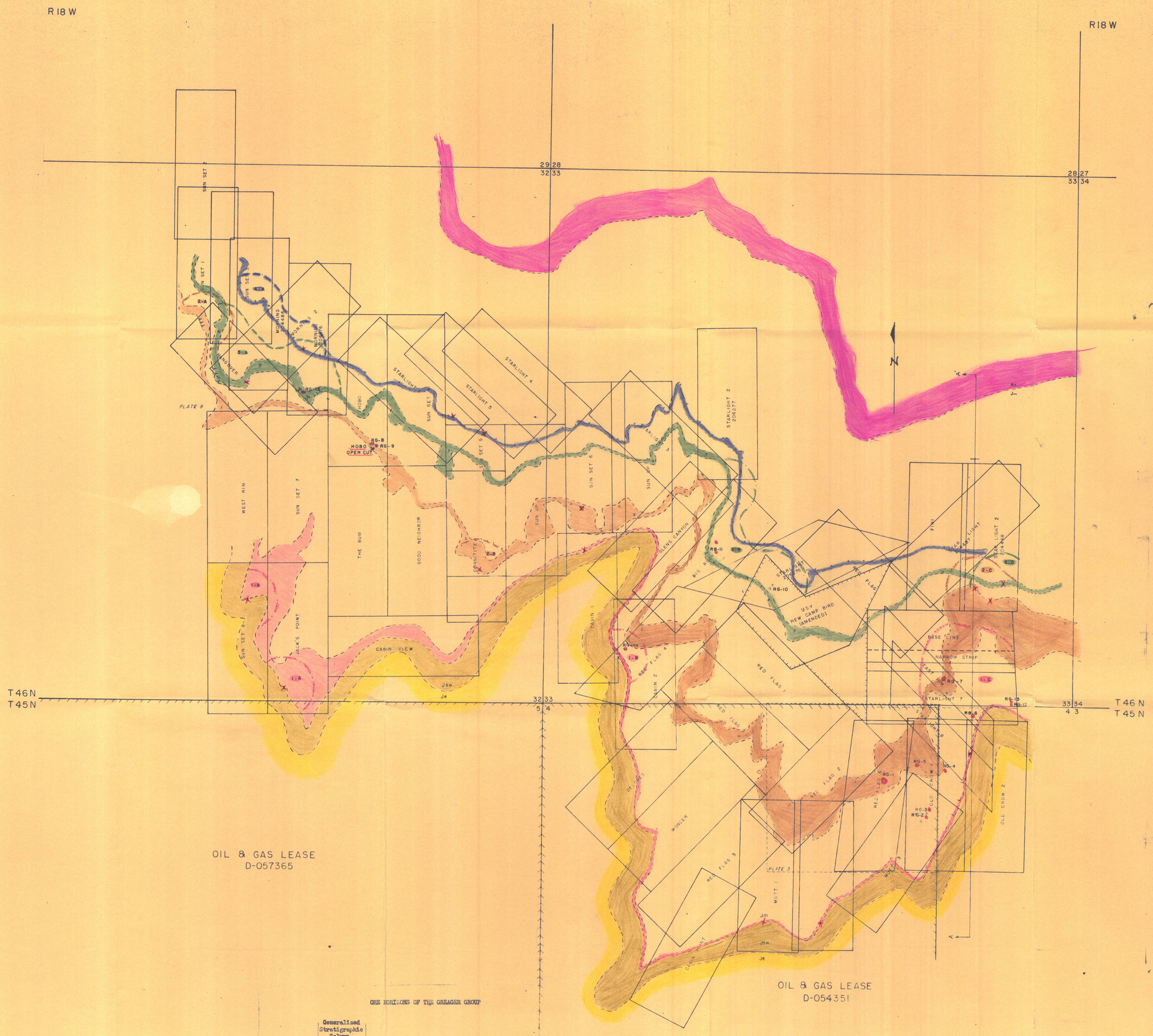
> "The captioned application is referred to your office for a field examination of the proposed project or a report based on information available to your office. The mining claims concerned in this proposed project are contiguous to the ones in Docket No. DMEA-3048; therefore any work recommended for this project should be as an amendment to that contract."

