DMA Form 1

DEFENSE MINERALS ADMINISTRATION
Control Slip

## CONTROLLED DOCUMENT

DMA Docket No. 4158

## 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

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.

Cys.GS.

Routing Slip

| | | | |
|---|---|---|---|
| To: | 700 | Date | 2/7/56 |
| To: | Mr. Crawford | Date | 2/13/56 |
| To: | Oper. Com | Date | 2-21-56 |
| To: | F.E. Johnson | Date | 2-24-56 |
| To: | [illegible] | Date | 2-24-56 |
| To: | Mr. Mittenkorf | Date | 5-22-56 |
| To: | | Date | |
| To: | | Date | |
| To: | | Date | |
| To: | | Date | |
| To: | | Date | |
| To: | | Date | |
| To: | | Date | |
| To: | | Date | |
| To: | | Date | |

## DO NOT DETACH

## CONTROLLED DOCUMENT

INT.-DUP. SEC., WASH., D.C. 98868

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

DMEA
Rec'd
FEB 2 1956
BUREAU OF MINES
Denver, Colorado

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

RECEIVED FEB - 6 1956

# 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-4158
Metal or Mineral Uranium
Date Received 2-6-56
Estimated Cost $198,518.89
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: Hunt Oil Company, a Delaware Corporation.
700 Mercantile Bank Building
Dallas, Texas

(*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 attached Schedule No. 1)

(*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 attached Schedule No. 2

(*b*) State any mine name by which the property is known. None

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

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

(*e*) If you own the land, describe any liens or encumbrances on it

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. (Included with Schedule No. 2 in 3 above.)

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. (see attached Schedule No 3)

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

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

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

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

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore 1
Uranium and Vanadium

(*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 15 days and be completed within 8 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)? Yes

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

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

Explain in detail on acompanying paper. We are prepared to furnish our 25% of the total cost of this project with the necessary finances, operating equipment owned by us and supervision as outlined in Item 6, "Estimate of Costs".

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 December 20th, 195

HOWE OIL COMPANY
(Applicant)

By [signature]

Sidney Latham

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

# HUNT OIL COMPANY

DALLAS 1, TEXAS

RECEIVED
FEB - 6 1956

Schedule No. 1

1.
(c) H. L. Hunt-President
700 Mercantile Bank Bldg.,
Dallas, Texas

Sidney Latham-Vice President
c/o Hunt Oil Company
700 Mercantile Bank Bldg.,
Dallas, Texas

Roy Lee-Secretary-Treasurer
c/o Hunt Oil Company
700 Mercantile Bank Bldg.,
Dallas, Texas

# HUNT OIL COMPANY

DALLAS 1, TEXAS

RECEIVED
FEB - 6 1956

Schedule No. 2

3. Applicant's property rights.

(a) Claims are located in SW corner of T 44N, R 18W, Sections 20, 21, 27, 28, 29, 32, 33, 34, and 36, and claims located in the NW corner of T 43N, R 18W, Sections 2,3, 10, and 11, San Miguel County, Colorado as follows:

| | | | (Book) | (Page) |
|---|---|---|---|---|
| Sunset group | Nos. 1-22 inc. | 22 | 227 | 244-267 inc. |
| West group | Nos. 1-38 inc. | 38 | 225 | 681-718 inc. |
| Gravy group | Nos. 1-6 inc. | 06 | 224 | 54-58 inc. |
| Gravy group | Nos. 7-12 inc. | 06 | 224 | 393-398 inc. |
| Glen group | Nos. 1-10 inc. | 10 | 227 | 234-243 inc. |
| North group | Nos. 1-33 inc. | 33 | 225<br>224 | 719-751 inc.<br>112-162 inc. |
| Dolores group | Nos. 1-68 inc. | 68 | 224 | 112-162 inc.<br>185-201 inc. |
| E. B. group | Nos. 1-6 inc. | 06 | 224 | 49-53 inc. & 110 |
| Dolorous group | Nos. 1-6 inc. | 06 | 224 | 387-392 inc. |
| East group | Nos. 1-36 inc. | 36 | 227 | 268-303 inc. |
| | | 231 | | |

Note:

The following claims are staked on Government withdrawn land and invalid.

1- West No. 1-3 inc.
2- West No. 12-14 inc.
3- West No. 15-17 inc.
4- West No. 36-38 inc.

12 claims

231
-12
219

# HUNT OIL COMPANY

DALLAS 1, TEXAS

Schedule No. 5

RECEIVED
FEB - 6 1956

4. Physical Description.

(a) Past exploration.

(1) Primary drilling program.

In January of 1954 a drilling program was initiated on the Hoyman-Wilmoth et al Lease to evaluate the Salt Wash member of the lower Morrison formation. A total of 8,635 feet were drilled with an average depth of approximately 865 feet. The maximum depth attained was 942 feet on D-3A and the shallowest was 590 feet on D-5 located in the Joe Davis Canyon. Of these ten holes drilled, five were ore holes, three were mineralized, and two were barren. D-1 located in Dolores No. 39 was drilled in the southern part of the project area and not deep enough to penetrate the Salt Wash sand member. With the exception of drill holes No. D-8, D-9, and D-10, no effort was made to offset ore holes and spacing was wide being of the order of plus 600 feet. No definite ore trend was established but one ore zone was blocked out in West claim No. 18. Cores were taken on all holes drilled into the Salt Wash member.

(2) Secondary Drill Program.

Starting in June of 1955, five holes were drilled for a total of 4,764 feet or an average depth of approximately 952 feet. The deepest hole was 1,002 feet located in West No. 27 and the shallowest was 830 feet in West No. 18. Of these five holes drilled one was an ore hole, three showed mineralization, and one was barren. D-14, the barren hole, was in a favorable sand; however, only one hole was an offset to an ore hole, D-11, and the other holes drilled were on wide spacings in excess of 700 feet. Cores were obtained from all holes through the prospective mineralized zones.

All drilling for the Hunt Oil Company in this area was done by Sprague & Henwood Drilling Company of Grand Junction, Colorado.

(3) U.S.G.S. Drilling Program.

The United States Geological Survey has conducted an extensive drilling program in this area and has disclosed mineralization over a wide area of this project. To date the U.S.G.S. has drilled 49 holes on the Hoyman-Wilmoth et al Lease and these hole numbers are preceded by the "DV" designation on the accompanying drill map. Approximately 14% of the holes

drilled by the U.S.G.S. were designated as ore holes. Most of this drilling program was conducted as wide spaced drilling with the exception of the area around DV-9 located in West claim No. 18.

(4) Interest in Operations.

The area of the Hoyman-Wilmoth Lease embraces an area of 231 claims less 12 claims staked on Government withdrawn land at the extreme west portion of the area which are invalid, or approximately 4,480 acres and much of this area shows favorable mineralization from holes drilled to date. U.S.G.S. drill hole DV-9 has 5½ feet of ore and several others such as DV-8, DV-81, DV-91, DV-97, and DV-112A had 2 feet or better of ore. Although no definite ore trends were outlined it is reasonable to expect that there are several ore trends crossing this project or either it is an area of broad mineralization. There are several producing mines adjacent to this area on the west and it can be expected that these ore bodies will trend in an easterly-westerly direction across this project, which is characteristic of the Salt Wash member.

Drilling done to date has indicated a high percentage of ore holes; 14% on U.S.G.S. drilling and 33% on drilling done by the Hunt Oil Company. However, several of the holes drilled by Hunt Oil Company were offsets to DV-9 and cannot be classed as exploratory drill holes.

Additional drilling done by the U.S.G.S. has indicated a favorable hole drilled in West No. 37 and another west of Gravy No. 1 in the Joe Davis Canyon.

(b) production and reserves.

(1)
No production has come from this property.

(2)
No ore has been definitely blocked out with the exception of drill hole DV-9 and this is mostly conjecture. On the basis of an average thickness of 1.9 feet in this vicinity, it is reasonable to expect there would be approximately 3,900 tons of ore without further extensions.

(3)
Calculating reserves on the basis of ore on a 25 foot radius around each ore hole and excluding mineralized holes, ore reserves could be conservatively figured at about 6,800 tons including the ore in the vicinity of drill hole DV-9.

(c) Geology.

(1) Physiography.

The Hoyman-Wilmoth et al Lease is located in San Miguel County, Colorado in the SW corner of Township 44 North and the NW corner of Township 43 North, Range 18 West. The south and west boundries are generally determined by the Canyon of the Dolores River and the north boundary is outlined by the Burro Canyon. The 18 claims comprising the West Group of claims are on withdrawn government land and are indicated on the map. The area of the claims is in the center of NW end of Disappointment Valley and the claims are on a gently undulating surface with the exception of the claims in the Joe Davis Canyon. Relief over a given area should not exceed 200 feet and most areas are readily accessible.

(2) Regional Geology.

The area of the lease block is located in the NW center of the NW-SE trending syncline and dips are gently NE. This is a region of alternating NW-SE trending anticlines and synclines which are often disrupted by high angle normal faults which generally strike NW-SE. Faulting in the vicinity of anticlines has often produced pronounced grabens, along the axis. The area is bordered on the SW side by the Dolores Anticline and on the NE by the Big Gypsum Valley Anticline.

(3) Stratigraphy.

The surface of the lease area consists of Cretaceous shales and sandstones. The East Group of claims in Section 36, Township 44 North and part of the Dolores Group in Section 2, Township 43 North are on the Mancos Shale and the balance of the claims are either Dakota SS or Burro Canyon of lower Cretaceous age. The Dakota SS has been partially eroded away in most areas and generally averages about 50 feet. The Burro Canyon varies in thickness from 90 to 230 feet. Most of the canyons of the Dolores River are mainly composed of the Brushy Basin and Salt Wash members of the Morrison formation which is Upper Jurrasic in age. The thickness of the Morrison formation is approximately 720 feet. The Salt Wash sandstone member which is the prospective mineralized zone varies in thickness from 28 to 270 feet and is located near the top of the section. The Salt Wash thickens to the west, but thins to the south and intertongues with the Recapture member in New Mexico. This zone of the Salt Wash is the sandstone and mudstone facies in which most of the channel type uranium ore bodies have been discovered. This sandstone member is fine to medium grained, is usually crossbedded, ripple marked, and lenticular in planiform.

Sand lenses indicate deposition occurred as scour and fill channels under fluvial conditions. Drilling on this project indicates that the sandstone member varies from 22 feet at DV-27 to 105 feet at DV-42 and the average being about 64 feet over the entire area. Sandstones are generally discontinuous and grade laterally into shales and mudstones. Several ore holes indicated approximately 3 feet of altered green mudstone immediately underlying the ore sands which is one of the important indications in locating Morrison ore. Other favorable indications are limonite stain, a high carbon content and considerable woody material.

