DMEA Form 9
Rev. 6/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE Idm-E NO._____ DMEA NO. 4865

Application
- [X] Denied
- [ ] Withdrawn

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

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

Folder No. 1:

50%

Left Side

- [ ] Royalty Audits
- [ ] Certification of Discovery
- [ ] Closing Letter
- [ ] Cost Audits
- [ ] Termination Notice or Agreement
- [ ] Recision Notice
- [ ] Assignment of Contract
- [ ] Contract Amendments
- [ ] Contract with all exhibits and annexes
- [ ] Owner's Consent to Lien and Subordination Agreement
- [X] Application and attachments

Right Side

- [ ] Project summary (final)
- [ ] Work Completed analysis (final)

All other material filed in chronological order including the following reports if checked:

- [ ] Field Team Semi-Annual Report for Certified Project
- [ ] Final Field Team Report (Tab)
- [ ] Operator's Final Report (Tab)
- [ ] Interim Field Team Reports
- [ ] Operator's monthly reports and all attachments
- [X] On-site Exam Report (Tab)
- [ ] Settlement Sheets
- [ ] Drill Logs

Additional Folders:

Left Side

Folders No._____: Reports

- [ ] Analysis of Semi-Annual Inspection Reports
- [ ] Project Summary (Interim) by DMEA Engineers

Right Side

- [ ] Field Team Semi-Annual Report for Certified Project
- [ ] Field Team Interim Reports
- [ ] Operator's Monthly Reports with transmittal, narrative and maps.

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

Folders No._____: Settlement Sheets

Folders No._____: Drill Logs

Folders No._____: Royalty material

17963

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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DATE	INITIALS	CODE

224 New Customhouse
Denver 2, Colorado

October 29, 1957

Memorandum

To: Secretary to the Operating Committee, DMEA

From: DMEA Field Team, Region III

Subject: Application for DMEA Aid (Uranium) Nugget Coal & Timber Co. (Ajo claims) Carbon County, Wyoming

Enclosed are the original and two copies of the subject application in the amount of $20,000.00. One copy of the application is being retained in our file.

E. N. Harshman

E. N. Harshman
Acting Executive Officer

Nugget Coal and Timber Company
Midland Savings Building
Denver 2, Colorado

October 24-1957

DMEA
DEPARTMENT OF THE INTERIOR
OCT 28 1957
REGION III
DENVER, COLORADO

United States Department of the Interior
Defense Minerals Exploration Administration
New Customhouse Building
Denver, Colorado

Gentlemen:

Please find herewith, 4 complete sets of "Application for Aid in an Exploration Project", which we trust you will find in order.

With specific reference to a subordinate agreement regarding permission to assign our Lease for the purposes of securing a loan, we respectfully refer you to paragraph "16" of our Lease.

In addition to maps enclosed which were prepared by Mr. Joseph P. McDaniel, Geological Engineer, we are enclosing 4 copies of map showing all the claims.

We are prepared to furnish our share of the costs of this proposed project and will do so to the extent of monies, and all necessary equipment to properly prosecute the work.

We have prepared this application to the best of our ability but if there should be additional information necessary to expedite said application, please so advise.

Respectfully yours,

NUGGET COAL & TIMBER CO.

R. S. Harkins

R. S. Harkins
Executive Vice Pres.

rsh/l

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DATE	INITIALS	CODE

Form MF-103
Revised Feb. 1957

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1035.3
Approval expires June 30, 1958

APPLICATION FOR AID IN AN EXPLORATION PROJECT

PURSUANT TO DMEA ORDER I, UNDER THE DEFENSE PRODUCTION ACT OF 1950, AS AMENDED

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

NUGGET COAL & TIMBER COMPANY
919 Midland Savings Building
Denver 2, Colorado

DMEA
DEPARTMENT OF THE INTERIOR
OCT 28 1957
REGION III
DENVER, COLORADO

RECEIVED
NOV 1 1957
D.M.E.A.

APPLICANT NOT TO USE THIS BLOCK

Docket Number	DMEA-4865
Date Received	11/1/57
Government Participation %	
Region	III
Division Code	700

BUSINESS ORGANIZATION (Check one)

- Individual [ ]
- Corporation [X]
- Partnership [ ]
- Other (Specify) [ ]

State in which firm is organized: Wyoming

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

Name	Address	Title
N. A. Swenson	545 Glencoe St. Denver, Col.	Pres.
R. S. Harkins	2870 Grape St. " "	Exec. V. P.
B. A. Harkins	2870 Grape St. " "	Secretary

Mineral(s) for which you wish to explore: Uranium

Estimated Cost of Project: $ 20,000.00

LOCATION OF PROPERTY

Name	County	State
Ajo	Carbon	Wyoming

GENERAL INSTRUCTIONS

Before filling out this application, please read DMEA Order—I, Amended, "Government Aid in Defense Exploration Projects." To assure prompt action, your application must provide all applicable material and information specified on the back of this application form. Avoid unnecessary correspondence and delays by submitting complete and accurate information. *Please submit four copies of this application and all accompanying papers* except as otherwise noted. Place your name and address on each sheet. Each item of information, maps, and reports required as a part of this application is described on the back of this form. Identify each attached statement by the item number to which it applies. If an item does not apply to your application, show the item number on your statement and after it write "not applicable." Maps or sketches should be used to supplement narrative descriptions of the property location and boundaries in item 1, existing mine workings and geology in item 2, and the proposed exploration project in item 4. When this information is not too complex, all of it may be shown on one map or sketch. All documents and other attachments submitted as a part of this application, except those in item 2(g) which you mark to be returned, become the property of the Government and will not be returned to the applicant. Send true copies, *not originals*, of leases, contracts, and other documents which are an essential part of your business records. *File this application with the Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C., or with the nearest DMEA Field Office.*

CERTIFICATION

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

NUGGET COAL & TIMBER COMPANY

October 24-1957
Dated

R. S. Harkins
BY (*Signature*)

Exec. V.P.
Title

A wilfully false statement or certification to any Department or Agency of the United States Government is a criminal offense. U. S. Code, Title 18, Sec. 1001.

INFORMATION REQUIRED WITH THIS APPLICATION

1. *Applicant's Property Rights:*

(a) State the legal description (section, township, and range; metes and bounds; patent number of claims) of the land upon which you wish to explore and all land adjacent to the proposed project area which you own or control. Describe any part of the project land or workings which should not be subject to Government lien for royalty payments. If the land consists of unpatented claims, state the book and page number for each recorded location notice, including amended locations, and the place where recorded (courthouse, recorder's office, county, and state).

(b) State all the names by which you know the property.

(c) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise. If you are not the owner, submit with this application one exact copy of the lease, contract, or other document (with address of owner) under which you control the property.

(d) Describe all liens, mortgages, or other encumbrances on the property.

2. *Physical Description:*

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

(b) State your interest, if any, in operations stated in 2*(a)*.

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

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

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

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

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

3. *Accessibility of Project:*

(a) To aid DMEA representatives who may be required to examine the property, state the name and address of the person who will meet the DMEA representative; give directions for reaching the property; and describe accessibility of the property including the mine workings.

(b) Name the shipping and supply points and places where employees reside and state the distances between them and the property.

4. *The Exploration Project:*

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

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

(c) In the event that an exploration contract with DMEA is executed, how soon will the work start and how many months will be required to complete it? State your anticipated average daily or monthly rate of progress for each type of work.

5. *Experience:*

State your operating experience and background with relation to your ability to carry out this exploration project, and also that of the person or persons who will supervise the operations.

6. *Estimate of Costs:*

Furnish detailed estimates of the costs *for each item of the work proposed in 4(a)* under the headings listed below with a total for each heading and the estimated total cost of the project. Costs for any work to be performed by an independent contractor should be shown separately under category *(a)* below. Costs for any work that is not to be performed by an independent contractor should be given in detail under categories *(b)* through *(g)*.

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

(b) Personal services. For necessary supervision, engineering and geological services, and labor, include an itemized schedule of numbers, classes, rates of wages, salaries or fees, and periods of employment. State whether these technicians and employees are available.

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

(d) Operating equipment. List items of operating equipment to be used giving specifications and indicating how each item is to be acquired – i.e., rented, purchased, or provided by the applicant. If it is rented or purchased, state the estimated rental or purchase price. If it is to be furnished by the applicant, give its present fair market value.

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

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

(g) Miscellaneous. For the operating equipment listed in 6*(d)*, describe the type and estimate the cost of repairs and maintenance expected during project operations. Do not repeat initial repairs listed in 6*(e)*. Show also the costs of analytical work, accounting, workmen's compensation and employees' liability insurance, payroll taxes, and other required costs that do not fall within the previous categories.

Note – 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)* State whether you are prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation stated in Sec. 7 of DMEA Order–I, Amended.

(b) Explain to what extent you propose to furnish your share of the costs by providing money, by use of equipment owned by you, or otherwise.

* * * * *

INT.-DUP. SEC., WASH., D.C. 15539

1. Applicants Property Rights:

(a) Sec. 18, T25N, R80W, Carbon County Wyo ming , 18 unpatented claims numbered 1 to 18 inclusive, Recorded in Book 364, Page 565 to 582 Inclusive at Rawlins, Wyoming

(b) Ajo mining claims

(c) Lessee (copy of Lease attached)
Dale F. Snyder Box 402, Rawlins, Wyo. & Richard C. Buckingham, B0x 261, Hanna, Wyoming

(d) None

2. Physical Description:

(a) See copy Engineer's report attached.

(b) Mining operations will be conducted by Nugget Coal & Timber Co.

(c) None

(d) Ore reserves unknown at this time

(e) See copy of Engineer's report attached

(f) Area has been sampled - see assay information attached. Map attached shows where samples were taken.

(g) See reports attached

3. Accessibility of Project:

(a) N. A. Swenson, 919 Midland Savings Bldg. Denver, Colorado
Property can be reached by car , traveling from Hanna, Wyoming, approximately 31 miles north of Hanna. Car can be driven to the mine workings.

(b) Hanna, Wyoming. Approximately 31 miles. Employees will reside at site

4. The exploration Project:

(a) See engineers report attached
(b) Road is already built
(c) Work will be started at once. Time required to complete the work is unknown.

5. Experience:

The Company has had 25 years experience in mining and Supt. of job has not been selected at this time.