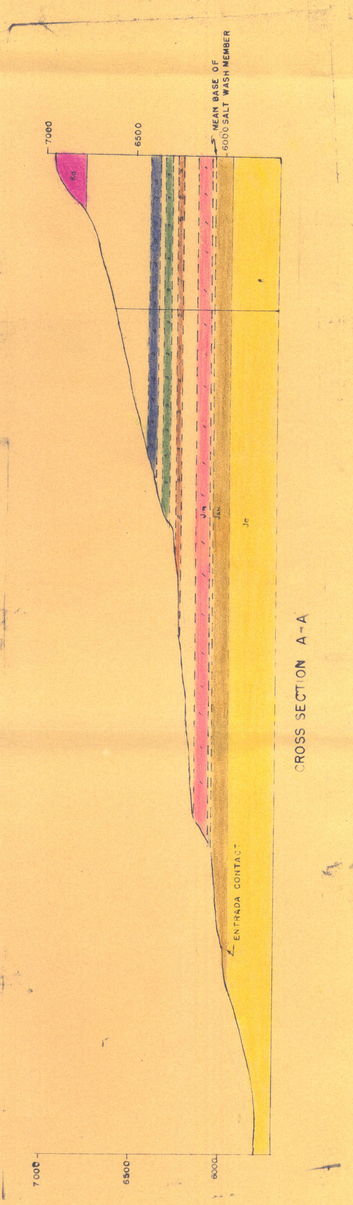
The Field Team, by memorandum dated October 22, 1953, to the Operating Committee, submitted its report on the subject application, and stated in the first sentence of the last paragraph, the following: "We believe it would be advantageous to the Government to have the work done concurrently with the work being done on the adjoining ground under DMEA-3048, Contract Idm-E597."

Accordingly, Amendment No. 2 to Contract No. Idm-E597, Docket No. DMEA-3048, has been prepared to cover the work proposed in the subject docket, thereby increasing the total amount of Contract No. Idm-E597 from $56,522.00 to $90,852.00, and Government participation at 90 percent from $50,869.80 to $81,766.80.

It is, therefore, requested that when Amendment No. 2 to Contract No. Idm-E597, Docket No. DMEA-3048, is mailed to Region IV all of the material in Docket No. DMEA-3147 be incorporated in Docket No. DMEA-3048, and DMEA-3147 be cancelled.

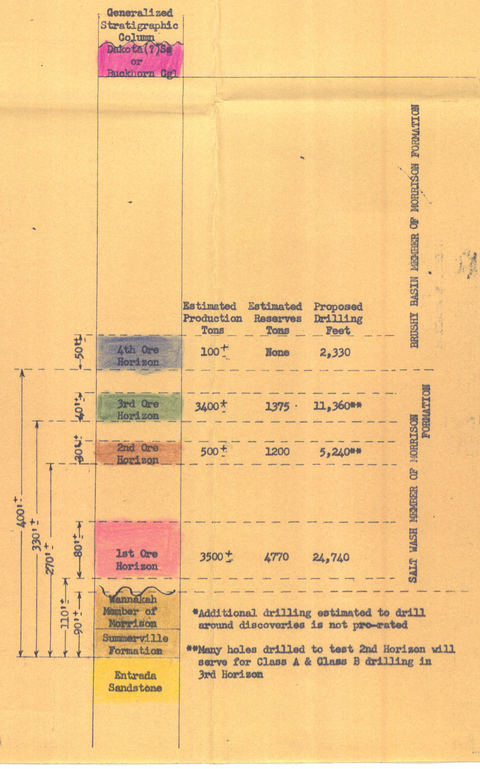
ANDERSON MESA QUADRANGLE
COLORADO
7.5 MINUTE SERIES (TOPOGRAPHIC)
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
UNITED STATES
ATOMIC ENERGY COMMISSION
BULL CANYON QUADRANGLE
COLORADO
7.5 MINUTE SERIES (TOPOGRAPHIC)
R 19 W.
R 18 W.
R 17 W.
T 46 N
T 45 N
SKEIN MESA
WILD STEER MESA
MONOGRAM MESA
GREAGER GROUP
PEANUT GROUP
Bull Canyon
Andys Mesa
Wedding Bell Mtn
Bachelor
Radium Mountain
MONTROSE CO
SAN MIGUEL CO
LEGEND
OIL & GAS LANDS
MINE OR QUARRY
PROSPECT
MINE TUNNEL
OUTLINE OF PLATE 2
PLATE I
DMEA LOAN APPLICATION
FOR OIL & GAS LANDS OF THE
GREAGER GROUP
J. R. SIMPLOT COMPANY
COLORADO URANIUM DIVISION
MAP OF BULL CANYON
AND
ADJACENT MINININGG DISTRICTS
SCALE: 1" = 2000'
TRACED BY KAM