Approximately 100 feet of the Summerville formation of the San Rafael group is exposed along the Dolores River.

(4) Mineralogy.

The uranium minerals found in this area are the typical uranyl vanadates of the Salt Wash member which is predominantly carnotite but contains some Tyuyamunite. This area generally carries a high percentage of vanadium oxide which is usually coincident with favorable uranium oxide content in the Salt Wash member and is probably the factor which decreases the solubility of the carnotite in the presence of circulating ground waters. Several of the drill holes with good V2O5 were Dv-82 with 3.40%, DV-81 with 1.97%, and DV-112A with 2.68%. As there were not many chemical assays run it is expected that the vanadium oxide content will be high in this area. Most of the mineral zones are elongate, sharply dipping, rolls which are often more than 100 feet and generally trend in a NW-SE direction in groups of several ore bodies.

(5) Reasons for requesting additional exploration.

Exploration completed to date has disclosed a high percentage of mineralized holes on wide spacing over a large area of the project but no ore trends have been defined. Considerable additional drilling will be required to properly evaluate this project. U.S.V. is presently opening a mine shaft in an ore trend on the north side of Burro Canyon and this trend which is almost certain to extend into the project, should be drilled. Additional drilling would be planned to offset mineralized holes in an attempt to establish and define several possible trends in the area. As stated previously, U.S.G.S. drilling has revealed two ore holes in proximity to the project; the one hole being in West No. 37 and the other 500 feet west of Gravy No. 1.

(d( Accessibility.

(1) The claims are readily accessible from

Colorado State Highway No. 80 which traverses the area in a northwest-southeast direction and from access roads previously constructed by the U.S.G.S. and the Hunt Oil Company. These roads are in a good state of repair and the only extensive dozer work which would be required is in the Joe Davis Canyon. Most of the area is on a gentle undulating surface which can be traversed without roads.

(2) Shipping points: The mills located at Monticello, Utah and Uravan, Colorado are approximately 47 miles from the project area. However, the Monticello mill would traverse approximately 22 miles of improved highway whereas only 8 miles would be on improved highways to Uravan.

Supplies are available at Monticello, Utah, Naturita, Colorado and Grand Junction, Colorado.

Resident facilities are available at Monticello, Utah and Dove Creek, Colorado.

(e) Logistics (availability of manpower, materials, supplies, etc.)

(1) Experienced manpower is readily available. Hunt Oil Company can furnish one geologist to do logging and probing on a full time basis and two if necessary, plus adequate supervisory assistance. R. W. Patenaude, geologist for Hunt Oil Company, did the original work on this project and is familiar with the geology, drilling, and other problems encountered.

It would be planned to set this up on a contract drilling basis as several drilling companies have the necessary equipment and experience in this immediate area. To date Sprague & Henwood, Inc., Grand Junction, Colorado and Joy Mfg. Company, Salt Lake City, Utah have done all of the drilling for both the U.S.G.S. and Hunt Oil Company and the past costs can be used in setting up an equitable figure for future drilling.

(2) Materials, supplies, equipment, etc:

Available at Monticello, Utah and Grand Junction, Colorado,

(3) Water.

Available from the Dolores River and is no greater distance than four miles from any part of the project area.

(4) Power.

None available in the area.

Stage I

# HUNT OIL COMPANY

DALLAS 1, TEXAS

Stage II
36 holes

5. The Exploration Project.

(a) See application.

(b) Proposed work. (See attached map)

(1) Phase 1

The plan is to offset ore holes with four holes each on a radius of 200 feet. This would require offsets to DV-91 in Gravy No. 12, the holes approximately 1,000 feet in depth; DV-97 in Dolores No. 19, the holes approximately 920 feet in depth and DV-112A in North No. 15, the holes approximately 1,150 feet in depth. Six holes were also proposed in Test group No's 35, 34, 33, and 32 on an indicated ore trend established by USV on the north side of Burro Canyon the depth to approximately 900 feet. Four holes were proposed in Gravy claims No's 1 and 2 to offset a USGS ore hole west of Gravy No. 1 and DV-28. This drilling would be approximately 550 feet in depth.

The initial phase would propose a total of 22 holes to be drilled for a total footage of approximately 20,000 feet. It is expected that a minimum of 25% of the holes will be ore holes or show favorable mineralization.

(2) Phase 2

It is proposed that Stage No. 2 be set up to offset each ore hole with four offsets on a 100 foot radius. This would require offsetting the holes originally offset on the initial phase with four holes each; DV-91, DV-97, and DV-112A. As stated, at least 25% of the initial phase drilling or 6 holes are expected to be ore holes or 24 additional offsets for a total of 36 holes to be drilled. It is expected that hole depths will average approximately 980 feet in depth for a total of approximately 36,000 feet under the second phase of drilling.

It is planned to conduct this proposed drilling program with a minimum of eight rotary drilling rigs, each capable of drilling a minimum of 1,000 feet per month.

The initial and secondary phases of this proposed exploration program were set up after consultation with the USGS personnel familiar with the project area.

# HUNT OIL COMPANY

## Phase #1

22 holes to be drilled on 200 ft. radius from ore holes.

-Breakdown of holes with estimated depth-

| | | |
|---|---|---|
| 6 holes east of USV | to 900 ft. | 5400 ft. |
| 4 holes east of DV-93 | to 550 ft. | 2200 ft. |
| 4 holes around DV-91 | to 1000 ft. | 4000 ft. |
| 4 holes around DV-97 | to 920 ft. | 3680 ft. |
| 4 holes around DV-112A | to 1150 ft. | 4600 ft. |

Total footage Phase #1.....19,880 ft.

## Phase #2

36 holes estimated to be drilled on 100 ft. radius from ore holes.

-Breakdown of holes with estimated depth-

| | | |
|---|---|---|
| 4 holes around DV-91 | to 1000 ft. | 4000 ft. |
| 4 holes around DV-97 | to 920 ft. | 3680 ft. |
| 4 holes around DV-112A | to 1150 ft. | 4600 ft. |
| 24 holes estimated, at 100 ft. offsets to ore holes, average depth 980 ft. (based on 25% of holes drilled on Phase #1 being ore holes.) | | 23,520 ft. |

Total footage Phase #2.....35,800 ft.

Total footage Phase #1 and #2.....55,680 ft.

(c) Refer to application.

(d) Operating experience.

The Hunt Oil Company has been operating on the Colorado Plateau and adjacent areas in a search for uranium, both by air and ground prospecting, since December of 1952. We commenced exploration by drilling in December of 1953 and have had drilling operations under way almost constantly since then. The number of drills in exploration at various times has varied considerable but to date we have drilled in excess of 100,000 feet, both core, non core and wagon drilling. The major portion of this footage has been done with the rotary type drill suitable for core sampling, which is the type of equipment that will be used on the project covered by this application.

This amount of drilling over a two year period has of course given us considerable experience in various areas on the Plateau, both in the methods of drilling and the gathering and compiling of information obtained from the various projects. Approximately 12,500 feet of the drilling mentioned above has been accomplished on the area covered by this application. For this reason we are quite familiar with the problems involved in drilling and the logging of holes to obtain the necessary information. In addition to this we have kept close contact with the U. S. Geological Survey during the process of their exploration and have of course, obtained considerable information which will be beneficial to us in additional exploration in the area.

We have two geologists on our staff who will probably divide the responsibility of supervising this operation should our request for loan be granted. These men are Robert Patenaude and Donald Hanke, both competent and qualified geologists. Mr. Patenaude has been with us since October of 1953 and Mr. Hanke since February of 1955. Mr. Patenaude has had experience supervising core drilling on the east slope of the La Sal Mountains, also he supervised a portion of the drilling that has previously been accomplished on the area covered by this application. He is not only familiar with the procedure and problems involved but has had first hand experience in the area. Because of his experience and knowledge obtained during his term of employment with us we feel that he is well qualified to handle the supervision of a project such as this.

During the time Mr. Hanke has been employed by us, he has handled two drilling programs in a most able and satisfactory manner. He is careful to obtain correct information and most thorough in accomplishing any task assigned to him. From his past performance we do not hesitate to state

that we feel he will be well qualified to carry out his portion of the supervision of this project.

Our field office was established in Grand Junction for the purpose of supervising our uranium activities. Sufficient experience has been obtained over the past three years to carry out the details involved in an exploration program of this type. The Hunt Oil Company as a whole, has been engaged in the exploration for oil and other natural resources for many years and the entire staff is accustomed to directing exploration programs similar to this.

6. Estimate of Costs.

| ITEM | FUNCTION | RATE | AMOUNT | TOTAL |
|---|---|---|---|---|
| (a) Independent Contracts: | | | | |
| Bulldozer..... | Building road and drill sites | $12.00 per hr. | 5 days..$480.00 | |
| | | plus moving..... | $100.00 | |
| | | chg. estimate | | $ 580.00 |
| Drilling Estimate: | | | | |
| | Non-Core Drilling | | | |
| | 0 to 500', 28,800' | @ 2.50..... | $72,000.00 | |
| | 500' to 750', 13,500' | @ 3.25..... | $43,875.00 | |
| | 750' to 1000', 7,180' | @ 4.25..... | $30,515.00 | |
| | Core Drilling | | | |
| | 500' to 750', 400' | @ 5.00..... | $ 2,000.00 | |
| | 750' to 1000', 4600' | @ 6.00..... | $27,600.00 | |
| | 1000' to 1250', 1200' | @ 7.50..... | $ 9,000.00 | |
| Estimated delay time 100 hrs. | | @ $12.00..... | $ 1,200.00 | |
| | Total estimated drilling cost..... | | | $186,190.00 |
| (b) Labor, Supervision, Consultants: | | | | |
| Supervisory (office) Includes traveling and field expenses..... | | $250.00 | 8 mons | $ 2,000.00 |
| Geologist (Supervising Project) Includes traveling and field expenses... | | $580.00 per mon. | 8 mons | $ 4,640.00 |
| Rodman for surveying. Includes traveling and field expenses.... | | $1.65 per hr. | 80 hrs. | $ 132.00 |
| (c) Operating materials and supplies..... | | | | none |
| (d) Operating equipment: | | | | |
| Pickup truck (owned) | transportation (includes gas and oil) | $10.00 per da. | 160 days | $ 1,600.00 |

# HUNT OIL COMPANY

(continued)

DALLAS 1, TEXAS

| ITEM | FUNCTION | RATE | AMOUNT | TOTAL |
|---|---|---|---|---|
| Hole probe... (owned) | Geiger counter, probe & Esterline-Angus Recorder | $3.67 per da. | 67 holes | $ 245.89 |