6. Estimate of Costs:

(a) $ 20,000.00

See attached bids for drilling

GOLDEN DRILLING COMPANY
DIAMOND DRILLING CONTRACTORS
2301 EAST STREET
GOLDEN, COLORADO
PHONE CRestview 9-1371

July 15, 1957

Golden Drilling Co. Proposal for drilling the Nugget Coal and Timber Co. property located thirty-one miles north of Hanna, Carbon County, Wyo. known as the Ajo Claims and Nasco Mine:

Coring: AX Bit

0 to 250 ft.	@	$3.00 per ft.
250 to 500 ft.	@	3.50 " "
500 to 750 ft.	@	4.25 " "

Plug AX Bit

0 to 250 ft.	@	$2.00 per. ft.
250 to 500 ft.	@	3.00 " "
500 to 750 ft.	@	3.50 " "

Cementing and drilled out @ $2.00 per ft.
Reaming and casing @ $1.75 per ft.

Nugget Coal and Timber Co. to provide roads and drill sites.

Golden Drilling Co. will furnish certificates of proof of insurance and bond.

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DATE	INITIALS	CODE

Golden Drilling Co.

W. E. Matthews

W. E. Matthews

LIVINGSTON & WILSON EXPLORATION DRILLING

LONGMONT COLORADO
PHONE 1333

SHOT HOLE AND DIAMOND CORE DRILLING CONTRACTORS

WALTER W WILSON — FRED L LIVINGSTON

July 16, 1957

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DATE	INITIALS	CODE

Nugget Coal and Timber Company
Midland Savings Building
Denver 2, Colorado

ATT: Mr. R. S. Markins

Dear Mr. Markins:

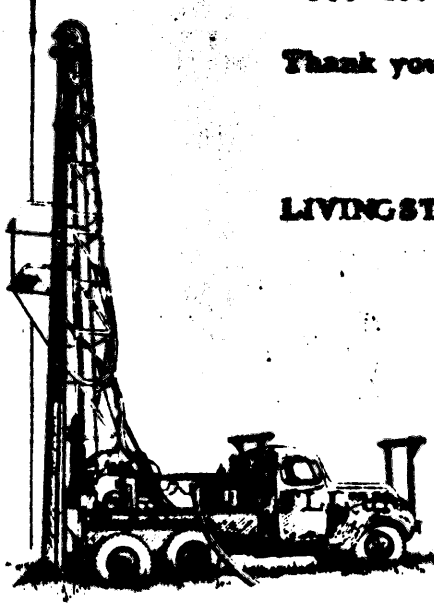
I inspected the property up near Shirley Basin where the drilling is to be done. We would like to submit the following bid on the drilling with the understanding that you would furnish the necessary bulldozing work for the drill sites.

Plug bit drilling		Core drilling	
0-100	1.50	0-100	3.50
100-200	2.00	100-200	3.75
200-300	2.25	200-300	4.00
300-400	2.50	300-400	4.25

Thank you for this opportunity to bid on this work.

Very truly yours,

LIVINGSTON & WILSON EXPLORATION AND DRILLING COMPANY



Fred L. Livingston

Diamond Core Drilling
Mining
Quarries
Shaft Sinking
Tunnel Driling

Davies Bros. DRILLING COMPANY

CONTRACTORS - ENGINEERS - GEOLOGISTS
General Offices
[illegible] South Main Street Phone Winter 4-[illegible]
SALT LAKE CITY 11, UTAH

July 19, 1957 Reply to [illegible]

Mr. R. S. Harkins
Nugget Coal and Timber Company
Midland Savings Building
Denver 2, Colorado

Dear Mr. Harkins:

We have looked over your property located about 21 miles north of Hanna, Wyoming, and submit the following rates for your consideration.

1. Mobilization - $500.00.

2.

Drilling Rates	EX Hole Core	EX Core
0 - 400 feet	$8.00 per foot	$6.50 per foot

3. Water will be hauled at cost, based on truck rental of $225.00 per month and 12 cents per mile, plus driver's wages and payroll [illegible]

4. Cementing, if required, will be charged at $16.00 per hour, plus the cost of cement or cement substitute, including drilling mud.

Thank you for calling on us and we trust favorable consideration will be given to the above proposal.

Yours very truly,

P. A. Park
Assistant Manager, Drilling Division

PAP/[illegible]

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OMCA
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DATE	INITIALS	CODE

2114 CURTIS STREET

TELEPHONE MAin 3-1052

[redacted]

CHEMISTS • ASSAYERS • ENGINEERS

DENVER 5 COLORADO

"URANIUM CENTER"

[redacted]

Date [redacted]

We hereby Certify, that the samples assayed for you gave the following results:

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

PLEASE REF. FROM THIS OFFICE AS NO COPIES STATEMENT WILL BE MADE. THANK YOU.

Charge $ [redacted]

CHARLES O. PARKER & CO.

CHEMISTS, ASSAYERS and ENGINEERS

[redacted]

[redacted]

2114 CURTIS STREET

TELEPHONE MA 3-1864

CHARLES O. PARKER & CO.

CHEMISTS • ASSAYERS • ENGINEERS

DENVER 5, COLORADO

File [illegible]

Date April 26, 1957.

[illegible] Coal & Timber Co.,
[illegible] Building Savings Bldg.
Denver, Colo.

We hereby Certify, that the samples assayed for you gave the following results:

DESCRIPTION		URANIUM OXIDE U_3O_8	VANADIUM PENTOXIDE V_2O_5	LIME CaO%	RADIOMETRIC EQUIVALENT eU	THORIUM OXIDE ThO_2	TOTAL [illegible]	[illegible]
[illegible]		0.7[illegible]	7.0[illegible]					

PLEASE PAY FROM THIS INVOICE. NO OTHER STATEMENT WILL BE MAILED. THANK YOU.

Charge $ [illegible]

CHARLES O. PARKER & CO.
CHEMISTS, ASSAYERS and ENGINEERS

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DMEA
RECEIVED NOV 1 1957

DATE	INITIALS	CODE

794 Niagara Street
Denver 20, Colorado
October 30, 1957

Mr. N. A. Swenson
Nugget Coal & Timber Co.
Midland Savings Building
Denver 2, Colorado

Dear Mr. Swenson:

On October 12, 1957, I laid in the locations of twelve proposed drill holes on your Ajo Group of claims north of Hanna, Wyoming. Mr. Buckingham of Hanna, Wyoming assisted me in this work. About nine hours were spent in traveling to and from the property from Hanna and in doing the work.

A summary of the holes and recommended depths is as follows:

DH #1, on the Ajo No. 7 Claim	500	ft. depth
DH #2, on the Ajo No. 7 Claim	500	" "
DH #3, on the Ajo No. 2 Claim	500	" "
DH #4, on the Ajo No. 2 Claim	400	" "
DH #5, on the Ajo No. 2 Claim	300	" "
DH #6, on the Ajo No. 2 Claim	300	" "
DH #7, on the Ajo No. 2 Claim	400	" "
DH #8, on the Ajo No. 2 Claim	250	" "
DH #9, on the Ajo No. 2 Claim	200	" "
DH #10, on the Ajo No. 2 Claim	300	" "
DH #11, on the Ajo No. 7 Claim	300	" "
DH #12, on the Ajo No. 7 Claim	300	" "

I recommend that wherever possible, the above holes be drilled with rotary-air drilling, collecting dust samples. Away from the main fault, the formations encountered will be mainly the very hard, sandy quartzites and hard, limey sandstones of the Tensleep formation on the south or hanging-wall of the fault; possibly some of the holes will encounter the hard, cherty limestone of the Madison formation. Most of these holes should encounter the hard, vitreous quartzite of the Flathead formation in the north or foot-wall of the fault, and should be stopped soon after they enter this quartzite because of its hardness, unless they are in ore or other mineralization.

Attached hereto are three prints of a claim map showing the above proposed drill holes.

Yours very truly,

Joseph P. McDaniel

Att.

MINING LEASE

THIS AGREEMENT ~~amde~~ made and entered into this 18th day of September, 1956, by and between Richard C. Buckingham and Dale F. Snyder, of the County of Carbon, State of Wyoming, parties of the first part, hereinafter called the Lessors, and Nugget Coal and Timber Company, a Wyoming corporation, hereinafter called the Lessee,

W I T N E S S E T H:

The Lessors, in consideration of the rents, bonuses and royalties to be paid and the covenants and agreements hereinafter contained and to be performed by the Lessee, do hereby grant and lease to the Lessee the exclusive right and privilege to mine, extract and remove uranium and all other minerals of whatsoever kind in or under the following described land situated in the County of Carbon, State of Wyoming, to-wit:

> Eighteen unpatented mining claims named Ajo mining claims situated in Section 18, Township 25 North, Range 80 West of the 6th P.M., in Carbon County, Wyoming a complete description of which will be supplied by the Lessors in a certified survey accompanied with maps of said claims locating said claims by a certified licensed surveyor,

together with the right to construct and maintain thereon all works, buildings, plants, roads, communications lines, power lines, tipples, hoists, mill, or other structures and appurtenances necessary to the full enjoyment thereof, subject, however, to the conditions hereinafter set forth.

To have and to hold said above described mining claims unto the Lessee for a period of two years from the date of this Agreement and as long thereafter as said Lessee is diligently engaged in the mining thereof on the said claims together with proper marketing of said minerals, subject to the terms and conditions of this Agreement, unless sooner forfeited or determined through the violation of any of the terms, conditions, or covenants on the part of the said Lessee.

In considerationof said Agreement, the Lessee covenants and agrees with the Lessors as follows:

1. Lessee agrees to commence validation work and complete said validation work on said claims prior to October 10, 1956, under supervision of Lessors.

Official
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2. Lessee agrees to commence active exploration and/or mining operations immediately following the validation work. Said exploration work may be done to determine whether there is sufficient quantity and quality of said minerals in any of said claims of sufficient commercial value to justify the necessary mining operations. If Lessee determines that there is not a sufficient quantity and quality of said minerals to proceed with mining operations, it shall withdraw from said claims and give proper legal release of any interest in and to said claims to the Lessors.

3. Lessee shall pay to Lessors and overriding royalty of 10% of the gross value of uranium and all other minerals herein leased, and all monies received by operational law, rules or regulations of the Federal government shall be divided in like ratio, royalty to be paid monthly by the Lessee to the Lessors within ten days from the date on which payment is made by the purchasers, payment to be made to the credit of the Lessors in the Bank of Laramie, Laramie, Wyoming, or its successors, which bank shall be the depository regardless of change of ownership. Lessee shall also furnish monthly statements therewith showing in tons or cubic yards, or such other measure of quantity as may be pertinent, the amount of all minerals mined, and such other information as may be pertinent. These statements are to be subject to verification by examination of the books and records of the Lessee by the Lessors or their agents with proper credentials at the main office of Lessee.