R18W

ORE HORIZONS OF THE GREAGER GROUP



ORE RESERVES OF THE GREAGER GROUP

Reserve Block No.	Map Reference	Tons Ores	% U_3O_8	% V_2O_5	Discovery Hole	Remarks
RG-1	Plate 3	3200	0.28	1.75	BC 860	On O & G Lease
RG-2	Plate 3	120	0.55	1.93	BC 858	Includes PG 25
RG-3	Plate 3	50	0.35	1.98	PG 2	One hole only
RG-4	Plate 3	550	0.27	1.57	PG 10	Includes PG 41
RG-5	Plate 3	100	0.44	3.33	BC 857	On O & G Lease
RG-6	Plate 3	200	0.35	1.72	BC 855	Has produced about 100 tons
RG-7	Plate 4	1100	0.27	1.57	BC 752	Not completely blocked out
RG-8	Plate 2	500	0.21	1.51	(Not shown on detail map. No DMEA drilling proposed)	Hobo open cut
RG-9	Plate 2	700	0.25	1.72		
RG-10	Plate 6	200	0.22	0.98	Made up of several ore bodies	
RG-11	Plate 6	1000	0.19	0.86	Made up of several ore bodies	
RG-12	Plate 4	25	0.12	0.78	G 492	
RG-13	Plate 4	75	0.77	2.77	PG 58	
RG-14	Plate 5	25	0.31	2.14	PG 29	
RG-15	Plate 8	50	0.22	1.62	Made up of 2 ore bodies	

LEGEND

FORMATIONS AND GEOLOGIC UNITS

- Kd — Dakota ? Fm.
- Jm — Morrison Fm. [Excluding portion below mean base of Salt Wash Memeber and Summerville Fm. (undifferentiated)]
- Jsw — Wanakah Member Of Morrison Fm. and Summerville Fm. (Undifferentiated)
- Je — Entrada Fm.
- X Prospect
- X Open Cut
- Y Tunnel

TRACE OF ORE HORIZONS ON GROUND SURFACE

- 4 — 4th Ore Horizon
- 3 — 3rd Ore Horizon
- 2 — 2nd Ore Horizon
- 1 — 1st Ore Horizon