(e) Rehabilitation and repairs..... none

(f) New buildings, improvements, installations..... none

(g) Miscellaneous:

| | | | |
|---|---|---|---|
| Core boxes..... | $1.50 per box | 335 boxes | $ 502.50 |
| Assays..... | $5.00 per sample | 50 samples | $ 250.00 |
| Office records and accounting..... | $100.00 per month | 8 months | $ 800.00 |
| Drafting..... | $ 25.00 per month | 8 months | $ 200.00 |
| Typing..... | $ 12.00 per day | 20 days | $ 240.00 |
| Reproduction..... | $ 10.00 per month | 8 months | $ 80.00 |
| Workman's Compensation and Liability Insurance..... | | 8 months | $ 16.90 |
| Payroll tax..... | | 8 months | $ 96.64 |
| Unemployment Insurance..... | | 8 months | $ 144.96 |

(h) Contingencies:

| | | | |
|---|---|---|---|
| Allowance for unforeseen expenses..... | $100.00 per month | 8 months | $ 800.00 |

Total Expense of Project..... $198,518.89

# HUNT OIL COMPANY

DALLAS 1, TEXAS

Drilling done by Hunt Oil Company on Hoyman-
Wilmouth et al Lease in San Miguel County, Colorado

| Hole No. | Claim | Depth | Remarks | Description |
|---|---|---|---|---|
| D-1 | Dolores No. 39 | 278' | Unfavorable | |
| D-2 | Dolores No. 22 | 841' | " | |
| D-3 | West No. 31 | 887.7-888.9 (1.2')<br>879.5-880.3 (0.8') | Favorable<br>" | .022% U3O8 |
| D-4 | West No. 21 | 873' | " | Slightly mineralized. |
| D-5 | Gravy No. 3 | 555-558' (3.0') | " | " " |
| D-6 | West No. 10 | 856' | " | 1.0' of .16% U3O8 |
| D-7 | West No. 18 | 796.4-796.8 (0.4')<br>810.0-811.0 (1.0') | "<br>" | .03% U3O8<br>.02% U3O8 |
| D-8 | West No. 18 | 792.5-794.5 (2.0') | " | .12% U3O8<br>2.63% V2O5 |
| D-9 | West No. 17 | 793.2-794.3 (1.1')<br>798.4-799.5 (0.9') | "<br>" | .64% U3O8<br>.03% U3O8 |
| D-10 | West No. 18 | 826.0-828.0 (2.0') | " | Slightly mineralized. |
| D-11 | West No. 18 | 830' | " | " " |
| D-12 | West No. 29 | 854.5-855.2 (0.7')<br>898.0-898.6 (0.6')<br>941.0-941.8 (0.8') | "<br>"<br>" | .13% U3O8<br>.025% "<br>.034% " |
| D-13 | Glen No. 6 | 909.4-910.3 (0.9')<br>938.5-939.4 (0.9')<br>978.5-979.3 (0.8') | "<br>"<br>" | .010% "<br>.010% "<br>.024% " |
| D-14 | Sunset No. 6 | 935.0-986.0 (51.0') | Semi-fav. | Good sand but no count. |
| D-15 | West No. 30 | 869.8-870.9 (1.1')<br>924.0-925.1 (1.1')<br>931.4-932.1 (0.7')<br>932.1-933.2 (1.1')<br>933.2-934.6 (1.4')<br>953.1-954.1 (1.0') | Favorable<br>"<br>"<br>"<br>"<br>" | .010% U3O8<br>.013% "<br>.10% "<br>.025% "<br>.010% "<br>.005% " |

RECEIVED
FEB - 0 1956

No. 109697 Date: January 18, 1954 Time: 11:15 A. M.

Charles C. Carriere
Recorder

RECEIVED
FEB - 0 1956

# MINING LEASE

THIS AGREEMENT, Made and entered into this 16th day of November, 1953, by and between HERBERT SELLARD, ED F. KRAUS, E. B. BLAIR, G. L. WILMOTH, JOHN F. HOYMAN and GEORGE T. McCALL, hereinafter referred to as Lessor (whether one or more), and the HUNT OIL COMPANY, hereinafter referred to as Lessee.

WITNESSETH:

That the Lessor, for and in consideration of Six Thousand Five Hundred Dollars ($6500.00) cash in hand paid, the receipt of which is hereby acknowledged, and of the covenants and agreements hereinafter contained, has demised, leased and let, and by these presents does demise, lease and let exclusively unto the said Lessee, its successors or assigns, the hereinafter described land with the exclusive right and privilege to explore for, develop, mine, extract, and remove from the alluvium soil or earth, or any sedimentary formation or rocks, or instrusive or igneous dike, vein or fissure and dispose of all the uranium, thorium, and any other fissionable material together with vanadium, manganese and non-fissionable materials associated with fissionable materials, and all other minerals except oil and gas, together with such rights of ingress and egress and the right to erect and use such structures as are necessary for Lessee to enjoy the rights and privileges granted hereby, and any and all other rights and privileges necessary, incident to, or convenient for operations hereunder, said land being situated in the lower San Miguel Mining District, County of San Miguel, State of Colorado, and more particularly described as follows:

Claims

| | | |
|---|---|---|
| (1-68) | Dolores | 1 through 68 |
| (69-74) | Dolorous | 1 through 6 |
| (75-80) | E. B. | 1 through 6 |
| (81-116) | East | 1 through 36 |
| (117-128) | Gravy | 1 through 12 |
| (129-161) | North | 1 through 33 |
| (162-199) | West | 1 through 38 |
| (200-209) | Glen | 1 through 10 |
| (210-231) | Sunset | 1 through 22 |

It is the intention hereof to describe and to cover and include and the Lessor does hereby lease not only the above described land but also all lands owned or claimed by the Lessor and located in said survey or adjoining surveys, and adjoining the herein specifically described land up to the boundaries of the abutting landowners. The land herein leased is leased in gross and the cash bonus payment is a gross consideration for this lease. It is understood that in the event the Lessee should acquire mining interest in properties within 1000 feet of the exterior boundary lines of the said claims, the benefits of said interest shall inure to the benefit of the Lessor on the basis of royalty payments, as hereinafter set forth.

1. Subject to the other provisions herein contained, this lease shall be for a term of 10 years from the date hereof and so long thereafter as any minerals covered hereby shall be mined and marketed or Lessee is conducting mining operations in a manner consistent with good and economical mining practices. Notwithstanding anything to the contrary herein contained, if the United States of America, or its duly authorized buyers or representatives shall suspend buying of uranium, thorium and any other fissionable material for a period of time, and there is no other market, this lease shall not expire during such period of suspended buying and shall not be subject to cancellation by the Lessor during such period.

2. A royalty of 12½% as to uranium, thorium, and any other fissionable material together with vanadium, manganese, and non-fissionable materials associated with fissionable materials, determined by the uranium ($U_3O_8$) assays of the ores, shall be paid to the Lessor with respect to ores containing the above named minerals mined and marketed by Lessee from the lands covered by this lease.

Lessor shall be paid the foregoing applicable royalty percentages of the net mill return, including bonus payments and premiums, but excluding allowances for transportation and development, as paid by the Atomic Energy Commission or other Government authorized agency or mill, or, in the absence thereof, at the current field market price, for all crude ores, as to the minerals enumerated above in this paragraph, mined and marketed each month by Lessee from the lands covered hereby, the mineral content of which is owned by Lessor.

As to all other minerals mined hereunder, Lessor shall be paid twelve and one-half percent (12½) of the current field market price of crude ore mined and marketed each month by Lessee.

If Lessor owns less than the entire and undivided fee simple estate to the mineral content thereof the royalties herein provided shall be paid to Lessor only in the proportion which Lessor's interest bears to the entire undivided fee.

A copy of the various settlement sheets shall be furnished to Lessor.

Payment of royalties shall be made by depositing them to the account of John F. Hoyman, Trustee, in the San Miguel Basin State Bank in Norwood, Colorado.

3. All ores mined during the term of this lease which, in the opinion of Lessee, are of too low a grade or quality for

shipment or milling during the term of this lease, shall remain the property of, and be subject to the control and disposition of Lessor after the expiration or termination of this lease.

4. Lessee shall conduct all mining operations and workings hereunder in a good and workmanlike manner and without unnecessary injury to the property of the Lessor, and shall mine and develop such area or areas as good mining practice dictates. Work shall be commenced upon said property within sixty (60) days from the date hereof; it being understood that the moving on of drilling equipment hired by the Lessee shall be considered commencement of work.

Should it become apparent that certain of said claims do not contain uranium ore in commercial quanity, by mutual agreement between the parties, said claims may be abandoned and assessment work discontinued.

5. All taxes, assessments and other burdens validly levied or asserted by any legally constituted public authority against Lessee's property and rights shall be paid in full and due solely by Lessee. Lessee shall pay, as due, all expenses, charges and liabilities connected in any manner with its operations hereunder, lienable or otherwise, and will protect Lessor and all said property from establishment of any such liability connected with such operations and property payable by Lessee. The annual assessment work shall be performed by the Lessee.

6. Lessor shall, at all reasonable times during the term hereof, have access to and may enter upon said property through its agents, servants and employees in such a manner as will not interfere with the operations of Lessee, for the purpose of inspecting same and taking samples and assays therefrom, and the Lessor shall be permitted to inspect the cores taken from the

said property and may inspect the logs kept by the Lessee. It is understood and agreed, however, that such right is to be enjoyed and all such entries made at its or their own risk and Lessor assumes the risk of all damages that might be incurred or occasioned by any such entries or the enjoyment of such rights.

7. The rights of either party hereunder may be assigned in whole or in part and the provisions hereof shall extend to the heirs, executors, administrators, successors and assigns, but no change or division in ownership of the land or royalties, however accomplished, shall operate to enlarge the obligations or diminish the rights of Lessee. No such change or division in the ownership of the land or royalties shall be binding upon Lessee for any purpose until such person acquiring any interest has furnished Lessee, at its principal place of business, with the instrument or instruments, or certified copies thereof, constituting his chain of title from the original Lessor. Assignment of the interest of the Lessee shall be made only with the written consent of the Lessor.