4. Lessors shall pay 10% of all hauling costs at 6 cents per ton mile on that part of any haul over 100 miles.

5. Upon completion of the necessary validation work, Lessors shall immediately execute proper instruments as may be required by law concerning the location and development of the mining claims, and the Lessee agrees that it will cooperate with the Lessors in filing the necessary notices and instruments as may be required from time to time by the State of Wyoming or United States Government or any department thereof. The Lessee shall commence active mining of said claims and proper marketing of the minerals by June 1, 1957, and if not so commenced, said Lessee shall lose all rights in and to said mining claims and the minerals thereof.

6. It is agreed that the exploration work shall be carried on by the Lessee, its agents and servants under the sole direction of said Lessee, and while said exploration work is in process, all minerals of commercial value shall be shipped to the proper government receiving center and such mineral as is developed, and not purchased by the government, shall be shipped to the open market.

7. Lessee shall conduct all mining operations and workings in such a manner as to remove all valuable deposits so far AS is economically possible; that all shafts, inclines, and tunnels shall be well timbered when good mining practice requires timbering; that all underground timbering placed in the mines and necessary to the preservation of the property and safety of the workmen shall be kept in good condition and repair and at no time shall such timbering be removed unless all of the valuable ore has been removed; that at the expiration of this Agreement, or earlier termination thereof, all underground timberings shall become the property of the Lessors without compensation therefor to the Lessee; that all parts or workings when the ore is not exhausted and not being worked shall be kept free of water and debris; that underground workings will be protected against fire and flood, and creeps and squeezes will be checked without delay, and to leave such pillars as may be necessary to support the cover and protect theslopes, air courses, manways, and hauling roads; that all open or strip mining operations shall be conducted so as to remove all valuable minerals in the deposits worked; that all roads and bridges built and necessary to the mining operations on the land shall upon expiration, forfeiture or surrender of the said Agreement become the property of the Lessors; that all drilled holes abandoned will be promptly plugged; to use no more of the surface of the premises than is essential for said mining operations.

8. Lessee shall allow the Lessors, and their agents with proper credentials, to enter upon and into all parts of the mining claims for the purpose of inspection, survey, or taking ore samples for assays only; and to give to the Lessors such assistance as may be necessary or proper to accomplish any such inspection, survey, sampling or othewise.

9. Lessee shall keep true and accurate records showing all ore taken from said claims, the disposition thereof, the amount received therefrom, and a record of all assays of ore taken from said claims, together with complete maps when made of all developments as the work progresses; said accounts, records and maps shall be open to the inspection of the Lessors, and their agents with proper credentials, at all times

during ordinary business hours, and the Lessors shall have the privilege of making abstracts therefrom or copies thereof.

10. The Lessee shall fully protect the rights of any agricultural and grazing leases which have heretofore been granted by erecting cattle guards or gates and keeping closed gates in all fences in which openings are or may be made, and for protection of stock grazing thereon to fence or close all holes, pits, or open cuts in which injury might be sustained. Should the Lessee or any person holding from, by or under the Lessee, in any operation on said mining claims under this Agreement, destroy or injure any livestock of any person, the Lessee agrees to fully indemnify all of such injured parties in such sum or sums as may be mutually agreed upon by the respective parties, or as may be fixed under the Statutes of the State of Wyoming or of the United States Government.

11. It is expressly understood and agreed that the mining rights and privileges granted hereunder shall extend to and include uranium and all other minerals.

12. Upon violation by Lessee of any of the covenants herein reserved to be kept and performed by him, at the option of the Lessors this Agreement shall expire and the same shall be forfeited, and Lessors, and their agents, may thereupon enter upon said mining claims and dispossess all persons occupying the same; provided, however, that if this Agreement is forfeited upon the election of the Lessors by reason of the failure of the Lessee to perform the covenants thereof by him assumed, Lessors shall give Lessee at least thirty (30) days notice in writing, by registered mail, sent to Lessee at its address at 919 Midland Savings Building, Denver, Colorado, notifying it of such failure to perform, setting out in said notice the substantial facts as to any such default or breach, and upon failure or refusal by Lessee to cure and correct such default within sixty (60) days from the receipt of such notice, Lessee shall surrender and deliver up possession of all of said mining claims and its rights hereunder shall thereupon cease and terminate; conditioned, however, that Lessee shall have the right to remove all of its machinery and equipment and all personal property from said mining claims, not to be retained by said Lessors as hereinbefore provided, within sixty (60) days after such termination.

13. The Lessee may at any time, when not in default, surrender this Agreement as to all or any part of the mining claims, by mailing or delivering a release thereof to the Lessors, or by placing a release thereof of record in the County of Carbon and by mailing a copy of said release to Wm. N. Brimmer, Box 402, Rawlins, Wyoming.

14. The Lessee shall fully protect the rights of any Oil and Gas Leases whcih may have heretofore been granted.

15. All covenants of this lease shall be subject to all federal and state laws, executive orders, rules and regulation, and this lease shall not be terminated, in whole or in part, nor Lessee held liable in damage for failure to comply therewith if compliance is prevented as a result of any such law, order, rule or regulation, nor if such compliance is prevented by heavy snows in the area, acts of God, or strikes over which the Lessee has no control.

16. It is expressly understood and agreed between the parties hereto that the Lessee may assign this lease to a responsible party, and may pledge said property to the Federal Government as security for the borrowing of money to develop said property as now authorized by law or as hereinafter amended. However, Lessee shall give immediate notice to Lessors in writing concerning any assignment or pledge so that said Lessors may be properly informed of any such action. Lessors shall cooperate with Lessee in signing any instruments required by the Federal Government in pledging said property.

17. Lessee shall allow no party not in privity with the parties hereto to take or hold possession of the mining claims, or any part thereof, under any pretext whatsoever.

18. Each of the terms, conditions and stipulations herein contained shall enure to the benefit of and be binding upon the successors, heirs, executors, administrators and assigns of the parties hereto.

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

Signed: Dale F. Snyder
Richard C. Buckingham
Parties of the First Part

NUGGET COAL & TIMBER COMPANY
Party of the Second Part

Signed: N. A. Swenson, President

Attest: Blanche A. Harkins, Secretary

State of Wyoming)
: SS
County of Carbon)

On this 18th day of September, 1956, before me personally appeared Richard C. Buckingham and Dale F. Snyder, to me known to be the persons described in and who executed the foregoing instrument, and acknowledged that they executed the same as their free act and deed.

Signed: Illa L. Williams, Notary Public

My commission expires on the 23rd day of May, A.D., 1960.

State of Wyoming)
:
County of Carbon)

On this 18th day of September, 1956, before me personally appeared N. A. Swenson, President, Nugget Coal & Timber Company, to me personally known, who, having been by me first duly sworn, did say; That he is the President of Nugget Coal & Timber Company, the Corporation described in and which executed the foregoing instruments; that the seal affixed to said instrument is the corporate seal of said Corporation; and that said instrument was signed and sealed in behalf of said Corporation by authority of its Board of Directors; and said N. A. Swenson acknowledged said instrument to be the free act and deed of said Corporation.

IN WITNESS WHEREOF I have hereunto set my hand and affixed my notarial seal on the day and year in this certificate first above written.

Signed: Illa L. Williams
Notary Public

My commission expires May 23rd, 1960.

THE AJO CLAIMS
CARBON COUNTY, WYOMING

by Joseph P. McDaniel,
April 30, 1957

On April 27, 1957, I examined uranium mineralization on the Ajo group of 18 claims, consisting of about 371 acres, located in Section 18, Township 25 North, Range 80 West, Carbon County, Wyoming.

Good quality uranium ore is exposed in the west face of a pit on the Ajo No. 7 claim, in an east-west fault-vein. The mineralization can be traced on the surface for approximately 1000 feet west of the pit along the vein. There is a very great possibility of developing considerable tonnage of good quality black (primary) uranium ore, which, although high in lime content, would be marketable at possible caustic-leach uranium mills now contemplated by some operators in the Riverton, Wyoming area. Limited tonnage (500 tons per month) of high-lime uranium ore is now being purchased by the A.E.C. Buying Station at Riverton, Wyoming from mines in the Little Mountain-Pryor Mountain area, according to a recent conversation that this writer had with personnel of one of the companies that are contemplating building a mill in the Riverton area. Development of the vein can best be conducted and accomplished by a combination of drilling and underground mining. A series of shallow, dozer-built cuts for outcrop information and drill-stations, about 1800 feet of rotary plug drilling, and a limited amount of underground tunnelling following surface mineralization, are recommended by the author to best explore and develop the property.

Facilities and Topography: The Ajo group is about 32 miles north of Hanna, Wyoming, in the Shirley Mountains, and is accessible by dirt county road that is passable throughout much of the year. No timber exists on the claim group. Water that would be usable for milling purposes might be obtainable from a seep one mile east of the property, however, this water would likely be too rich in gypsum to be usable for drinking purposes. It is probable that drinking water could be developed by drilling in the valley one-half mile east of the prospect pit on the Ajo No. 7 claim. The topography of the area is rough, consisting of alternating hogback-ridges and valleys. Access within a thousand feet of the mine is by existing roads of gentle grades, however, an eastward trending fault scarp will require roadbuilding and blasting over the last thousand feet.

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Geology: On a general basis, the claim group lies in the area of juncture of the northwesterly trending Wind River lineament or uplift with the northerly trending

Front Range, which is an area of folding and arching of sediments complicated by block and step faulting and thrusting.

On the claim group, a northerly trending anticline with Tensleep sandstone of Pennsylvanian age on the surface has been cut by a curved easterly trending fault, which dips to the north and curves in an arc open to the south. The fault varies in width from 15 to 25 feet, with the widest portion near the crest of the ridge, where the fault strikes S 65° E on the surface, dipping 80° to the north. Generally, it is filled with a coarse angular breccia, consisting of fragments of dense gray limestone and light gray quartzite ranging from 1/2 inch to 3 inches, tightly cemented by dense gray vein calcite (lime). The vertical displacement of this fault is obscure, but apparently in excess of 100 feet, with the south wall down-dropped.

Uranium mineralization of ore quality occurs on the surface irregularly over nearly a thousand foot length westward along the fault from about the middle of the Ajo No. 7 claim to about the eastern third of the Ajo No. 2 claim. On and near the surface, the mineralization is evident as yellowish-orange meta-autunite, with the likely presence of torbernite. It is evident that the mineralization is present in the form of a (hydrothermal) vein-type deposit, locallized along the fault zone.

The widest ore where exposed in the west face of the prospect pit on the Ajo No. 7 claim is more than 4.5 feet wide, extending into the walls on the north and south sides of the pit. The ore in the present face will average in excess of 1% $_cU_3O_8$; several chip sample assays have been obtained from the face that ranged from 0.80% $_cU_3O_8$ through 3.50% $_cU_3O_8$. The ore in the prospect pit appears best about four feet beneath the surface; it is likely that unoxidized, primary (uraninite) mineralization will be encountered within 50 feet of the surface in this location. The presence or absence of harder, more brittle (silicified sandstone and limestone) beds in the wall-rock may have considerable bearing upon the degree and quality of adjacent mineralization within the vein.