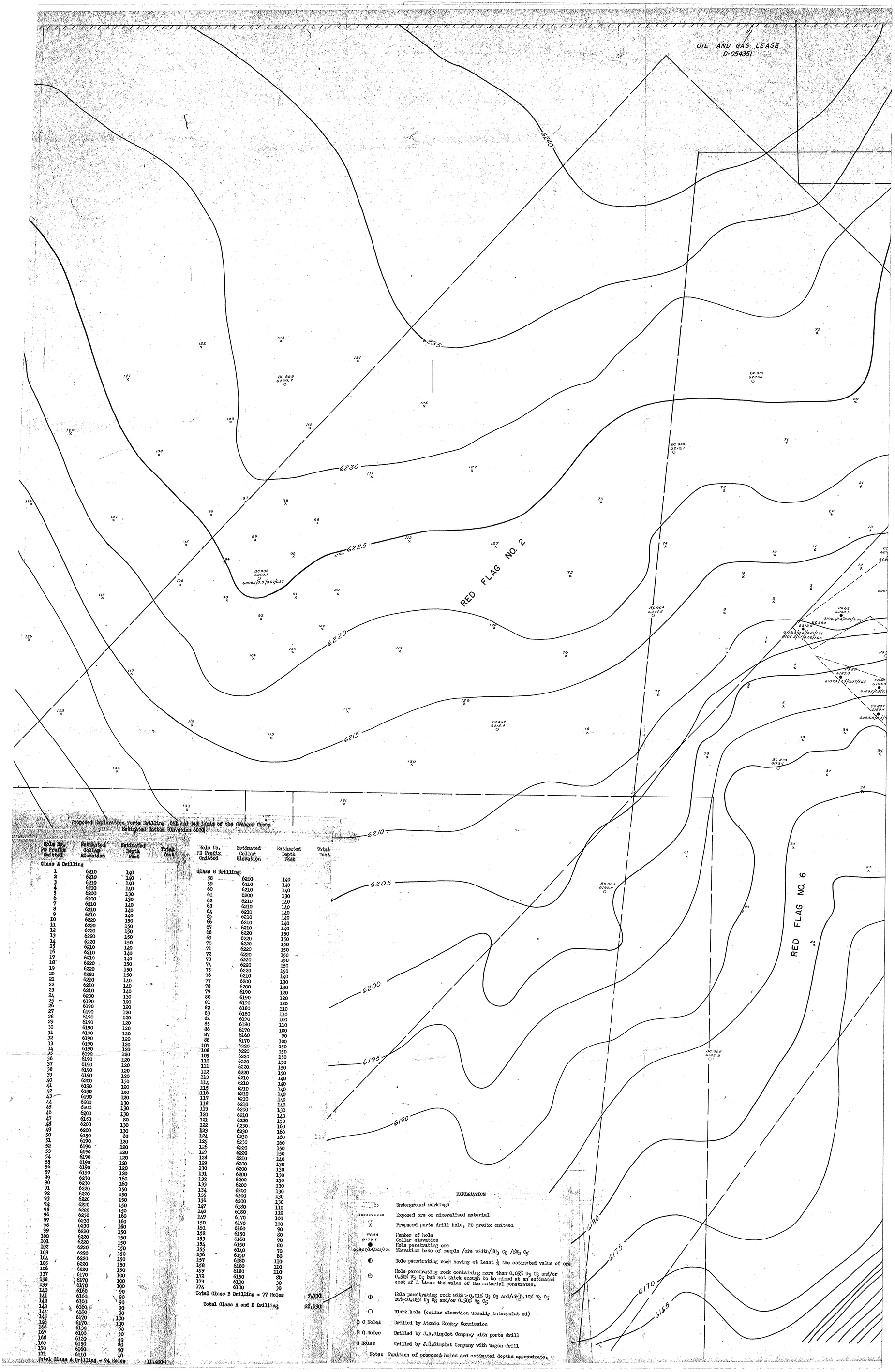
Edge of clouded lands

PLATE 2
DMEA LOAN APPLICATION
FOR OIL & GAS LANDS OF THE
GREAGER GROUP
J.R. SIMPLOT COMPANY
COLORADO URANIUM DIVISION

CLAIM MAP OF GREAGER GROUP

Scale: 1" = 400'

Traced By KAM



Proposed Exploration Porta Drilling Oil and Gas Lands of the Granger Group
Estimated Bottom Elevation 6070