8. In case of suit, adverse claim, dispute or question as to the ownership of the royalties (or some part thereof) payable under this lease, Lessee shall not be held in default in payment of such royalties (or the part thereof in doubt) until such suit, claim, dispute or question has been finally disposed of, and Lessee shall have thirty (30) days after being furnished with the original instrument or instruments disposing of such suit, claim or dispute (or a certified copy or copies thereof), or after being furnished with proof sufficient, in Lessee's opinion, to settle such question, within which to make payment. Should the rights or interest of Lessee hereunder be disputed by Lessor, or any other person, the time covered by the pendency of such dispute shall not be counted against Lessee either as affecting the term of the lease or for

any other purpose, and Lessee may suspend all payments without interest until there is a final adjudication or other determination of such dispute.

9. Upon violation of any of the covenants herein contained, and upon the part of said Lessee to be kept, paid, and performed, said Lessor may, at his option and upon written notice to said Lessee specifying the specific violation or violations complained of, and giving notice of his intention so to do, cancel and annul this lease, unless Lessee shall, within thirty (30) days after receipt of such written notice, cease such violations and pay to said Lessor all monies then due under this lease and otherwise remedy the matter or matters in which Lessee is in default. If the defaults so specified be not remedied by Lessee within thirty (30) days, this lease shall terminate absolutely.

10. Lessee shall not be liable to Lessor for any damages incurred by Lessor, as to the lands and premises herein leased and let so long as Lessee conducts operations hereunder in a reasonable and prudent manner without negligence on the part of Lessee.

11. The breach or failure to perform any of the covenants or conditions hereof on the part of the Lessee shall not be a ground for cancellation or termination or forfeiture hereof, if such breach or failure to perform is caused, or compliance is prevented by severe winter weather, explosion, unusual mining casualty, fire, flood, civil or military authority, insurrection, riots, strikes, inability after diligent effort to obtain competent workmen or material, acts of God or any other circumstance or condition beyond the control of Lessee.

12. Lessor hereby warrants and agrees to defend the title to the lands herein described, and agrees that the lessee at its

option shall have the right to redeem for Lessor, by payment, any mortgage, taxes or other liens on the above described lands, in the event of default of payment by Lessor, and be subrogated to the rights of the holder thereof. In case of payment of any such mortgage, taxes or other liens by Lessee, in addition to the right of subrogation herein granted, Lessee shall also have the right to retain any royalties which become due Lessor hereunder and to repay itself therefrom, and the retention of such royalties by Lessee shall have the same effect as if paid to the Lessor in whose behalf payment of any mortgage, taxes or other liens was made.

13. This lease shall be binding upon all who execute it, whether or not named in the body hereof as Lessor, and without regard to whether this instrument, or any copy thereof, shall be executed by any other Lessor named above.

IN WITNESS WHEREOF, this instrument is executed as of the date first above written.

Hubert Sellard (SEAL)

E. F. Kraus (SEAL)

(SEAL)

(SEAL)

(SEAL)

(SEAL)

LESSORS

HUNT OIL COMPANY INCORPORATED 1934 DELAWARE

ATTEST:

Secretary

HUNT OIL COMPANY

By (SEAL)

FEB -6 1958

# AMENDMENTS TO MINING LEASE

Since it is necessary to amend the leasing agreement as originally drawn between HUBERT SELLARD, ED F. KRAUS, E. B. BLAIR, G. L. WILMOTH, JOHN F. HOYMAN and GEORGE T. McCALL, referred to as Lessor, and the HUNT OIL COMPANY, referred to as Lessee, to reflect the agreement of the parties; and, since it is considered desirable to accomplish said amendments by the drawing of a separate instrument rather than by a redrafting of the entire lease, the said lease of the following claims,

| | | |
|---|---|---|
| (1-68) | Dolores | 1 through 68 |
| (69-74) | Dolorous | 1 through 6 |
| (75-80) | E. B. | 1 through 6 |
| (81-116) | East | 1 through 36 |
| (117-128) | Gravy | 1 through 12 |
| (129-161) | North | 1 through 33 |
| (162-199) | West | 1 through 38 |
| (200-209) | Glen | 1 through 10 |
| (210-231) | Sunset | 1 through 22 |

located in the Lower San Miguel Mining District, in San Miguel County, Colorado, is amended as follows, said amendments hereby being made a part of that lease as though included therein:

1. The first sentence of Section 1 of said lease is amended to read as follows:

"Subject to the other provisions herein contained, this lease shall be for a term of 5 years from the date hereof, and so long thereafter as any minerals covered hereby shall be mined and marketed or Lessee is conducting mining operations in a manner consistent with good and economical mining practices."

2. The second paragraph of Section 4 is amended to read as follows:

"Should the Lessee determine that any claim or claims do not contain uranium ore in commercial quantity, the Lessee may, by giving thirty days notice in writing to the Lessor, return the claim or claims to the Lessor. Upon the return of any claim or claims to the Lessor, the Lessee shall be relieved of all obligations in regard thereto and shall receive no benefit therefrom."

3. An addition to the lease agreement is made as follows:

"Notwithstanding any other provision of this lease agreement, Lessee shall have the right at any time after the expiration of the first year of the term of this lease to surrender same to Lessor by giving thirty (30) days notice in writing of Lessee's intention so to do; and upon the surrender thereof all obligations of Lessee created hereby shall terminate save and except its obligation to pay any sums of money due Lessor as royalties and to protect Lessor from claims of creditors of Lessee."

IN WITNESS WHEREOF, the parties hereto have set their hands and seals this 16th day of December, 1953.

John F. Hoover (SEAL)

E. A. Krause (SEAL)

Grant B. Blair (SEAL)

E. B. Blair (SEAL)

Chris Lauritsen (SEAL)

Hubert Selland (SEAL)

George T. McCaa (SEAL)

LESSORS

HUNT OIL COMPANY INCORPORATED 1934 DELAWARE

ATTEST:

Secretary

HUNT OIL COMPANY

By Lindsey Hunt

Vice President

CORPORATION ACKNOWLEDGMENT

THE STATE OF TEXAS §
§
COUNTY OF DALLAS §

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared Sidney Latham, Vice-President of Hunt Oil Company, known to me to be the person and officer whose name is subscribed to the foregoing instrument, and acknowledged to me that the same was the act of the said Hunt Oil Company, a corporation, and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the 16th day of December, A. D. 1953.

Notary Public in and for
Dallas County, Texas

WELCH WRIGHT
in and for
My Commission Expires June 1, 1955

NOTARY PUBLIC STATE OF TEXAS COUNTY OF DALLAS

State of Colorado ) SS.
County of San Miguel )

I, John F. Hoyman, a notary public in and for the said County, in the State aforesaid, do hereby certify that HUBERT SEILARD, ED F. KRAUS, E.B. PLAIR, G.J. WINOTH & GEORGE T. MC CALL, who are personally known to me as the persons whose names are subscribed to the foregoing instrument, appeared before me the 29th day of December, A.D. in person and acknowledged that they signed, sealed and delivered the said instrument of writing as their free and voluntary act, for the uses and purposes therein set forth.

Given under my hand this 29th day of December, A D. 1953.

My commission expires March 23, 1956.

JOHN F. HOYMAN NOTARY PUBLIC SAN MIGUEL COUNTY, COLO.

John F. Hoyman
Notary Public.

State of Colorado )
San Miguel County ( ss.

I, C.C. Carriere, County Clerk and Recorder in and for San Miguel County, in the State aforesaid, do hereby certify that John F. Hoyman, who is personally known to me as the person whose name is subscribed to the foregoing lease, appeared before me this 30th day of December, 1953, and acknowledged that he signed the foregoing instrument of writing as his own free and voluntary act, for the uses and pruposes therein set forth.

Given under my hand December 30, 1953.

COUNTY CLERK SAN MIGUEL COUNTY COLORADO

Charles C Carriere
County Clerk & Recorder
San Miguel County, Colorado.
By Lorean Peterson, Deputy

8/7/56

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

RECEIVED
AUG - 6 1956

August 6, 1956

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee

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

Subject: Report of Examination, DMEA Docket 4158 (Uranium), Hunt Oil Company (Sunset, Glen, Gravey, Dolores, North, and West claims), San Miguel County, Colorado

I have reviewed the report of examination, DMEA Docket 4158, Hunt Oil Company (Sunset, Glen, Gravey, Dolores, North, and West claims) San Miguel County, Colorado, dated July 1956 and received in this office July 30. I have also discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

During the completion of the report of examination, the applicant withdrew the application for exploration assistance. Inasmuch as the report was virtually completed, the field deemed it advisable to submit it as a matter of record.

It was noted in the report that the property merited an exploration program.

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

John E Crawford
John E. Crawford

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

RECEIVED
AUG - 6 1956

August 6, 1956

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee

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

Subject: Report of Examination, DMEA Docket 4158 (Uranium), Hunt Oil Company (Sunset, Glen, Gravey, Dolores, North, and West claims), San Miguel County, Colorado

I have reviewed the report of examination, DMEA Docket 4158, Hunt Oil Company (Sunset, Glen, Gravey, Dolores, North, and West claims) San Miguel County, Colorado, dated July 1956 and received in this office July 30. I have also discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

During the completion of the report of examination, the applicant withdrew the application for exploration assistance. Inasmuch as the report was virtually completed, the field deemed it advisable to submit it as a matter of record.

It was noted in the report that the property merited an exploration program.

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

John E. Crawford

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

RECEIVED
AUG - 6 1956

August 6, 1956

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee

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

Subject: Report of Examination, DMEA Docket 4158 (Uranium), Hunt Oil Company (Sunset, Glen, Gravey, Dolores, North, and West claims), San Miguel County, Colorado

I have reviewed the report of examination, DMEA Docket 4158, Hunt Oil Company (Sunset, Glen, Gravey, Dolores, North, and West claims) San Miguel County, Colorado, dated July 1956 and received in this office July 30. I have also discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

During the completion of the report of examination, the applicant withdrew the application for exploration assistance. Inasmuch as the report was virtually completed, the field deemed it advisable to submit it as a matter of record.

It was noted in the report that the property merited an exploration program.

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

John E. Crawford

7-27-56

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

July 24, 1956

[illegible] New Customhouse
Denver 2, Colorado

RECEIVED
JUL 27 1956

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Joint Report of Examination, Docket DMEA 4158 (Uranium) Hunt Oil Company (Sunset, Glen, Gravy, Dalton, Earth, and East claims), San Miguel County, Colorado

Enclosed are the original and three copies of a joint engineering and geologic report on the subject property.

An exploration program was to be recommended at the time of the withdrawal of the application, May 24, 1956. The lease on the property was taken over by the Union Carbide Nuclear Company and the subject group of claims will be explored in conjunction with their adjoining property to the West.

This report is for the records only.