Subsidiary veins intersect the main vein at low angles. Four of these minor veins that trended about N 32° E and dipped 70° to the west were examined along the face of the fault-scarp cliff from 100 to 800 feet east of the prospect pit on the Ajo No. 7 claim. These fissure veins varied from one foot to more than 2.5 feet in width, and were filled irregularly with radioactive dull gray-to-white vein calcite. Generally, the vertical displacement appeared to be less than ten feet, with the

east wall down-dropped. The mineralization of the subsidiary veins appears strongest where the veins cut through a sandy lime-stone bed about 20 feet thick that occurs from 50 to 70 feet below the top of the cliff. Several pods and stringers of low grade mineralization were observed that had replaced outward along the bedding planes near the top of the sandy limestone bed away from the subsidiary veins.

Intersections of the subsidiary veins with the main vein will undoubtedly prove to be important as a control of locallization of the best ore along the vein.

Recommended Exploration and Development: It is recommended that the present face of the prospect pit be continued as a tunnel or drift following the ore to the west, and recover as much ore as is economically feasible for ten-ton test shipments. A small, two or three man, wheelbarrow and jackleg drill operation would be the best mining system to accomplish this. The road should be constructed up to the base of the outcrop below the prospect pit; pioneering a rough bulldozer trail would be adequate to get light equipment and vehicles over. In addition, several lateral, level benches should be cut southward from the road across the vein to provide drill stations and to attempt to expose the vein if it is sufficiently near the surface.

As soon as practical, to take advantage of the working season, drilling should be started with a rotary drill with mud from a point in the north (hanging) wall of the vein, near the prospect pit to try to get a vertical hole down 500 to 600 feet, thereby crossing the vein at a very low angle. Three holes, totalling 1800 feet, should be spaced about 500 feet apart along the vein from the hole near the prospect pit. These holes have the disadvantage that they will cross the vein at a low angle (and tend to follow it), and that drilling through ore will give little or no information on thickness of the ore in the vein; however, they have the distinct advantage of being much cheaper than costly angle-core-drilled holes, and will serve to prove or disprove the existence of ore at the depths of crossing the vein, giving some information on the grade of ore encountered if they are probed with a calibrated gamma-ray logging outfit.

As soon as the depth of the mineralization has been established, additional angle core-drilling designed to intersect the vein from a high oblique angle should be

accomplished, in conjunction with a drift westward along the vein from the lowest point on the hillside, with exploratory cross-cuts and raises to block-out and develop the orebody.

Respectfully submitted,

Joseph P. McDaniel

Joseph P. McDaniel
794 Niagara Street
Denver 20, Colorado

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

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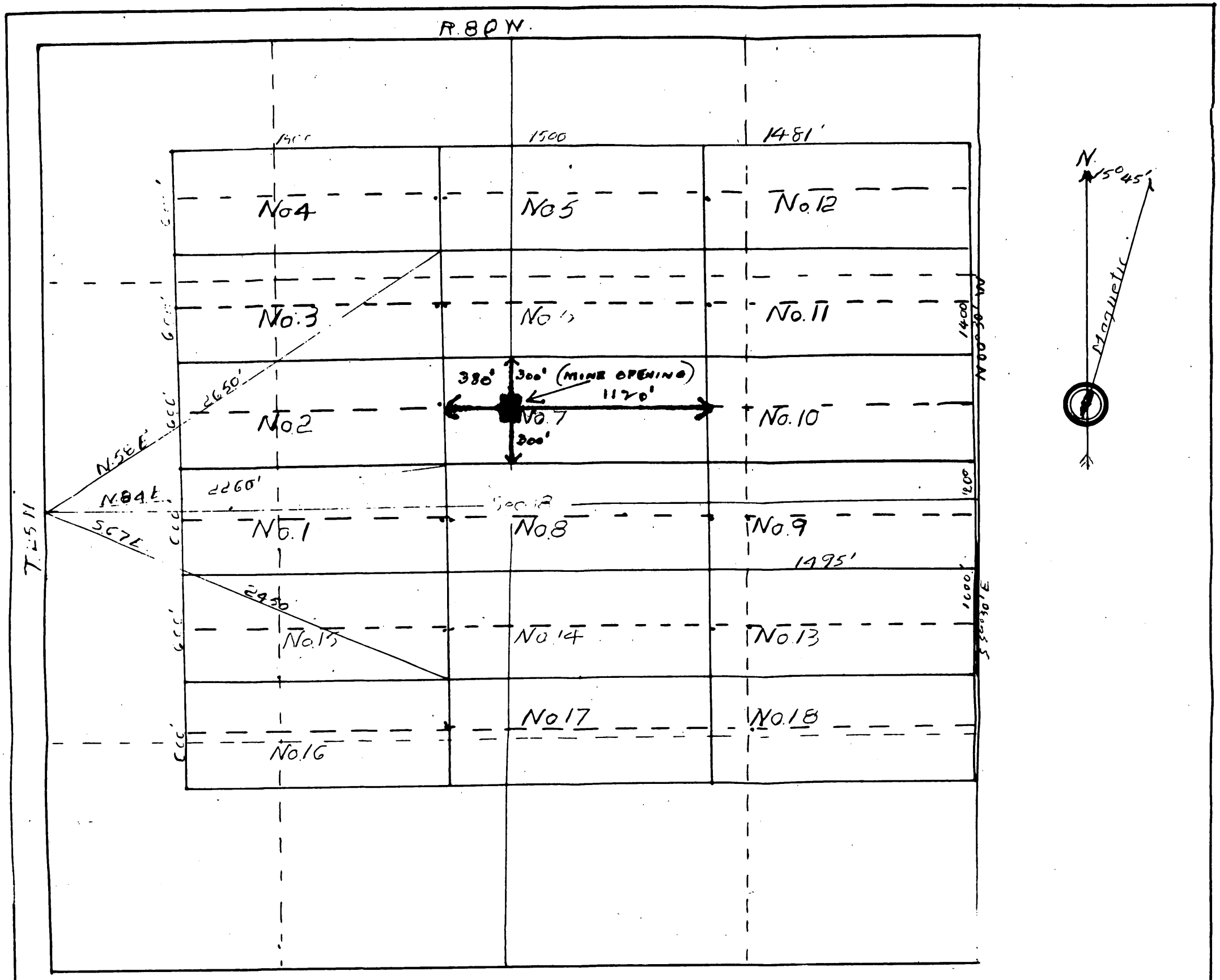

MAP
OF
A.J.O. MINING CLAIMS NUMBERS 1 THROUGH 18
LOCATORS:
DALE F. SNIDER RAWLINS WYOMING.
AND
RICHARD C. BUCKINGHAM HANNA WYOMING
Scale: 1 inch = 600 Feet
Surveyed August 23rd 1956 Cloyd G. Grove
Surveyor License No 11

DMEA Form 7
(12-56)

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Date	Surname	Code
1/16/58	Murphy	700
"	[illegible]	700
1/17	Selfridge	130
"	[illegible]	110
"	Mittendorf	100
1/17	[illegible]	220
		225
1/17	Lamb	130
1/17	Kilsgaard	130

JAN 17 1958

Mr. R. S. Harkins
Executive Vice President
Nugget Coal & Timber Company
919 Midland Savings Building
Denver 2, Colorado

Re: Docket No. DMEA-4865 (Uranium)
Ajo Claims
Carbon County, Wyoming

Dear Mr. Harkins:

Your application for aid in an exploration project and other information available to us in Washington concerning the above-named property have been reviewed.

Projects approved by the Defense Minerals Exploration Administration must, in its judgment, show definite promise of yielding materials of acceptable grade in quantities that will significantly improve the mineral supply position for the National Defense Program.

Careful study of all our information, although noting some minor uranium mineralization on your property, indicates that the probability of disclosing significant ore reserves is not sufficiently promising to justify Government participation. We regret to advise you that, under these circumstances, your application for exploration assistance is denied.

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

Sincerely yours,

C. O. Mittendorf

Administrator

FMMurphy/gla
1-16-58

cc to: Admr.'s Reading File
Operating Committee
THKiilsgaard, 5224
FMMurphy
DMEA Field Team, Region III (2)

8623

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Murphy
Ellis

January 16, 1958

Summary of Proposed Project

Subject: Denial of application for exploration aid.

Docket No.: DMEA-4865

Commodity: Uranium

Amount of Application: $20,000.00

Applicant: Nugget Coal and Timber Company
919 Midland Savings Building
Denver 2, Colorado

Property rights: Lessee of Ajo group of unpantented claims situate in sec. 18, T. 25 N., R. 80 W., 6th P.M., Carbon County, Wyoming

Date of application: October 24, 1957
Referred to Region III: November 18, 1957
Field examination made: December 5, 1957, by D. H. Richter, USGS, and E. O. Binyon, USBM
Field Team report received: January 8, 1958

Work proposed:

The Applicant's proposal consisted of drilling 12 non-core holes totaling 4,250 feet, at an estimated cost of $20,000 in Stage I, and an undisclosed amount of core drilling and drifting in a subsequent stage. However, the above estimated total cost of the program would barely be enough to cover the proposed Stage I work. The estimated costs were not broken down by Applicant.

Excerpts from Field Team report:

The claims are on the eastern flank of Shirley mountains, north of the city of Hanna and also the Medicine Bow River. The principle rocks underlying the claims are Tensleep (?) sandstone and Madison (?) limestone of Pennsylvanian-Carboniferous age.

Structurally the claims overlie the north flank of a broad easterly plunging anticline. Rocks on Ajo No. 7 claim, where not disturbed by faults, strike N. 70° E. and dip 10-50° N. On claims 2 and 7 a wide fault zone, striking N. 70-80° W. and dipping 60-80° S. transects the Carboniferous rocks. The fault zone consists of individual fault planes in a complex structural unit up to 25 feet wide, and has a known surface extent of 1,000 feet. The Applicant's project was designed to explore the fault zone.

And open cut on Ajo No. 7 claim crosses the fault zone, and the Applicant sorted 3.9 tons of material containing 0.32% U_3O_8 from the cut. In the fault zone the principal mineral, and essentially the only mineral noted by the examiners, was calcite. The form and habit of the calcite crystals are indicative of low temperature deposition and this along with the absence of known hydrothermal minerals strongly suggests a meteoric origin for the mineralizing solutions.

Only a minor showing of secondary uranium minerals was observed in the large fault zone. Four samples, taken by the examiners across a 14-foot portion of the fault zone's footwall, assayed 0.01 to 0.02% U_3O_8.