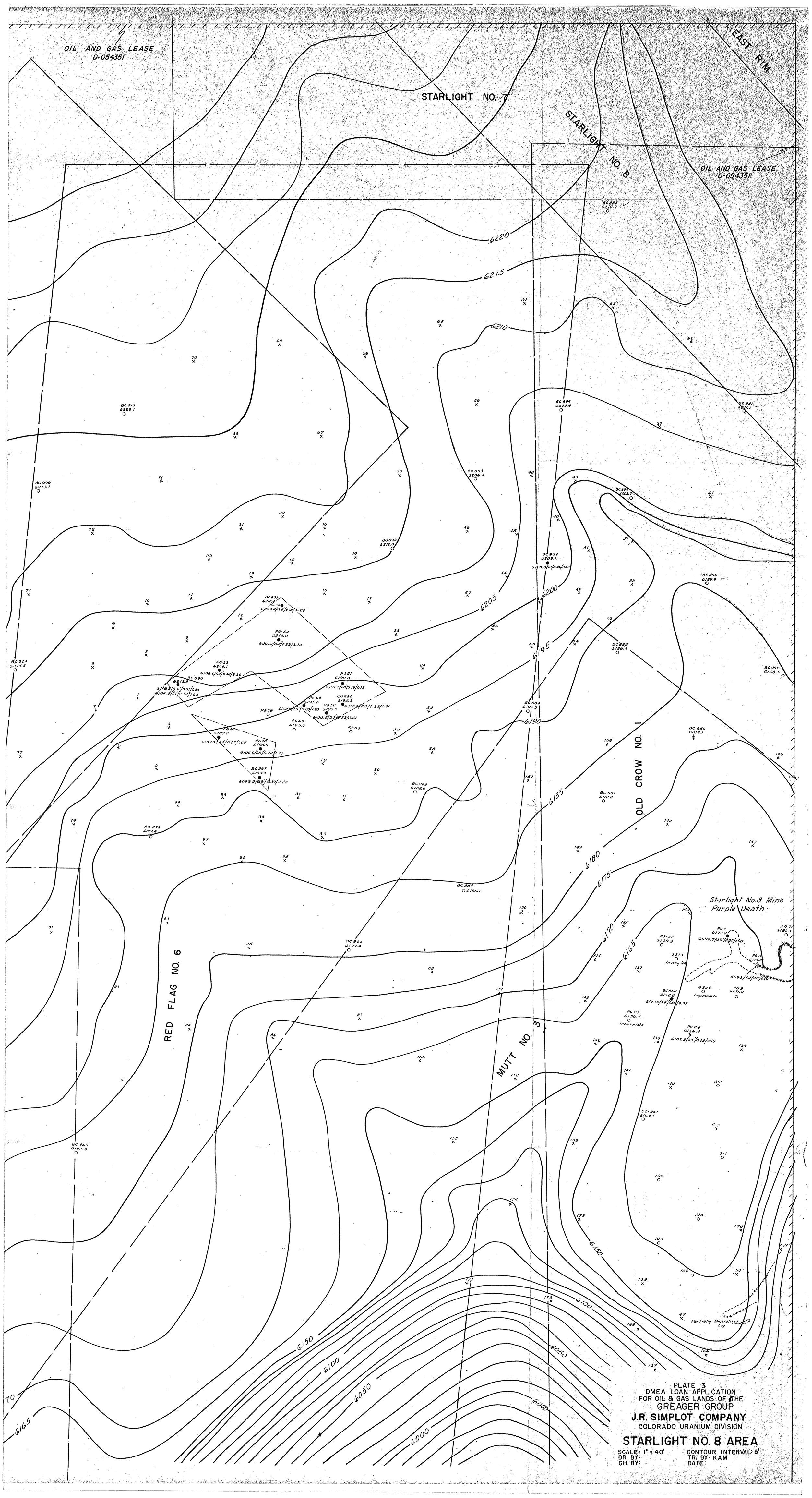
Hole No. PD Prefix Omitted	Estimated Collar Elevation	Estimated Depth Feet	Total Feet
Class A Drilling			
1	6210	140	
2	6210	140	
3	6210	140	
4	6210	140	
5	6200	130	
6	6200	130	
7	6210	140	
8	6210	140	
9	6210	140	
10	6220	150	
11	6220	150	
12	6220	150	
13	6220	150	
14	6220	150	
15	6210	140	
16	6210	140	
17	6210	140	
18	6220	150	
19	6220	150	
20	6220	150	
21	6210	140	
22	6210	140	
23	6210	140	
24	6200	130	
25	6190	120	
26	6190	120	
27	6190	120	
28	6190	120	
29	6190	120	
30	6190	120	
31	6190	120	
32	6190	120	
33	6190	120	
34	6190	120	
35	6190	120	
36	6190	120	
37	6190	120	
38	6190	120	
39	6190	120	
40	6200	130	
41	6190	120	
42	6190	120	
43	6190	120	
44	6200	130	
45	6200	130	
46	6200	130	
47	6150	80	
48	6200	130	
49	6200	130	
50	6150	80	
51	6190	120	
52	6190	120	
53	6190	120	
54	6190	120	
55	6190	120	
56	6190	120	
57	6190	120	
89	6230	160	
90	6230	160	
91	6220	150	
92	6220	150	
93	6220	150	
94	6220	150	
95	6220	150	
96	6230	160	
97	6230	160	
98	6230	160	
99	6220	150	
100	6220	150	
101	6220	150	
102	6220	150	
103	6220	150	
104	6220	150	
105	6220	150	
106	6220	150	
137	6170	100	
138	6170	100	
139	6170	100	
140	6160	90	
141	6160	90	
142	6160	90	
143	6160	90	
144	6160	90	
145	6170	100	
146	6170	100	
166	6130	60	
167	6100	30	
168	6130	59	
169	6150	80	
170	6160	90	
171	6110	40	
Total Class A Drilling - 94 Holes			11,400