DMEA Field Team, Region III

By W. M. Tanner
Executive Officer

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE

(date)

IN REPLY REFER TO:
DMEA
Date Rec'd.
JUL 20 1956
BUREAU OF MINES
Denver, Colorado

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. Box 30?
Grand Junction, Colorado

RECEIVED
JUL 27 1956

TRANSMITTED
JUL 24 1956

July 20, 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III

Through: C. H. Dassman
John Lew

From: J. William Hasler

Subject: Transmittal of a report of examination on DMEA docket 4198, (Uranium), Hunt Oil Company, Sunset, Glen, Grove, Colorado North and West claims, San Miguel County, Colorado.

Transmitted herewith are 10 copies of a joint engineering and geologic report by M. M. Salsbury, U. S. Bureau of Mines, and W. B. Gazdik, U. S. Geological Survey, on the Hunt Oil Company lease in the Slick Rock district, San Miguel County, Colorado.

The applicant applied to the Defense Minerals Exploration Administration for assistance in exploring for uranium on subject claims. The application was referred to the Field and an examination was made April 17, 1956, by M. M. Salsbury, U. S. Bureau of Mines, and W. B. Gazdik, U. S. Geological Survey. During the completion of the report of examination the applicant withdrew the application through the Administrator, DMEA, Washington, D. C. Since the report was virtually completed, it was deemed advisable to finish it and submit it to the Field Team, Region III.

The subject claims lie in an area in the Slick Rock district, San Miguel County, Colorado, where the uranium-bearing Salt Wash member of the Jurassic Morrison formation is rather deeply buried. Exploratory drilling by the U. S. Geological Survey and private companies have established reserves of as much as 150,000 tons of ore, averaging 0.34 percent $U_3O_8$ and 2.25 percent $V_2O_5$ and the ore bodies in the area of the claims may range in size from 1,000 to as much as 50,000 tons. Reports by the U. S. Geological Survey, from wide-spaced drilling, indicate a reserve of about 5,000 tons of ore that may average 0.34 percent $U_3O_8$ and 2.12 percent $V_2O_5$.

An exploration program was to be recommended at the time of the applicant's withdrawal. However, the applicant's lease was taken over by the Union Carbide Nuclear Company, and they intend to explore the same groups of claims in conjunction with their adjoining ground to the west. The docket is, therefore, considered closed.

J. William Hasler
J. William Hasler,
Geologist

JWH/mlr

(2312)

UNITED STATES
DEPARTMENT OF INTERIOR
FRED A. SEATON, SECRETARY

RECEIVED
JUL 27 1956

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY EXAMINING TEAM
REGION III

TRANSMITTED
JUL 24 1956

DMEA 4158

# HUNT OIL COMPANY
## Sunset, Glen, Gravey, Dolores, North, and West Claims
## San Miguel County, Colorado

Uranium

Joint Engineering and Geologic Report

By

M. H. Salsbury
U. S. Bureau of Mines

W. B. Gazdik
U. S. Geological Survey

July 1956

RECEIVED
JUL 27 1956

HUNT OIL COMPANY
Sunset, Glen, Gravey, Dolores, North, and West Claims
San Miguel County, Colorado

---

Contents

| | Page |
|---|---|
| Joint Engineering and Geologic Report | |
| Introduction and Summary | 2 |
| Acknowledgements | 3 |
| Location, Topography and Climate | 4 |
| History, Production and Ownership | 5 |
| Present Status | 8 |
| Geology | 8 |
| Ore Deposits | 10 |
| Ore Reserves | 12 |
| Proposed Exploration | 12 |
| Conclusions and Recommendations | 14 |

Illustrations

RECEIVED
JUL 27 1956

## INTRODUCTION AND SUMMARY

On February 2, 1956, Hunt Oil Company, 700 Mercantile Bank Building, Dallas, Texas, (Branch Office, Post Office Box 1798, Grand Junction, Colorado) applied for Defense Minerals Exploration Administration assistance in a drilling project to explore for uranium portions of a leased block of 219 located claims in the Slick Rock District, San Miguel County, Colorado. The proposed project was set up in two stages with 58 holes averaging 960 feet in depth for an estimated total of 49,560 feet of non-core drilling, and 6,200 feet of core drilling at a cost of $198,518.89. Government participation at 75 percent would be $148.889.17.

A field examination was made on April 17, 1956 by M. W. Salsbury, Bureau of Mines, and W. B. Gazdik, Geological Survey, accompanied by Robert Patenaude, Geologist for the applicant.

The applicant's leased claims cover an area within the Uravan Mineral Belt favorable for the occurrence of uranium-vanadium deposits in the deeply buried Salt Wash member of the Jurassic Morrison formation. A limited amount of wide-spaced drilling has been done on the ground by the Geological Survey and the applicant with good results. Drilling on adjoining claims both by the Geological Survey and private operators has also been very successful. The Union Carbide Nuclear Company has a project immediately north and west of the applicant's ground which is in the development stage. Two shafts are being sunk to mine ore reserves

conservatively estimated at 150,000 tons of ore averaging 0.34 percent $U_3O_8$ and 2.20 percent $V_2O_5$ discovered by drilling. The ore trends on the Union Carbide Nuclear Company property are believed to continue eastward into the applicant's claims, as indicated by the results of previous drilling.

From a geologic standpoint, the proposed exploration project is excellent and substantial uranium reserves might be found. Because of the depth to the ore horizon, the economic aspect of the project is less promising. However, there is a good possibility that deposits might be large enough to justify the cost of exploration and development.

On May 17, 1956, before the report of examination was completed, the Hunt Oil Company requested cancellation of the application.

The examining team had decided to recommend approval of the proposed project with slight changes. As the report was nearly finished it was completed as a matter of record.

## ACKNOWLEDGEMENTS

The applicant furnished ownership data, a brief geologic report with map, drill hole logs on the applicant's drilling, and a cost estimate accompanied by drilling bids from three contractors. Information from Geological Survey project in the area was available and was utilized. D. R. Shaw, Geological Survey Project Chief in the Slick Rock area was consulted. The Atomic Energy Commission was consulted but did not have any additional information available.

## LOCATION, TOPOGRAPHY AND CLIMATE

The Sunset et al group of claims is in Sections 20, 21, 27, 28, 29, 32, 33, 34, and 36, T. 44 N., R. 18 W., and Sections 2, 3, 10, and 11, T. 43 N., R. 18 W. New Mexico Principal Meridian, San Miguel County, Colorado (fig. 1). Colorado Highway 80, a gravelled road, crosses the property which is 43 miles southwest of Naturita, Colorado. Naturita is 150 miles by paved highway from Grand Junction, Colorado, the nearest major source of supplies. There are two uranium treatment plants near Naturita and another at Monticello, Utah, 50 miles southwest of the Sunset group.

The climate is arid with hot summers and moderate winters. There may be occasional severe storms in any season. Year round operations on surface are feasible and usual in normal years.

Vegetation is sparse, and water for drilling purposes must be hauled from the Dolores River, a distance of up to 5 miles.

The claims are at an altitude of 6,000 feet, most of them being on the easily accessible rolling surface of a plateau cut by the canyons of the Dolores River and a tributary which lies south and west of the property. The floor of the steep-walled canyons are about 500 feet lower than the claim area.

There are no unusual problems of accessibility, supply, power, or labor. The proposed drilling would be done by a contractor who would furnish labor, equipment and housing.

## HISTORY, PRODUCTION AND OWNERSHIP

Mining operations for vanadium have been carried on in the Slick Rock district since the 1920's. There have been a number of large producers and many more small operations in the area. Most of the shallower Salt Wash beds which are favorable for uranium-vanadium ore occurrences have been extensively explored and attention has been turned in the last few years to the deeply buried Salt Wash members on the southwest limb of the Disappointment Valley syncline. The Geological Survey and private operators have drilled extensively in depths ranging from 500 to 1000 feet with a few outlying holes as much as 2000 feet deep. The Union Carbon Nuclear Company has developed an ore body north of Burro Canyon, a tributary of the Dolores River at Slick Rock. Two shafts are being sunk from sites on the lower slopes overlooking the canyon floor to take advantage of the decreased depth to the ore horizon.

Figures on Union Carbide Nuclear Company reserves in this area are not available but are conservatively estimated to be at least 150,000 tons. It is apparent that a large ore body has been developed to justify two shafts 600 feet in depth.

Hunt Oil Company controls the Sunset group of 219 valid claims by virtue of a lease dated November 16, 1953 given by Hubert Sellard, Ed. F. Kraus, E. B. Blair, G. L. Wilmoth, John F. Hayman and George T. McCall. The lease has been amended by an instrument of the same date. As amended, the lease runs for the term of 5 years from November 16, 1953 "and so long thereafter as any minerals covered hereby shall be

mined and marketed - - -". The leasee may drop any claims which are determined not to contain uranium ore in commercial quantity after thirty days notice to the lessor and without further obligation. Ore shipments are subject to a 12½ percent royalty, excluding haulage and development allowances. The lessee is obligated to keep up assessment work.

The property is in the southwest corner of T. 44 N., R. 18 W., Sections 20, 21, 27, 28, 29, 32, 33, 34, and 36, and the northwest corner of T. 43 N., R. 18 W., Sections 23, 3, 10, and 11, New Mexico Principal Meridian. They have been recorded as follows:

| CLAIM NAMES | DATE OF LOCATION | RECORDING DATA SAN MIGUEL CO., COLORADO | |
|---|---|---|---|
| | | Book | Page |
| Sunset Nos. 1 - 22 | September 15, 1953 | 227 | 244-267 |
| West Nos. 1-38 | July 17, 1953 | 225 | 681-718 |
| Gravey Nos. 1-6 | May 14, 1953 | 224 | 54- 58 |
| Gravey Nos. 7-12 | July 11, 1953 | 224 | 393-398 |
| Glen Nos. 1-10 | September 12, 1953 | 227 | 234-243 |
| North Nos. 1-33 | July 11, 1953 | 225 | 719-751 |
| | | 224 | 112-162 |
| Dolores Nos. 1-68 | May 14, 1953 | 224 | 112-162 |
| | | | 185-201 |
| E. B. Nos. 1-6 | July 14, 1953 | 224 | 49-53 & 110 |
| Dolores Nos. 1-6 | | 224 | 387-392 |
| East Group Nos. 1-36 | | 227 | 268-303 |

There are 231 claims in the foregoing list. All appear to be valid locations except 12 claims which are in conflict with prior locations, and 12 claims west Nos. 1, 2, 3, 12, 13, 14, 15, 16, 17, 36, 37, and 38 claims which were staked on the NW¼ of Section 32 and

SW¼ of Section 29, T. 44 N., R. 18 W., areas withdrawn from entry under order PLO 494 on July 9, 1948. The applicant does not claim any right on this ground and no exploration is proposed on it.