The field examiners and Field Team recommended that the application should be denied.

Commodity Members' Comments:

In memoranda, dated January 14, 1958, James Paone, USBM, and N. E. Nelson, USGS, concur in the Field Team's recommendation that the subject application should be denied.

Division of Rare and Miscellaneous Metals, F. M. Murphy, Engineer

Small amounts of secondary-type uranium ore have been mined from a calcite-filled fault zone on the subject claims. The examiners' data

indicate that the small pods of ore in the fault zone were deposited in open spaces along the fault zone structural break by relatively cool, descending solutions. Therefore, the chance of discovering ore deposits by exploring the fault at depth is considered remote.

Conclusions and Recommendations:

This Division agrees with the field examiners that the proposed project would not result in the discovery of significant uranium ore deposits. Therefore, it concurs in their and the Field Team's recommendations that application DMEA-4865 should be denied.

Ernest Wm. Ellis

Ernest Wm. Ellis, Director
Division of Rare and
Miscellaneous Metals

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IN REPLY REFER TO:

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

January 14, 1958
Re: DMEA 4865
Nugget Coal and Timber Company
Ajo claims
Carbon County, Wyoming
$20,000.00 - Uranium

Memorandum

To: E. W. Ellis, Defense Minerals Exploration Administration

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

Subject: Review of Field Team Report

The applicant solicited assistance in exploring by non-core drilling a wide breccia and calcite-filled fault zone that cuts sedimentary Carboniferous rocks. Secondary uranium minerals were present at one place where 3.9 tons of material containing 0.32% U_3O_8 were mined in an open cut. Sampling of the open cut indicates that little or none of the minerals were left in the pit. Minor yellow uranium minerals are present in the fault zone about 250 feet west of the open cut, but the quantity is very small.

In the opinion of the examiners, the uranium minerals and the calcite with which they are associated are of 'cold water' origin and are not likely to continue or increase in amount with depth. They therefore recommend that the application be denied.

In view of the paucity of showings, the conclusions appear apt. I concur with their recommendation.

N. E. Nelson

N. E. Nelson

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[illegible] January 14, 1958

[illegible] 4865

[illegible] Uranium

[illegible] Nugget Coal and Timber Co.

[illegible] Ajo claims

[illegible] Carbon County, Wyoming

[illegible] $20,000.00

Ernest William Ellis, DMEA Member
Uranium Commodity Committee
James Paone, Bureau of Mines Member
Uranium Commodity Committee

[illegible] Field Team Report

[illegible] 1/6/58 [illegible] 1/8/58

[illegible] known to [illegible]: [illegible]

[illegible] information known to [illegible]: [illegible]

[illegible] production: [illegible]

[illegible] known to [illegible]: Yes [ ] No [ ]

[illegible] yes or no:

[illegible] location:

[illegible] [ ]
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[illegible] [ ]
[illegible] [ ]

[illegible] Proposed [illegible] [ ]
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[illegible] advice:

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[illegible] [illegible] [ ]
[illegible] [illegible] [x]
[illegible] [illegible] [x]
[illegible] Consult with Mr. [illegible] at [illegible]

[illegible] Disagree [illegible] [ ]
[illegible] Support [illegible] [ ]
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[illegible] Approval [ ]

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UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

224 New Customhouse
Denver 2, Colorado

January 6, 1958

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1/14	C	220
	Murphy	700

Memorandum

To: Secretary to the Operating Committee, DMEA

From: DMEA Field Team, Region III

Subject: Docket No. DMEA 4865 (Uranium) Nugget Coal and Timber Company (Ajo claims) Carbon County, Wyoming

Enclosed are the original and two copies of the Joint Report of Examination on the subject property by E. O. Binyon, USBM, and Donald H. Richter, USGS.

The field examiners conclude that the probability for making a significant discovery is not sufficiently promising to justify Government participation. Accordingly, they recommend that the Applicant's work proposal be denied in which the Field Team concurs.

W H King
W. H. King
Executive Officer

ON-SITE EXAM. REPORT

Reviewed by
DMEA OFFICE
1-13-58
(Date)

IN REPLY REFER TO:

DMEA

DEPARTMENT OF THE INTERIOR

JAN 2 - 1957

REGION III

DENVER, COLORADO

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Defense Minerals Exploration Administration
Denver Federal Center
Denver, Colorado

December 31, 1957

TRANSMITTED

JAN 6 1957

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: E. N. Harshman

Subject: DMEA Docket 4865 (Uranium), Nugget Coal and Timber Company (Ajo claims), Carbon County, Wyoming

Enclosed are the original and eight copies of a joint report by D. H. Richter, U. S. Geological Survey, and E. O. Binyon, U. S. Bureau of Mines, covering their examination of the subject property.

Minor amounts of secondary uranium minerals are found along a fault zone in Carboniferous rocks on the Ajo claims. The examiners conclude that exploration will not result in the discovery of significant uranium ore deposits. They recommend, and I concur, that the application for DMEA exploration assistance be denied.

E. N. Harshman
E. N. Harshman
Member, Field Team

Enclosures (9)

ENHarshman:mp

Reviewed by
DMEA OPERATING COMMITTEE
1-13-58
(date)

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DEPARTMENT OF THE INTERIOR
JAN 2 - 1957
REGION III
DENVER, COLORADO

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JAN 6 1957

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UNITED STATES
DEPARTMENT OF THE INTERIOR
FRED A. SEATON, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

DMEA 4865

Nugget Coal and Timber Company

Ajo claims

Carbon County, Wyoming

Uranium

Joint Engineering and Geologic Report

by

Donald H. Richter, Geologist
Geological Survey

E. O. Binyon, Mining Engineer
Bureau of Mines

December 30, 1957

Reviewed by
DMEA Oklahoma City
1-13-58

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ILLUSTRATIONS

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2. Geologic map and sections of a portion of the Ajo claims, Nugget Coal & Timber Company, Carbon County, Wyoming..... 12

DMEA 4865

NUGGET COAL AND TIMBER COMPANY
AJO CLAIMS
CARBON COUNTY, WYOMING

INTRODUCTION AND SUMMARY

The Nugget Coal and Timber Company, 919 Midland Savings Building, Denver 2, Colorado, on November 1, 1957, applied for Government assistance to explore the Ajo group of 18 unpatented mining claims for uranium. The claims are in sec. 18, T. 25 N., R. 80 W., 6th Principal Meridian, on the eastern flank of the Shirley Mountains in Carbon County, Wyoming.

The poorly presented exploration proposal consists essentially of 12 rotary non-core holes ranging in depth from 200 to 500 feet, with an aggregate total footage of 4,250 feet at an estimated cost of $20,000.00.

An examination of the property was made December 5, 1957, by D. H. Richter, geologist, U. S. Geological Survey, and E. O. Binyon, mining engineer, U. S. Bureau of Mines. Joseph P. McDaniel, geological engineer, accompanied the examining team and the program was discussed briefly with N. O. Swenson, president, at Hanna, Wyoming.

The proposed exploration program is designed to explore a wide breccia and calcite-filled fault zone that cuts sedimentary carboniferous rocks. Minor secondary uranium minerals were observed in the fault zone at one surface locality, but none were present in an

opencut where approximately 4 tons of material containing 0.32 percent U_3O_8 were mined. The calcite and minor secondary uranium minerals are believed to be the result of deposition from cold descending meteoric waters.

Geologic justification to explore for primary uranium deposits at depth along the fault zone is very weak, and the possibility of finding significant secondary deposits is remote. It is recommended that the application be denied.

ACKNOWLEDGEMENTS

Joseph P. McDaniel, geological engineer, representing the applicant, accompanied the examining team during the examination. Mr. Ray Derzay, geologist, A.E.C., was consulted after the examination.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The claims are in sec. 18, T. 25 N., R. 80 W., 6th principal meridian, Carbon County, Wyoming, and are 33 miles by road north and slightly east of the Nugget Coal and Timber Company's loading tipple at Hanna, Wyoming (fig. 1). To reach the property from Hanna, a small coal mining community located 1 mile north of U. S. Highway 30 and about half way between Rawlins and Rock River, go north for 14.6 miles on the county road; turn right at the junction and go east for

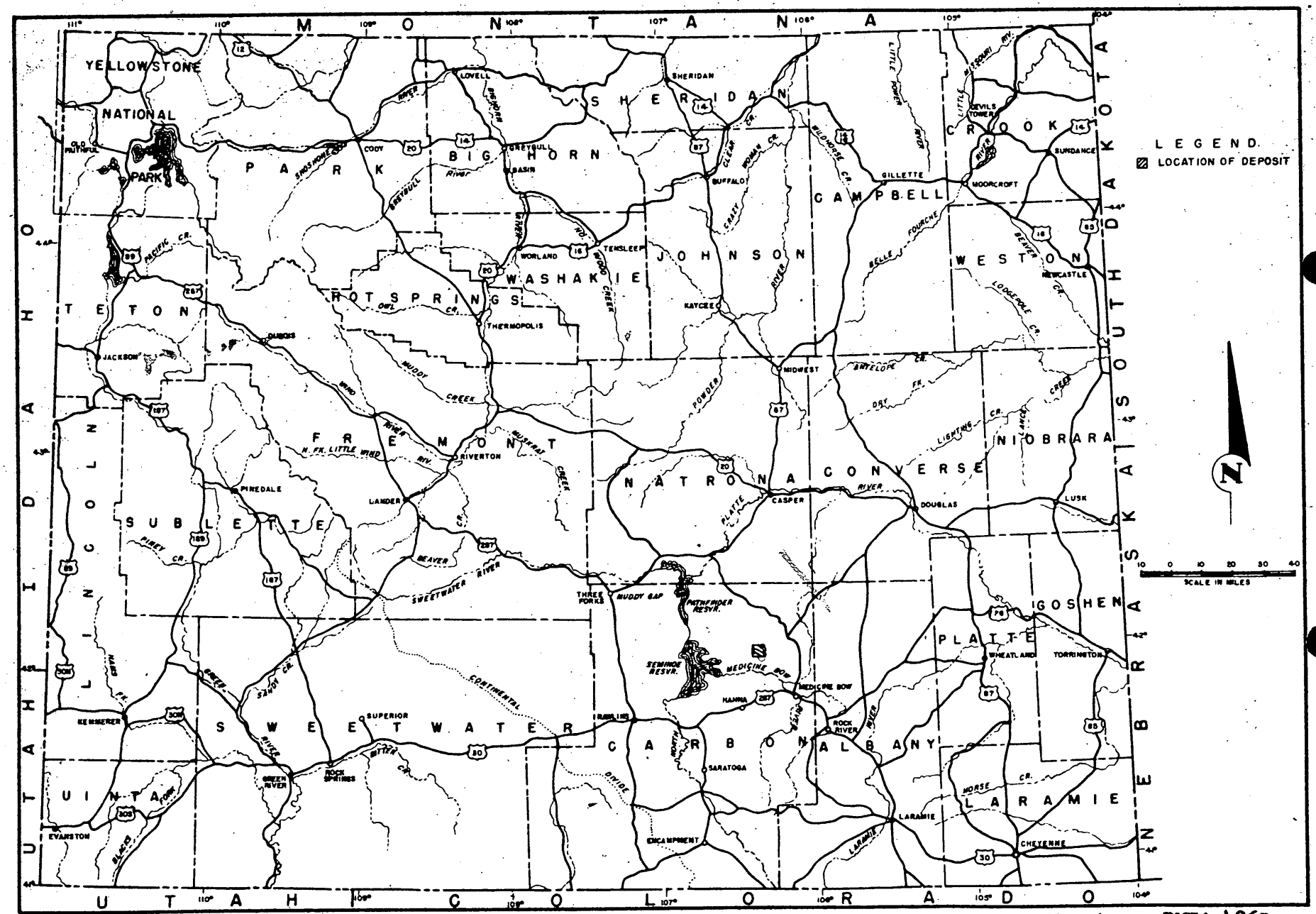

Figure 1 - Location Map, Nugget Coal and Timber Company, Ajo claims, Carbon County, Wyoming - DMEA 4865

6 miles; then turn left and go north 10 miles to a poor dirt road and continue west 3 miles to the property.