Hole No. PD Prefix Omitted	Estimated Collar Elevation	Estimated Depth Feet	Total Feet
Class B Drilling			
58	6210	140	
59	6210	140	
60	6210	140	
61	6200	130	
62	6210	140	
63	6210	140	
64	6210	140	
65	6210	140	
66	6210	140	
67	6210	140	
68	6220	150	
69	6220	150	
70	6220	150	
71	6220	150	
72	6220	150	
73	6220	150	
74	6220	150	
75	6220	150	
76	6210	140	
77	6200	130	
78	6200	130	
79	6190	120	
80	6190	120	
81	6190	120	
82	6180	110	
83	6180	110	
84	6170	100	
85	6180	110	
86	6170	100	
87	6160	90	
88	6170	100	
107	6220	150	
108	6220	150	
109	6220	150	
110	6220	150	
111	6220	150	
112	6220	150	
113	6210	140	
114	6210	140	
115	6210	140	
116	6210	140	
117	6210	140	
118	6210	140	
119	6200	130	
120	6210	140	
121	6220	150	
122	6230	160	
123	6230	160	
124	6230	160	
125	6230	160	
126	6220	150	
127	6220	150	
128	6210	140	
129	6200	130	
130	6200	130	
131	6200	130	
132	6200	130	
133	6200	130	
134	6200	130	
135	6200	130	
136	6200	130	
147	6180	110	
148	6180	110	
149	6170	100	
150	6170	100	
151	6160	90	
152	6150	80	
153	6160	90	
154	6150	80	
155	6140	70	
156	6150	80	
157	6180	110	
158	6180	110	
159	6180	110	
172	6150	80	
173	6100	30	
174	6100	30	
Total Class B Drilling - 77 Holes			9,730
Total Class A and B Drilling			21,130

EXPLANATION

- Underground workings
- ********** Exposed ore or mineralized material
- 17 X Proposed porta drill hole, PD prefix omitted
- PG55 6170.7 Number of hole / Collar elevation
- ● Hole penetrating ore
- 6084.1/34/0.04/2.14 Elevation base of sample /ore width/%U_3O_8 /%V_2O_5
- ◐ Hole penetrating rock having at least ¼ the estimated value of ore
- ⊕ Hole penetrating rock containing more than 0.05% U_3O_8 and/or 0.50% V_2O_5 but not thick enough to be mined at an estimated cost of 4 times the value of the material penetrated.
- ⦶ Hole penetrating rock with > 0.01% U_3O_8 and/or 0.10% V_2O_5 but < 0.05% U_3O_8 and/or 0.50% V_2O_5
- ○ Blank hole (collar elevation usually interpolated)
- B C Holes — Drilled by Atomic Energy Commission
- P G Holes — Drilled by J.R.Simplot Company with porta drill
- G Holes — Drilled by J.R.Simplot Company with wagon drill

Note: Position of proposed holes and estimated depths approximate.