No evidence of conflicting locations was found in the field and none were mentioned by the applicant. Maps in the records of the Geological Survey show a conflict of the Dolores Nos. 54 through 60 and Dolores Nos. 62 through 68 claims with the Madge D. Nos. 1, 2, 4, 5, 7, 8, 10, 11, 13, 14, 16, 17, 19, and 20 claims in the extreme western part of the Sunset group. The Madge D. claims, in Sections 2, 3, 10, and 11, T. 43 N., R. 18 W., were located on April 25, 1950 by Thomas Reddick and John Daniels, and recorded on May 5, 1950. They therefore outdate the claims with which they conflict. However, no exploration is planned on these claims since the applicant has withdrawn his application and their validity is not material.

The field examination included checking a number of claim corners and discovery monuments. Location procedures appear to have been valid and corners are clearly marked. Discovery monuments mark bull-dozed discovery cuts and unprotected discovery notices had evidently been tacked to boards at each location. However, at those locations inspected, notices were illegible or missing. No attempt has been made to protect or to replace the original notices. This is not believed to affect the validity of the claims.

The applicant's representative states that the owners of the claims will sign subordination agreements. A special clause in the lease provides that the lessee will not be held to be in default on

royalty payments among the several owners. This provision was probably included because one of the owners, E. B. Blair, has been involved in litigation over division of property with his divorced wife.

## PRESENT STATUS

### Exploration and Development

To date 49 plug and core drill holes have been drilled on the claims by the Geological Survey and 14 by the applicant (fig. 2). All but ten of the holes are on centers of 600 feet or more. Six of the wide spaced holes penetrated material of ore grade and 9 are mineralized. The ten closely grouped holes are on the West No. 18 claim. Holes were drilled to offset Geological Survey hole DV9, an ore hole. Four of the ten holes on this group are ore holes, 2 are mineralized, and 3 are slightly mineralized.

## GEOLOGY

The subject claims lie in the western end of the Disappointment syncline, in the Uravan Mineral Belt. The rocks exposed in the vicinity of the property are in ascending order: the Salt Wash and the Brushy Basin members of the Jurassic Morrison formation, the Lower Cretaceous Burro Canyon formation, the Upper Cretaceous Dakota formation, and the Upper Cretaceous Mancos formation. Most of the known uranium-vanadium deposits in this area are found in upper sandstone units of the Salt Wash member of the Morrison formation. A few deposits are present in basal sandstone units of the Brushy Basin member of the Morrison formation.

The Salt Wash member of the Morrison formation consists of broadly lenticular sandstone interbedded with mudstone and siltstone. Generally three to five sandstone units, each 20 or more feet in thickness, are present along the outcrop of the Salt Wash member. Such sandstone lenses are a few hundred feet to several thousand feet in horizontal extent.

Most uranium-vanadium deposits in the Disappointment Valley area are contained in the upper 100 feet of the Salt Wash member. The sandstone units in this stratigraphic zone are crossbedded and medium to medium-fine grained. Locally they are quartzitic and are brown, light gray, light red, or white and contain varying amounts of limonite, disseminated pyrite, and carbonaceous material. Cut and fill structures, current lineations and rill marks suggest that the Salt Wash member was deposited under fluvial conditions. Mudstone and siltstone in contact with upper sandstone units of the Salt Wash are generally red, red brown, green and gray. Interstitial clay, clay pellets and thin seams of mudstone are included in the sandstone units. The Salt Wash member averages 300 feet in thickness in the vicinity of the applicant's claims.

The overlying Brushy Basin member is about 450 feet thick. The contact with the underlying Salt Wash member is gradational. The Brushy Basin member is made up of variegated shale, claystone and mudstone beds that range in color from pure white to pastel shades of red, blue and green interbedded with sandstone and conglomeratic units. Layers of quartzitic sandstone and siliceous limestone and mudstone are present.

The Lower Cretaceous Burro Canyon formation is a heterogeneous sequence of conglomerate, sandstone, limestone and chert averaging about 260 feet in thickness.

The Upper Cretaceous Dakota formation consists principally of gray-yellow and buff sandstone with lesser amounts of conglomerate carbonaceous shale and impure coal. The Dakota is eroded in most of the area concerned with this report. It crops out in the western and northern part of the company's claim and ranges in thickness from a few feet to 125 feet.

The Upper Cretaceous Mancos formation is a dark gray, soft, homogeneous shale that erodes to smooth, rounded topographic forms. It is present in the western part of the applicant's claim where it may be as much as 200 feet thick.

Disappointment Valley is a broad single downfolded syncline that plunges gently to the southeast. It is rimmed by cuestas of resistant Cretaceous sandstone and lies between the northwest trending Gypsum Valley anticline to the northeast and the northwest trending Dolores anticline to the southwest. The beds in the vicinity of the applicant's claims dip about $2^{o}$ NE and strike generally northwest. The depth to the ore-bearing sandstone underlying the applicant's claim would range from about 500 feet to as much as 1300 feet.

## ORE DEPOSITS

Most of the uranium-vanadium deposits in the Slick Rock district are restricted to sandstone units in the upper part of the Salt Wash

member of the Morrison formation. Mineralized rock consists of sandstone impregnated with uranium-vanadium minerals. Ore bodies range in size from small, irregular masses containing a few tons to large, tabular masses containing thousands of tons of ore. Mineralized rock lies essentially parallel to the sandstone beds but does not follow the beds in detail. In some deposits the highest grade of ore occurs in sharply bounded elongate concretionary structures or "rolls" which cross bedding planes.

The most common ore minerals are carnotite and a fine-grained vanadium-bearing micaceous mineral. Tyuyamunite, montroseite, corvusite, and hewettite are also found. Secondary copper minerals are associated in varying amounts with uranium-vanadium minerals.

The origin of the ore and its localization are little understood. Primary sedimentary structures in the ore-bearing sandstone units apparently are closely related to localization of ore. Trends of sedimentary structures are generally easterly and southeasterly. In the vicinity of the applicant's claims, ore deposits are elongate in an easterly direction.

The Union Carbide Nuclear Company has carried out a successful drilling project on adjoining ground northwest of the applicant's claims (fig. 2). On the basis of the small amount of company data available it is estimated that a mineralized mass about 6,000 feet long and 500 feet wide was discovered by this drilling. This mineralized ground trends eastward into the applicant's claims and may

contain as much as 150,000 tons of ore averaging 0.34 percent $U_3O_8$ and 2.20 percent $V_2O_5$. The size of potential ore bodies underlying the subject claims could range in size from 1,000 tons to as much as 50,000 tons and average 0.34 percent $U_3O_8$ and 2.12 percent $V_2O_5$.

## ORE RESERVES

No ore reserves were calculated on the basis of wide-spaced holes (fig.2) and the few offset holes that were drilled by the U. S. Geological Survey and the applicant on the subject claims. Six wide spaced holes penetrated ore grade material and 9 holes cut mineralized ground less than ore grade. The U. S. Geological Survey reports 5,900 tons of total indicated and inferred reserves found by wide spaced drilling on the Company's claims. These reserves average 0.34 percent $U_3O_8$ and 2.12 percent $V_2O_5$ calculated to minimum cutoffs of 1 foot of 0.10 percent $U_3O_8$ or 1.0 percent $V_2O_5$.

## PROPOSED EXPLORATION

The applicant has proposed a drilling program in two phases. It is considered that wide-spaced drilling has been completed. The applicant's Phase 1 consists of 12 holes in groups of four on 200 foot centers offsetting three previously drilled ore holes, 4 holes to explore a possible ore trend eastward from Geological Survey ore hole DV 93, and 6 holes in a fence on the west Nos. 32, 33, 34, and 35 claims to intercept a projected continuation of the known ore trend in which the Union Carbide Nuclear Company's ore body has been developed.

Phase 2 consists of 36 holes on 100 foot centers around mineralized or ore holes drilled in Stage I.

Some revisions of the proposed drilling plan was considered to be advisable. Twelve holes specifically designated by the applicant in Phase II on 100-foot centers around holes DV 91, DV 97, and DV 112A, would duplicate in part other offset holes to be drilled around any mineralized holes found in Phase I at 200 foot centers around holes DV 91, DV 97, and DV 112A. The 24 offset holes not specifically designated in Phase II should be sufficient to offset mineralized Phase I holes without the additional 12.

There is some question whether offsetting on 100-foot centers is justified at drilling depths of 800 feet or more. However, because ore bodies of good grade with a maximum lateral dimension of 200 feet could still be significant at this depth because the thickness and therefore the tonnage of ore contained, might easily be five feet or more.

Because the application under Docket DMEA 4158 was withdrawn, consideration of a revised drilling was not completed, and a cost estimate was not prepared.

## CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the subject claims are located in a geologically favorable area based on results of Geological Survey drilling. Chances are good of finding ore bodies that may range in size from 1,000 tons to 50,000 tons with an average grade of 0.30 percent $U_3O_8$ and 2.00 percent $V_2O_5$. Because the operation of the Union Carbide Nuclear Company on adjoining ground shows that mining of the type of ore deposits found in the area is considered feasible by an experienced operator, there is every reason to conclude that, if similar ore bodies are found on the applicant's claims, they can be mined profitably.

A recommendation for approval of the proposed project with some slight changes had been decided upon when the application under Docket DMEA 4158 was withdrawn.

~~8/4/56~~
7/31/56

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

RECEIVED
JUL 27 1956

July 24, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Joint Report of Examination, Docket DMEA 4158 (Uranium) Hunt Oil Company (Sunset, Glen, Gravey, Dolores, North, and West claims), San Miguel County, Colorado

Enclosed are the original and three copies of a joint engineering and geologic report on the subject property.

An exploration program was to be recommended at the time of the withdrawal of the application, May 24, 1956. The lease on the property was taken over by the Union Carbide Nuclear Company and the subject group of claims will be explored in conjunction with their adjoining property to the West.

This report is for the records only.

DMEA Field Team, Region III

W. M. Traver

By W. M. Traver
Executive Officer

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
7/30/56
(date)

IN REPLY REFER TO:
DMEA
Date Rec'd,
JUL 20 1956
BUREAU OF MINES
Denver, Colorado

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. Box 360
Grand Junction, Colorado

TRANSMITTED
JUL 24 1956

RECEIVED
JUL 27 1956

July 18, 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III

Through: E. N. Harshman
John Shaw

From: J. William Hasler

Subject: Transmittal of a report of examination on DMEA docket 4158, (Uranium), Hunt Oil Company, Sunset, Glen, Gravey, Dolores North and West claims, San Miguel County, Colorado.