The claims are in the eastern foothills of the Shirley Mountains where the relief is moderate to high and the elevations range between 6,800 and 8,250 feet above sea level.

Vegetation is sparse and consists of sage brush, cacti, and desert grasses. There is no timber on or near the claims.

There is no water on the property. Water for drilling and small mine use would have to be hauled from a seep or spring 1 mile east of the property.

No electric power is available on or in the immediate vicinity of the claims.

The climate is hot and dry in the summer and cold in the winter with sub-zero temperatures for short periods during the winter months. Snow and rainfall during the winter and early spring, at times make travel over the county and dirt roads difficult if not impossible.

Rawlins, Wyoming, the nearest sizeable community and county seat of Carbon County is on U. S. Highways 30 and 287 and is 72 miles by road west and slightly south of the property. Rawlins and Hanna are rail points on the Union Pacific railroad.

OWNERSHIP

The claim group comprising 18 contiguous unpatented lode mining claims (371 acres) known as the Ajo No. 1 through 18 is owned by Dale F. Snyder, Box 402, Rawlins, Wyoming, and Richard C. Buckingham, Box 261, Hanna, Wyoming. The property is held under a two-year lease with a continuation of lease clause by the Nugget Coal and Timber Company, a Wyoming corporation with offices in the Midland Savings Building, Denver 2, Colorado. The lease is dated September 18, 1956.

The claims are recorded at the county clerk's (ex officio Register of Deeds) office at Rawlins as follows:

Claim	Book	Page	Discovery date	Date recorded
Ajo Nos. 1-18	364	565-582	8/28/56	10/13/56

HISTORY AND PRODUCTION

Dale F. Snyder and Richard C. Buckingham located the Ajo No. 1 through 18 unpatented mining claims on August 18, 1956. During the early part of 1947 a bulldozer road was constructed to the top of the mountain where the claims are located, and a small amount of wagon drilling was done to explore the fault zone on the Ajo No. 2 and No. 7 claims.

In the three-month period from July to September 1957, 3.9 tons of material assaying 0.32 percent U_3O_8 was mined from a small pit on the Ajo No. 7 claim.

PRESENT STATUS

No work is being done on the property at present. Except for a small trailer on the Ajo No. 8 claim there is no mining or milling equipment or other facilities on the property.

GEOLOGY AND MINERAL DEPOSITS

General statement

The Ajo claim group is on the eastern end of the Shirley Mountains, a Laramide orogenic feature, in northern Carbon County, Wyoming.

Consolidated rocks ranging in age from Precambrian to Upper Cretaceous are exposed in the general area of the claims. The Paleozoic and Mesozoic strata have been deformed, by north-south compressional forces, into a series of long, relatively broad assymmetric folds that trend east to northeast. Strong, normal and high angle reverse faults, with the same general easterly strike are common throughout the area. These faults are undoubtedly related in time to the folding.

In the areas underlain by Carboniferous rocks, the faults and fault zones are generally filled with typical low temperature-type calcite crystals. No strong evidence indicating hydrothermal mineralization and/or alteration is apparent.

Ajo claims

Although no published geologic maps or reports are available on the immediate claim area, the exposed rocks (fig. 2) have been tentatively identified from geologic sections described in reports on nearby areas[1/]. This tentative correlation is based solely on the comparison of macro features of the subject rocks with those investigated elsewhere, and on a fairly cursory field study of the various stratigraphic units and their contacts. Consequently the following geologic section for the Ajo claims, although accurate lithologically, may be in error with regards to age and terminaology:

Formation and description	Thickness
Permian	
Embar group	
CARBONIFEROUS	
Pennsylvanian	
Tensleep sandstone (?). Upper member (110 feet) is a tan to gray, thin-bedded, medium-grained sandstone. Lower member (220 feet) is predominantly a buff to pink, massive, fine-grained calcareous sandstone	330 feet
Madison limestone (?) - Bluish-gray, massive, dense limestone	>100 feet

---

1/ Maravich, M. D., 1941, Geology of Freezout Mountain-Bald Mountain area, Carbon County, Wyoming: A. A. P. G. Bull. v. 25, p. 883-897.

Neely, J., 1934, The geology of the north end of the Medicine Bow mountains, Carbon County, Wyoming: Geol. Surv. Wyoming Bull. 25, p. 1-15.

The lower and thicker member of the Tensleep sandstone (?) may be correlative to the Amsden formation, which Darton[1/] describes as present in the area. However, later workers in the region (see previous references) do not recognize any Amsden rocks in the general area but place the Tensleep sandstone directly over the Madison limestone.

The thin and in part crossbedded upper Tensleep (?) sandstone forms prominent hogbacks and cuestas throughout the area. The escarpment slopes of these land forms are, in general, covered by blocky talus of the upper Tensleep (?) that effectively mask exposures of the softer, lower Tensleep (?) rocks and the Tensleep-Madison contact.

Structurally the Ajo claims overlie the north flank of a broad easterly plunging anticline. Rocks in the vicinity of the pit on the Ajo No. 7 claim, where not disturbed by faults, strike between N 70° E and N 70° W and dip 10° to 55° N. On claims 2 and 7 a wide fault zone, striking N 70° to 80° W and dipping 60° to 80° S transects the Carboniferous rocks. The fault zone consists of a number of individual fault planes in a complex structural unit up to 25 feet wide. The overall resultant movement across the zone is normal in character. Total maximum vertical displacement across the fault zone is probably around 200 feet, which in the area of the pit brings the base of the upper

---

1/ Darton, N. H., 1908, Paleozoic and Mesozoic of Central Wyoming: G. S. A. Bull. v. 19, p. 403-470.

Tensleep (?) sandstone in approximate contact with the top of the Madison (?) limestone. From surface exposures, the horizontal component of movement on the fault is smaller than the maximum vertical movement, probably around 100 feet, with the hanging wall, or south block, displaced to the east. The fault zone has a known surface extent of 1,000 feet; to the east beyond the pit it is covered by talus, and to the west it is hidden under thin soil cover on the Madison (?) limestone and Precambrian rocks. Other smaller faults and fractures are common on the claims. These smaller faults are generally less than 100 feet in length and have little noticeable displacement.

The principal mineral, and essentially the only mineral, observed in the faults and fault zones is calcite. The calcite commonly occurs as colorless to gray, acute scalenohedral crystals (dog-tooth spar) in druses lining the walls of open, or former open spaces (fig. 2). The crystals do not fluoresce and are generally fairly large--averaging 2 inches in length--although in the smaller breccia and fracture fillings the crystals are of course much smaller. The form and habit of the calcite crystals is indicative of low temperature deposition and this feature along with the absence of known hydrothermal minerals strongly suggests a meteroic origin for the mineralizing solutions.

Only a minor showing of yellow secondary uranium minerals, probably uranophane, was observed on the surface in the large fault zone. In the

opencut where the 3.9 tons of material containing 0.32 percent U_3O_8 were mined, no trace of uranium mineralization was observed and the radioactivity was only 6 to 8 times background (background 0.06 Mr/hr). The radioactivity over the small showing on the surface was 10 times background. Four channel samples taken by the examining team and representing a 14-foot portion of the fault zone's footwall assayed as follows (also see fig. 2):

No.	Length (ft.)	% eU_3O_8	% Chem. U_3O_8
EOB-6	5.0	0.02	0.015
EOB-7	4.0	<0.01	0.006
EOB-8	1.5	<0.01	<0.001
EOB-9	3.5	0.01	0.012

The uranium minerals, as seen in the limited exposure on the surface and inferred from pieces of mine debris near the cut, coat fractures in the brecciated siliceous limestone in the footwall portion of the fault. From oral descriptions of the ore body, it is apparent that the uranium minerals were in no way closely associated with the calcite, but were limited only to the breccia zone near the surface.

Secondary blue and green copper minerals were observed in pieces of float, resting on limestone, west of the pit. The source of this material, however, is in doubt.

Local areas of red and yellow color in interstitial material, along the margins of fractures and other open spaces, also indicate

some superficial movement of ferric iron or some change in state of the existent iron compounds present in the country rock, by the mineralizing solutions.

In summary, it appears that a more or less concomitant process of dissolution and precipitation in fractured and brecciated zones, such as along the fault zone on the subject property by relatively cold descending meteoric solutions, is adequate to explain the observed features of the deposit. With the exception of known copper minerals in the vicinity, which may be used as evidence to support hydrothermal mineralization, the available data indicate that the possibility of discovering primary uranium minerals at depth along the fault is remote. Furthermore it appears that the secondary uranium deposits, which are limited to small, near surface, irregular pods randomly distributed throughout the fault zone, cannot be considered singularly or in total as significant deposits.

APPLICANT'S PROPOSED EXPLORATION PROGRAM AND COSTS

The applicant's poorly presented exploration program consists of 12 rotary non-core holes with a total footage of 4,250 feet in Stage I and an undisclosed amount of core-drilling and drifting in a subsequent stage. However, the applicant's estimated total cost for the program of $20,000.00 would barely be sufficient to cover the first stage non-core rotary drilling. During discussions with the applicant and his

geologist, it was intimated that the costs submitted were only for drilling the 12 holes, but that the core drilling and drifting should be considered, etc.