OIL AND GAS LEASE
D-054351
STARLIGHT NO. 7
STARLIGHT NO. 8
EAST RIM
OIL AND GAS LEASE
D-054351
OLD CROW NO. 1
RED FLAG NO. 6
MUTT NO. 3
Starlight No.8 Mine
Purple Death
Partially Mineralized Log
6220
6215
6210
6205
6200
6195
6190
6185
6180
6175
6170
6165
6150
6100
6050
6000
PLATE 3
DMEA LOAN APPLICATION
FOR OIL & GAS LANDS OF THE
GREAGER GROUP
J.R. SIMPLOT COMPANY
COLORADO URANIUM DIVISION
STARLIGHT NO. 8 AREA
SCALE: 1" = 40'
CONTOUR INTERVAL: 5'
DR. BY:
TR. BY: KAM
CH. BY:
DATE:

EXPLANATION

Underground workings

Exposed ore or mineralized material

17 × Proposed porta drill hole, PD prefix omitted

PG 55 Number of hole
6179.7 Collar elevation
● Hole penetrating ore
6087.7/3.4'/0.8/2.11 Elevation base of sample /ore width/% U O /% V O

Hole penetrating rock having at least ½ the estimated value of ore

Hole penetrating rock containing more than 0.05% U_3O_8 and/or 0.50% V_2O_5 but not thick enough to be mined at an estimated cost of 4 times the value of the material penetrated

Hole penetrating rock with 0.01% U_3O_8 and/or 0.10% V_2O_5 but 0.05% U_3O_8 and/or 0.50% V_2O_5

○ Blank hole (Collar elevation usually interpolated)

B C Holes Drilled by Atomic Energy Commission

P G Holes Drilled by J. R. Simplot Company with porta drill

G Holes Drilled by J. R. Simplot Company with wagon drill

Note: Position of proposed holes and estimated depths approximate.

Proposed Exploration Porta Drilling

Greager Group - Oil and Gas Lease

Estimated Bottom Elevation 6070

Hole No. PD Prefix Omitted	Estimated Collar Elevation	Estimated Depth Feet	Total Feet
Class C Drilling			
160	6230	160	
161	6170	100	
162	6170	100	
163	6170	100	
164	6170	100	
165	6170	100	
Total Class C Drilling - 6 Holes			660
Total Class A & B Drilling from Plate 3			21,130
25% Additional Drilling (Allowance for drilling around discoveries			5,448
Total proposed drilling			27,233

CULTURE
Roads
Truck trails
Buildings
Reservoir
MINE WORKINGS
Adit or tunnel
Shaft
Open pit
Prospect
Dump

PLATE H
DMEA LOAN APPLICATION
FOR OIL & GAS LANDS OF THE
GREAGER GROUP
J. R. SIMPLOT COMPANY
COLORADO URANIUM DIVISION
EAST GREAGER GROUP

SCALE: 1" = 200'
DR. BY:
CH. BY:
CONTOUR INTERVAL: 5 & 10'
TR. BY: KAM
DATE:

REVISIONS | REFERENCE MAPS

U.S. ATOMIC ENERGY COMMISSION
GRAND JUNCTION EXTENSION, NEW YORK RAW MATERIALS OPERATIONS
Title TOPOGRAPHY & GEOLOGY
BULL CANYON (EAST)
Scale 1 inch = 200 feet | Contour interval = 5 & 10 feet
Geol. by | Checked | Sheet | Date Sept. 1950
Top. by | Correct | Accompanies
Drawn by | Approved | Charge
Traced by | | FILE INDEX | XXI