Transmitted herewith are 10 copies of a joint engineering and geologic report by M. H. Salsbury, U. S. Bureau of Mines, and W. B. Gazdik, U. S. Geological Survey, on the Hunt Oil Company lease in the Slick Rock district, San Miguel County, Colorado.

The applicant applied to the Defense Minerals Exploration Administration for assistance in exploring for uranium on subject claims. The application was referred to the field and an examination was made April 17, 1956, by M. H. Salsbury, U. S. Bureau of Mines, and W. B. Gazdik, U. S. Geological Survey. During the completion of the report of examination the applicant withdrew the application through the Administrator, DMEA, Washington, D. C. Since the report was virtually completed, it was deemed advisable to finish it and submit it to the Field Team, Region III.

The subject claims lie in an area in the Slick Rock district, San Miguel County, Colorado, where the uranium-bearing Salt Wash member of the Jurassic Morrison formation is rather deeply buried. Exploratory drilling by the U. S. Geological Survey and private companies have established reserves of as much as 150,000 tons of ore, averaging 0.34 percent $U_3O_8$ and 2.20 percent $V_2O_5$ and the ore bodies in the area of the claims may range in size from 1,000 to as much as 50,000 tons. Reports by the U. S. Geological Survey, from wide-spaced drilling, indicate a reserve of about 6,000 tons of ore that may average 0.34 percent $U_3O_8$ and 2.12 percent $V_2O_5$.

An exploration program was to be recommended at the time of the applicant's withdrawal. However, the applicant's lease was taken over by the Union Carbide Nuclear Company, and they intend to explore the same groups of claims in conjunction with their adjoining ground to the west. The docket is, therefore, considered closed.

J. William Hasler
J. William Hasler,
Geologist

JWH/mlr

7/30/56

UNITED STATES
DEPARTMENT OF INTERIOR
FRED A. SEATON, SECRETARY

RECEIVED
JUL 27 1956

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY EXAMINING TEAM
REGION III

TRANSMITTED
JUL 24 1956

DMEA 4158

# HUNT OIL COMPANY
## Sunset, Glen, Gravey, Dolores, North, and West Claims
## San Miguel County, Colorado

Uranium

Joint Engineering and Geologic Report

By

M. H. Salsbury
U. S. Bureau of Mines

W. B. Gazdik
U. S. Geological Survey

July 1956

Reviewed by
THE CHEMICAL CHEMISTRY
7/30/56
(date).

RECEIVED
JUL 27 1956

HUNT OIL COMPANY
Sunset, Glen, Gravey, Dolores, North, and West Claims
San Miguel County, Colorado

---

Contents

| | Page |
|---|---|
| Joint Engineering and Geologic Report | |
| Introduction and Summary | 2 |
| Acknowledgements | 3 |
| Location, Topography and Climate | 4 |
| History, Production and Ownership | 5 |
| Present Status | 8 |
| Geology | 8 |
| Ore Deposits | 10 |
| Ore Reserves | 12 |
| Proposed Exploration | 12 |
| Conclusions and Recommendations | 14 |

Illustrations

RECEIVED
JUL 27 1956

## INTRODUCTION AND SUMMARY

On February 2, 1956, Hunt Oil Company, 700 Mercantile Bank Building, Dallas, Texas, (Branch Office, Post Office Box 1798, Grand Junction, Colorado) applied for Defense Minerals Exploration Administration assistance in a drilling project to explore for uranium portions of a leased block of 219 located claims in the Slick Rock District, San Miguel County, Colorado. The proposed project was set up in two stages with 58 holes averaging 960 feet in depth for an estimated total of 49,560 feet of non-core drilling, and 6,200 feet of core drilling at a cost of $198,518.89. Government participation at 75 percent would be $148.889.17.

A field examination was made on April 17, 1956 by M. W. Salsbury, Bureau of Mines, and W. B. Gazdik, Geological Survey, accompanied by Robert Patenaude, Geologist for the applicant.

The applicant's leased claims cover an area within the Uravan Mineral Belt favorable for the occurrence of uranium-vanadium deposits in the deeply buried Salt Wash member of the Jurassic Morrison formation. A limited amount of wide-spaced drilling has been done on the ground by the Geological Survey and the applicant with good results. Drilling on adjoining claims both by the Geological Survey and private operators has also been very successful. The Union Carbide Nuclear Company has a project immediately north and west of the applicant's ground which is in the development stage. Two shafts are being sunk to mine ore reserves

conservatively estimated at 150,000 tons of ore averaging 0.34 percent $U_3O_8$ and 2.20 percent $V_2O_5$ discovered by drilling. The ore trends on the Union Carbide Nuclear Company property are believed to continue eastward into the applicant's claims, as indicated by the results of previous drilling.

From a geologic standpoint, the proposed exploration project is excellent and substantial uranium reserves might be found. Because of the depth to the ore horizon, the economic aspect of the project is less promising. However, there is a good possibility that deposits might be large enough to justify the cost of exploration and development.

On May 17, 1956, before the report of examination was completed, the Hunt Oil Company requested cancellation of the application.

The examining team had decided to recommend approval of the proposed project with slight changes. As the report was nearly finished it was completed as a matter of record.

## ACKNOWLEDGEMENTS

The applicant furnished ownership data, a brief geologic report with map, drill hole logs on the applicant's drilling, and a cost estimate accompanied by drilling bids from three contractors. Information from Geological Survey project in the area was available and was utilized. D. R. Shaw, Geological Survey Project Chief in the Slick Rock area was consulted. The Atomic Energy Commission was consulted but did not have any additional information available.

## LOCATION, TOPOGRAPHY AND CLIMATE

The Sunset et al group of claims is in Sections 20, 21, 27, 28, 29, 32, 33, 34, and 36, T. 44 N., R. 18 W., and Sections 2, 3, 10, and 11, T. 43 N., R. 18 W. New Mexico Principal Meridian, San Miguel County, Colorado (fig. 1). Colorado Highway 80, a gravelled road, crosses the property which is 43 miles southwest of Naturita, Colorado. Naturita is 150 miles by paved highway from Grand Junction, Colorado, the nearest major source of supplies. There are two uranium treatment plants near Naturita and another at Monticello, Utah, 50 miles southwest of the Sunset group.

The climate is arid with hot summers and moderate winters. There may be occasional severe storms in any season. Year round operations on surface are feasible and usual in normal years.

Vegetation is sparse, and water for drilling purposes must be hauled from the Dolores River, a distance of up to 5 miles.

The claims are at an altitude of 6,000 feet, most of them being on the easily accessible rolling surface of a plateau cut by the canyons of the Dolores River and a tributary which lies south and west of the property. The floor of the steep-walled canyons are about 500 feet lower than the claim area.

There are no unusual problems of accessibility, supply, power, or labor. The proposed drilling would be done by a contractor who would furnish labor, equipment and housing.

## HISTORY, PRODUCTION AND OWNERSHIP

Mining operations for vanadium have been carried on in the Slick Rock district since the 1920's. There have been a number of large producers and many more small operations in the area. Most of the shallower Salt Wash beds which are favorable for uranium-vanadium ore occurrences have been extensively explored and attention has been turned in the last few years to the deeply buried Salt Wash members on the southwest limb of the Disappointment Valley syncline. The Geological Survey and private operators have drilled extensively in depths ranging from 500 to 1000 feet with a few outlying holes as much as 2000 feet deep. The Union Carbon Nuclear Company has developed an ore body north of Burro Canyon, a tributary of the Dolores River at Slick Rock. Two shafts are being sunk from sites on the lower slopes overlooking the canyon floor to take advantage of the decreased depth to the ore horizon.

Figures on Union Carbide Nuclear Company reserves in this area are not available but are conservatively estimated to be at least 150,000 tons. It is apparent that a large ore body has been developed to justify two shafts 600 feet in depth.

Hunt Oil Company controls the Sunset group of 219 valid claims by virtue of a lease dated November 16, 1953 given by Hubert Sellard, Ed. F. Kraus, E. B. Blair, G. L. Wilmoth, John F. Hayman and George T. McCall. The lease has been amended by an instrument of the same date. As amended, the lease runs for the term of 5 years from November 16, 1953 "and so long thereafter as any minerals covered hereby shall be

mined and marketed - - -". The leasee may drop any claims which are determined not to contain uranium ore in commercial quantity after thirty days notice to the lessor and without further obligation. Ore shipments are subject to a 12½ percent royalty, excluding haulage and development allowances. The lessee is obligated to keep up assessment work.

The property is in the southwest corner of T. 44 N., R. 18 W., Sections 20, 21, 27, 28, 29, 32, 33, 34, and 36, and the northwest corner of T. 43 N., R. 18 W., Sections 23, 3, 10, and 11, New Mexico Principal Meridian. They have been recorded as follows:

| CLAIM NAMES | DATE OF LOCATION | RECORDING DATA SAN MIGUEL CO., COLORADO | |
|---|---|---|---|
| | | Book | Page |
| Sunset Nos. 1 - 22 | September 15, 1953 | 227 | 244-267 |
| West Nos. 1-38 | July 17, 1953 | 225 | 681-718 |
| Gravey Nos. 1-6 | May 14, 1953 | 224 | 54- 58 |
| Gravey Nos. 7-12 | July 11, 1953 | 224 | 393-398 |
| Glen Nos. 1-10 | September 12, 1953 | 227 | 234-243 |
| North Nos. 1-33 | July 11, 1953 | 225 | 719-751 |
| | | 224 | 112-162 |
| Dolores Nos. 1-68 | May 14, 1953 | 224 | 112-162 |
| | | | 185-201 |
| E. B. Nos. 1-6 | July 14, 1953 | 224 | 49-53 & 110 |
| Dolores Nos. 1-6 | | 224 | 387-392 |
| East Group Nos. 1-36 | | 227 | 268-303 |

There are 231 claims in the foregoing list. All appear to be valid locations except 12 claims which are in conflict with prior locations, and 12 claims west Nos. 1, 2, 3, 12, 13, 14, 15, 16, 17, 36, 37, and 38 claims which were staked on the NW¼ of Section 32 and

SW¼ of Section 29, T. 44 N., R. 18 W., areas withdrawn from entry under order PLO 494 on July 9, 1948. The applicant does not claim any right on this ground and no exploration is proposed on it.

No evidence of conflicting locations was found in the field and none were mentioned by the applicant. Maps in the records of the Geological Survey show a conflict of the Dolores Nos. 54 through 60 and Dolores Nos. 62 through 68 claims with the Madge D. Nos. 1, 2, 4, 5, 7, 8, 10, 11, 13, 14, 16, 17, 19, and 20 claims in the extreme western part of the Sunset group. The Madge D. claims, in Sections 2, 3, 10, and 11, T. 43 N., R. 18 W., were located on April 25, 1950 by Thomas Reddick and John Daniels, and recorded on May 5, 1950. They therefore outdate the claims with which they conflict. However, no exploration is planned on these claims since the applicant has withdrawn his application and their validity is not material.