The 12 non-corerrotary holes are designed to explore at depth the large fault zone, on the Ajo claims 2 and 7, which strikes N 70° to 80° W and dips 60° to 80° S. The holes were spaced approximately on 100-foot centers over a total length of 800 feet, but were to be drilled vertically from the hanging wall to depths ranging from 200 to 500 feet. This technically poor plan would result in angles of intersection as low as 10°.

Total estimated cost for the exploration program was a flat $20,000.00. No itemized costs were submitted with the application.

CONCLUSIONS AND RECOMMENDATIONS

Small amounts of relatively high-grade secondary-type uranium ore have been mined from a strong, calcite-filled fault zone on the subject property. At the present time no uranium minerals are visible in the mined area, and geologic information indicates that the uranium content will not increase with depth or change in character along the fault. It is believed that the calcite and minor uranium minerals were deposited in open spaces along the fault zone structural break by relatively cool, descending solutions.

The chances of discovering significant uranium deposits by exploring the structure at depth is considered to be remote, and it is recommended that the application be denied.

OFFICIAL FILE COPY
DMEA
RECEIVED NOV 25 1957
DATE
11/25 gb 220

224 New Customhouse
Denver 2, Colorado

November 22, 1957

Memorandum

To: E. N. Harshman) W/enclosures, Items 1-5
DMEA/DFC) " " "

From: DMEA Field Team, Region III

Subject: Docket No. DMEA 4865 (Uranium) Nugget Coal and Timber Company (Ajo Claims) Carbon County, Wyoming

Enclosed is the following material relating to the subject docket:

1. Copy of application for Government assistance in exploration work under the DMEA program.
2. Memorandum of Review by James Paone, USBM.
3. Memorandum of Review by W. P. Williams, USGS.
4. Letter of transmittal of the foregoing to this office, dated November 18, 1957, from the Chairman, Operating Committee, DMEA.
5. Routing Control Sheet.

A field examination of the property and a joint report of findings and recommendations pertaining to the Applicant's work proposal are requested.

Please note the Chairman's comments concerning the discrepancy in the two reports regarding the direction of the dip of the fault.

If the field examiners view the project proposal favorably, the Applicant should be instructed to obtain the recording data for all mining claims. Also five copies of a Consent to Lien and Subordination Agreement signed by Richard C. Buckingham and Dale F. Snyder would expedite the processing of the application. He should be warned, however, that our request for form MF-205 does not necessarily indicate that an exploration contract will be approved. The Applicant should also be advised that since

the application was submitted after October 22, 1957, Government participation would be on a 50% basis.

If the field examiners recommend Government participation in the proposed exploration program, please submit eleven extra copies of each map used in the joint report which show the land to be subordinated and the location and extent of recommended work, relative to property boundaries.

The Bureau of Mines' copy of the application should not be returned to this office, but is to be kept for the Examining Engineer's file. The Routing Control Sheet, however, is to be completed, detached from the application, and forwarded to the Executive Officer with the Joint Examination Report. The Survey's copy of the application is to be returned to Mr. Harshman's office.

Original signed by
E. N. HARSHMAN

E. N. Harshman
Acting Executive Officer

Enclosures

HMC:eh

cc: Sec. Op. Comm. (2)
Docket
Chron.

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
11-15	Murphy	700
11-15	Ellis	200
11/15	Martin	130
"	Johnson	110
"	Mathews	100
11/18	C	200
		700

NOV 18 1957

Mr. E. N. Harshman
Acting Executive Officer
DMEA Field Team, Region III
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMEA-4865 (Uranium)
Nugget Coal and Timber Company
Ajo Claims
Carbon County, Wyoming

Dear Mr. Harshman:

The captioned application is referred to Region III Field Team for investigation, a field examination if deemed advisable, and recommendations.

Enclosed are copies of memoranda, dated November 4 and 13, 1957, by James Paone, USBM, and W. P. Williams, USGS, respectively, relating to the application. Also enclosed for Field Team use are two extra copies of the application.

We note that J. P. McDaniel's report, dated April 30, 1957, states that the fault dips ~80° north, whereas his letter of October 13, 1957, to N. A. Swenson, indicates that the fault dips to the south. Also, the proposed drill hole locations and the dip symbols, shown on the map submitted, seem to indicate that the fault dips to the south.

In the event the Field Team concludes that a project to explore the subject claims appears to be warranted, it should advise the Applicant that we require the recording data for the claims. Also, that early submission of five copies of a Consent to Lien and Subordination Agreement signed by Richard C. Buckingham and Dale F. Snyder would expedite the processing of the application. The Applicant should be warned, however, that our request for this instrument does not necessarily indicate that an exploration project contract will be approved. The Applicant should also be advised that since the application was submitted after October 22, 1957, Government participation is on a 50 percent basis.

Sincerely yours,

W. S. Martin

ACTING Chairman, Operating Committee

Enclosures
APPROVED:

Frank D. Lamb
Member, Bureau of Mines

W. P. Williams
Member, Geological Survey

FMMurphy/izm 11-15-57
cc: Mr. Murphy
Admr.'s Reading File
Operating Committee
THKilsgaard, 5224

8623

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
11-15	Murphy	700
11-15	Ellis	700
11-15	Martin	130
"	Johnson	110
"	Mittendorf	100
11/	Williams	139
		220
		700

NOV 1 . 1957

Mr. R. S. Harkins, Executive Vice President
Nugget Coal and Timber Company
919 Midland Savings Building
Denver 2, Colorado

Re: Docket No. DMEA-4865 (Uranium)
Ajo Claims
Carbon County, Wyoming

11/15 Lamb 030

Dear Mr. Harkins:

The application for assistance in exploring your property, under the captioned docket number, has been reviewed by the Division of Rare and Miscellaneous Metals of the Defense Minerals Exploration Administration. It has been referred to:

Mr. E. N. Harshman
Acting Executive Officer
DMEA Field Team, Region III
224 New Customhouse Building
Denver 2, Colorado

The Regional Office will contact you in regard to your project if additional information is required.

Sincerely yours,

C. O. Mittendorf (for)

Administrator

FMMurphy/izm 11-15-57
cc: Mr. Murphy
Admr.'s Reading File
DMEA FT Reg. 3 (2)

8623

IN REPLY REFER TO:

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

OFFICIAL FILE COPY
DMEA
RECEIVED NOV 15 1957

DATE	INITIALS	CODE
11/15	gb	220
"	DMM	700
Complete		

Memorandum

November 13, 1957

To: E. W. Ellis, Defense Minerals Exploration Administration

From: W. P. Williams, U. S. Geological Survey

Subject: Review of application, DMEA 4865 (uranium), Nugget Coal and Timber Co., Ajo claims, Carbon County, Wyoming.

The applicant proposes to explore for uranium ore deposits on a tract of 18 mining claims. According to the applicant uranium minerals on the property are found in fissure veins in the Tensleep sandstone of Pennsylvanian age. Two assay returns submitted by the applicant showed high grade uranium.

The applicant's proposal is vague but it may be gathered that he wishes to do rotary drilling and possibly some underground work.

I recommend that the application be referred to the Field Team for field examination and report. I have no specific information about the property.

W. P. Williams

W. P. Williams

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DMEA
RECEIVED NOV 5 1957

DATE	INITIALS	CODE
11/5	C	220
11-5	Ellis	700

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

November 4, 1957

DMEA Lease No. 4865
DMEA Contract No.
Commodity Uranium
Name of applicant Nugget Coal & Timber Co.
Name of property Ajo claims
Location of property Carbon County, Wyoming
Estimated cost of project $20,000.00

Ernest William Ellis, DMEA Member
Uranium Commodity Committee
James Paone, Bureau of Mines Member JP
Uranium Commodity Committee

Application

Date of application 10/29/57 Date received in Washington 11/4/57

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

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

November 4, 1957

Nugget Coal and Timber Company
919 Midland Savings Building
Denver 2, Colorado

Gentlemen:

Subject: DMEA-4865

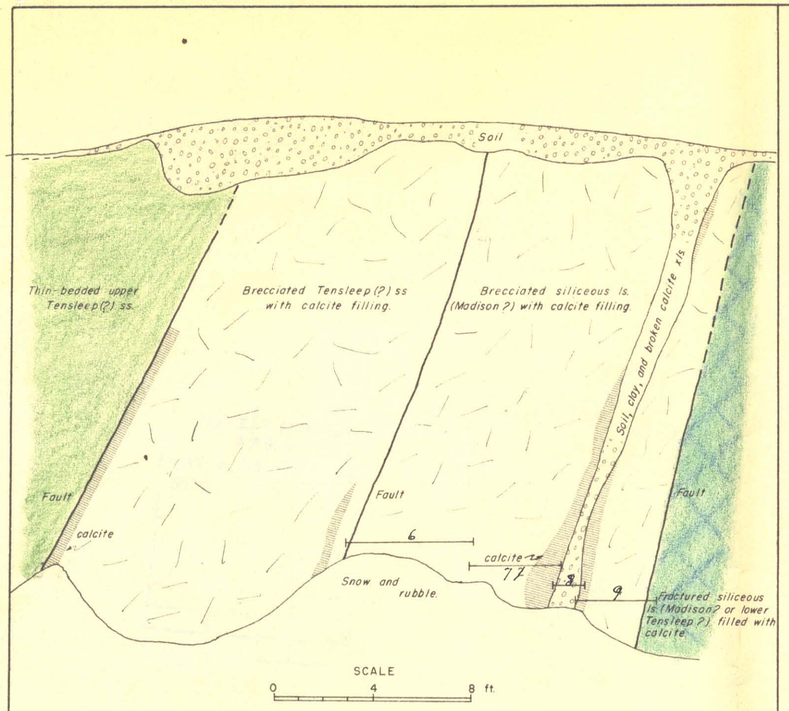
Your application for exploration assistance, dated October 24, 1957 submitted to our office at Denver, Colorado has been assigned Docket Number DMEA-4865 and referred to the Rare and Miscellaneous Metals Division in the Washington office. Kindly identify all future correspondence relating to your application by this Docket Number.

Sincerely yours,

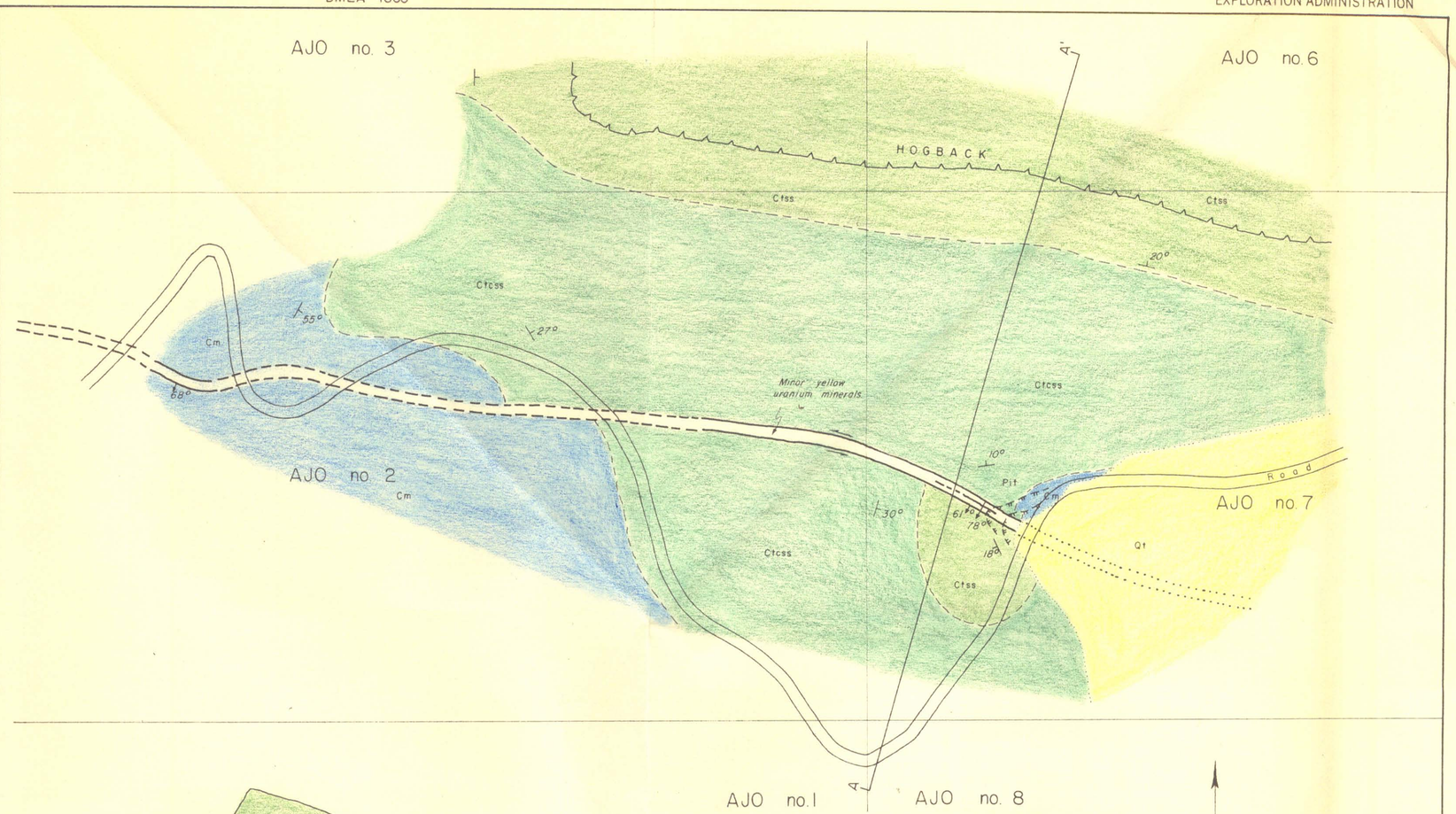
Allen S. Dakan, Director
Operations Control and
Statistics Division

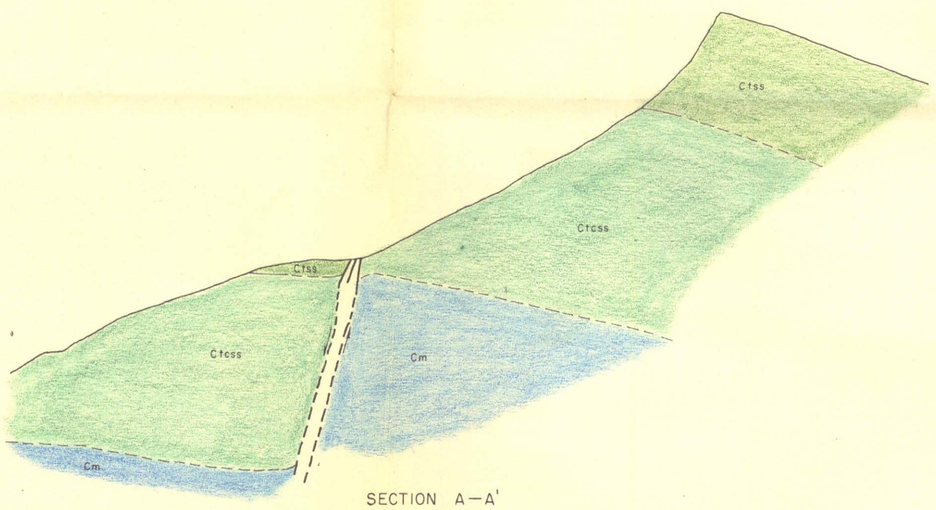
Copy to:

Region III



DETAILED VIEW, LOOKING N70°W, OF FAULT ZONE IN PIT, SHOWING LOCATION OF DMEA CHANNEL SAMPLES.





SECTION A—A'

EXPLANATION

QUAT.
Qt — Talus

CARBONIFEROUS
Ctss / Ctcss — Tensleep(?) sandstone, showing lower (Ctcss) calcareous member.
Cm — Madison(?) limestone

Limit of exposure
Contact, approximate
10° — Attitude of bedding
61° 75° — Fault, showing dip of walls.

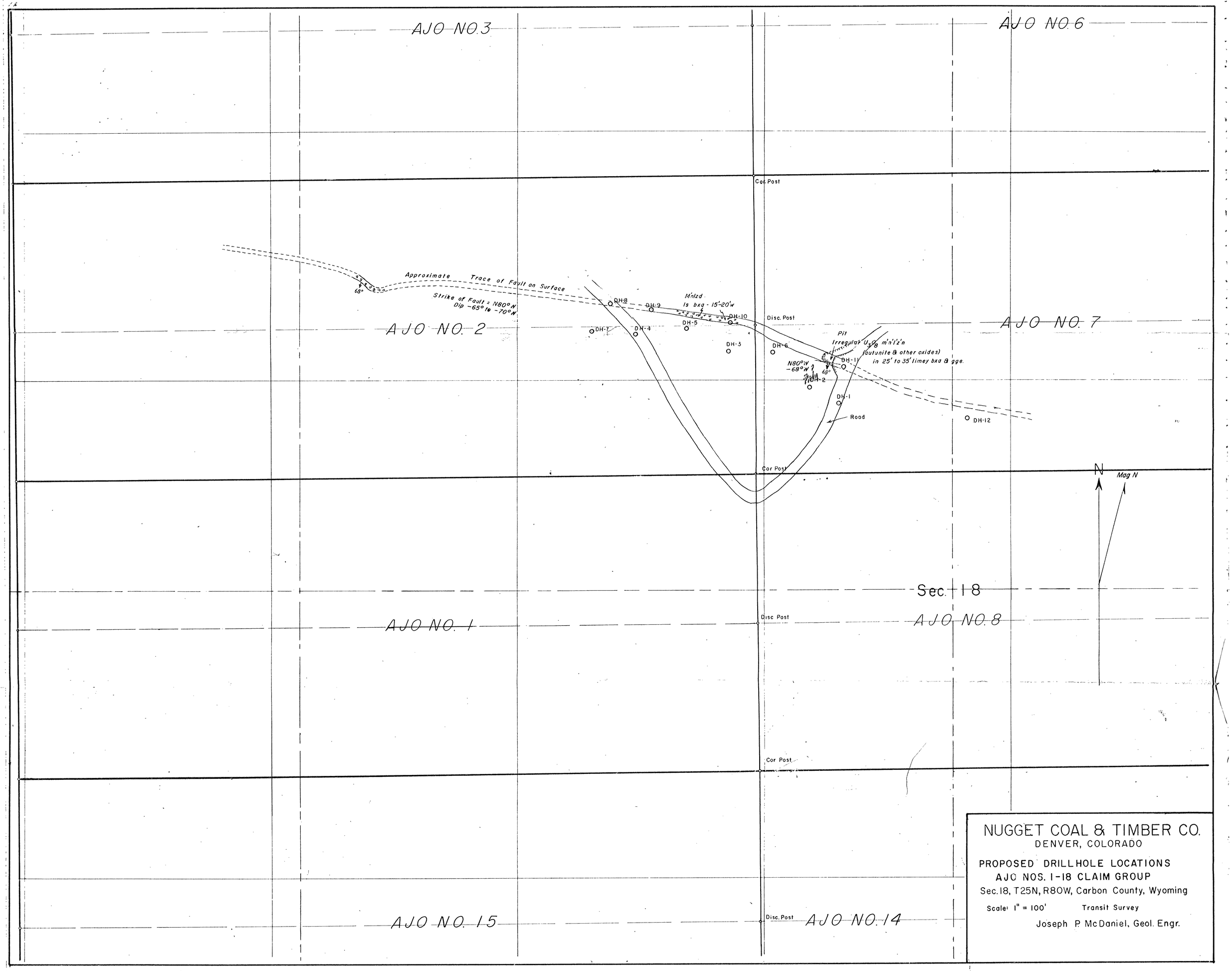
SCALE
0 100 200 300 ft

N

SOURCE OF INFORMATION
Geology — DMEA Examining Team
Culture and some geology — applicant

D.H. Richter, Dec. 1957

FIGURE 2. GEOLOGIC MAP AND SECTIONS OF A PORTION OF THE AJO CLAIMS, NUGGET COAL AND TIMBER COMPANY, CARBON COUNTY, WYOMING.


AJO NO. 3
AJO NO. 6
Cor. Post
Approximate Trace of Fault on Surface
68°
Strike of Fault = N80°W
Dip -65° to -70°N
DH-8
DH-9
M'nlzd
1s bxa - 15'-20'w
DH-10
Disc. Post
AJO NO. 2
DH-7
DH-4
DH-5
DH-3
DH-6
AJO NO. 7
Pit
Irregular U3O8 m'n'l'z'n
(autunite & other oxides)
in 25' to 35' limey bxa & gge.
DH-11
N80°W
-68°W ?
68°
DH-2
DH-1
Road
DH-12
Cor Post
N
Mag N
Sec. 18
AJO NO. 1
Disc Post
AJO NO. 8
Cor Post
AJO NO. 15
Disc. Post
AJO NO. 14
NUGGET COAL & TIMBER CO.
DENVER, COLORADO
PROPOSED DRILLHOLE LOCATIONS
AJO NOS. 1-18 CLAIM GROUP
Sec. 18, T25N, R80W, Carbon County, Wyoming
Scale: 1" = 100'
Transit Survey
Joseph P. McDaniel, Geol. Engr.