The field examination included checking a number of claim corners and discovery monuments. Location procedures appear to have been valid and corners are clearly marked. Discovery monuments mark bull-dozed discovery cuts and unprotected discovery notices had evidently been tacked to boards at each location. However, at those locations inspected, notices were illegible or missing. No attempt has been made to protect or to replace the original notices. This is not believed to affect the validity of the claims.

The applicant's representative states that the owners of the claims will sign subordination agreements. A special clause in the lease provides that the lessee will not be held to be in default on

royalty payments among the several owners. This provision was probably included because one of the owners, E. B. Blair, has been involved in litigation over division of property with his divorced wife.

## PRESENT STATUS

### Exploration and Development

To date 49 plug and core drill holes have been drilled on the claims by the Geological Survey and 14 by the applicant (fig. 2). All but ten of the holes are on centers of 600 feet or more. Six of the wide spaced holes penetrated material of ore grade and 9 are mineralized. The ten closely grouped holes are on the West No. 18 claim. Holes were drilled to offset Geological Survey hole DV9, an ore hole. Four of the ten holes on this group are ore holes, 2 are mineralized, and 3 are slightly mineralized.

## GEOLOGY

The subject claims lie in the western end of the Disappointment syncline, in the Uravan Mineral Belt. The rocks exposed in the vicinity of the property are in ascending order: the Salt Wash and the Brushy Basin members of the Jurassic Morrison formation, the Lower Cretaceous Burro Canyon formation, the Upper Cretaceous Dakota formation, and the Upper Cretaceous Mancos formation. Most of the known uranium-vanadium deposits in this area are found in upper sandstone units of the Salt Wash member of the Morrison formation. A few deposits are present in basal sandstone units of the Brushy Basin member of the Morrison formation.

The Salt Wash member of the Morrison formation consists of broadly lenticular sandstone interbedded with mudstone and siltstone. Generally three to five sandstone units, each 20 or more feet in thickness, are present along the outcrop of the Salt Wash member. Such sandstone lenses are a few hundred feet to several thousand feet in horizontal extent.

Most uranium-vanadium deposits in the Disappointment Valley area are contained in the upper 100 feet of the Salt Wash member. The sandstone units in this stratigraphic zone are crossbedded and medium to medium-fine grained. Locally they are quartzitic and are brown, light gray, light red, or white and contain varying amounts of limonite, disseminated pyrite, and carbonaceous material. Cut and fill structures, current lineations and rill marks suggest that the Salt Wash member was deposited under fluvial conditions. Mudstone and siltstone in contact with upper sandstone units of the Salt Wash are generally red, red brown, green and gray. Interstitial clay, clay pellets and thin seams of mudstone are included in the sandstone units. The Salt Wash member averages 300 feet in thickness in the vicinity of the applicant's claims.

The overlying Brushy Basin member is about 450 feet thick. The contact with the underlying Salt Wash member is gradational. The Brushy Basin member is made up of variegated shale, claystone and mudstone beds that range in color from pure white to pastel shades of red, blue and green interbedded with sandstone and conglomeratic units. Layers of quartzitic sandstone and siliceous limestone and mudstone are present.

The Lower Cretaceous Burro Canyon formation is a heterogeneous sequence of conglomerate, sandstone, limestone and chert averaging about 260 feet in thickness.

The Upper Cretaceous Dakota formation consists principally of gray-yellow and buff sandstone with lesser amounts of conglomerate carbonaceous shale and impure coal. The Dakota is eroded in most of the area concerned with this report. It crops out in the western and northern part of the company's claim and ranges in thickness from a few feet to 125 feet.

The Upper Cretaceous Mancos formation is a dark gray, soft, homogeneous shale that erodes to smooth, rounded topographic forms. It is present in the western part of the applicant's claim where it may be as much as 200 feet thick.

Disappointment Valley is a broad single downfolded syncline that plunges gently to the southeast. It is rimmed by cuestas of resistant Cretaceous sandstone and lies between the northwest trending Gypsum Valley anticline to the northeast and the northwest trending Dolores anticline to the southwest. The beds in the vicinity of the applicant's claims dip about $2^{o}$ NE and strike generally northwest. The depth to the ore-bearing sandstone underlying the applicant's claim would range from about 500 feet to as much as 1300 feet.

## ORE DEPOSITS

Most of the uranium-vanadium deposits in the Slick Rock district are restricted to sandstone units in the upper part of the Salt Wash

member of the Morrison formation. Mineralized rock consists of sandstone impregnated with uranium-vanadium minerals. Ore bodies range in size from small, irregular masses containing a few tons to large, tabular masses containing thousands of tons of ore. Mineralized rock lies essentially parallel to the sandstone beds but does not follow the beds in detail. In some deposits the highest grade of ore occurs in sharply bounded elongate concretionary structures or "rolls" which cross bedding planes.

The most common ore minerals are carnotite and a fine-grained vanadium-bearing micaceous mineral. Tyuyamunite, montroseite, corvusite, and hewettite are also found. Secondary copper minerals are associated in varying amounts with uranium-vanadium minerals.

The origin of the ore and its localization are little understood. Primary sedimentary structures in the ore-bearing sandstone units apparently are closely related to localization of ore. Trends of sedimentary structures are generally easterly and southeasterly. In the vicinity of the applicant's claims, ore deposits are elongate in an easterly direction.

The Union Carbide Nuclear Company has carried out a successful drilling project on adjoining ground northwest of the applicant's claims (fig. 2). On the basis of the small amount of company data available it is estimated that a mineralized mass about 6,000 feet long and 500 feet wide was discovered by this drilling. This mineralized ground trends eastward into the applicant's claims and may

contain as much as 150,000 tons of ore averaging 0.34 percent $U_3O_8$ and 2.20 percent $V_2O_5$. The size of potential ore bodies underlying the subject claims could range in size from 1,000 tons to as much as 50,000 tons and average 0.34 percent $U_3O_8$ and 2.12 percent $V_2O_5$.

## ORE RESERVES

No ore reserves were calculated on the basis of wide-spaced holes (fig.2) and the few offset holes that were drilled by the U. S. Geological Survey and the applicant on the subject claims. Six wide spaced holes penetrated ore grade material and 9 holes cut mineralized ground less than ore grade. The U. S. Geological Survey reports 5,900 tons of total indicated and inferred reserves found by wide spaced drilling on the Company's claims. These reserves average 0.34 percent $U_3O_8$ and 2.12 percent $V_2O_5$ calculated to minimum cutoffs of 1 foot of 0.10 percent $U_3O_8$ or 1.0 percent $V_2O_5$.

## PROPOSED EXPLORATION

The applicant has proposed a drilling program in two phases. It is considered that wide-spaced drilling has been completed. The applicant's Phase 1 consists of 12 holes in groups of four on 200 foot centers offsetting three previously drilled ore holes, 4 holes to explore a possible ore trend eastward from Geological Survey ore hole DV 93, and 6 holes in a fence on the west Nos. 32, 33, 34, and 35 claims to intercept a projected continuation of the known ore trend in which the Union Carbide Nuclear Company's ore body has been developed.

Phase 2 consists of 36 holes on 100 foot centers around mineralized or ore holes drilled in Stage I.

Some revisions of the proposed drilling plan was considered to be advisable. Twelve holes specifically designated by the applicant in Phase II on 100-foot centers around holes DV 91, DV 97, and DV 112A, would duplicate in part other offset holes to be drilled around any mineralized holes found in Phase I at 200 foot centers around holes DV 91, DV 97, and DV 112A. The 24 offset holes not specifically designated in Phase II should be sufficient to offset mineralized Phase I holes without the additional 12.

There is some question whether offsetting on 100-foot centers is justified at drilling depths of 800 feet or more. However, because ore bodies of good grade with a maximum lateral dimension of 200 feet could still be significant at this depth because the thickness and therefore the tonnage of ore contained, might easily be five feet or more.

Because the application under Docket DMEA 4158 was withdrawn, consideration of a revised drilling was not completed, and a cost estimate was not prepared.

## CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the subject claims are located in a geologically favorable area based on results of Geological Survey drilling. Chances are good of finding ore bodies that may range in size from 1,000 tons to 50,000 tons with an average grade of 0.30 percent $U_3O_8$ and 2.00 percent $V_2O_5$. Because the operation of the Union Carbide Nuclear Company on adjoining ground shows that mining of the type of ore deposits found in the area is considered feasible by an experienced operator, there is every reason to conclude that, if similar ore bodies are found on the applicant's claims, they can be mined profitably.

A recommendation for approval of the proposed project with some slight changes had been decided upon when the application under Docket DMEA 4158 was withdrawn.

Surname copy

700

F.L. Knouse

Mittendorf

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

MAY 22 1956

Mr. Sidney Latham, Vice-President
Bunt Oil Company
700 Mercantile Bank Building
Dallas, Texas

Re: Docket No. DMEA-4158 (Uranium)
Sunset Claim Group, et al.
San Miguel County, Colorado

Dear Mr.Latham:

This will acknowledge receipt of your letter, dated May 17, 1956, in which you request that we cancel the subject exploration project application. As requested, we have closed our files on the subject project.

We appreciate your interest in the Defense Minerals Program and for bringing your property to our attention.

Sincerely yours,

G. O. Mittendorf (for)

Administrator

FLKnouse/gla
5-22-56
cc to: Admr.'s Reading File
Docket
Messrs.JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210,GSA
Code 700, Mr.Knouse
DMEA Field Team, Region III (2)
w/2cc Mr. Latham's letter 5/17/56

R.L.

5/21/56

# HUNT OIL COMPANY

DALLAS, TEXAS

SIDNEY LATHAM
VICE-PRESIDENT

RECEIVED
MAY 21 1956

May 17, 1956

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

Attention: Mr. C. O. Mittendorf, Administrator

Re: Docket No. DMEA-4158 (Uranium)
Sunset Claim Group et al
San Miguel County, Colorado

Gentlemen:

It is requested that our application dated December 20, 1955, for exploration assistance under the Defense Production Act of 1950, be cancelled.

Very truly yours,

HUNT OIL COMPANY

By Sidney Latham
Sidney Latham

SL:ww

3/8/56 dgm

RECEIVED
MAR - 8 1956

March 2, 1956

Memorandum

To: W. M. Traver, Executive Officer, DMEA Field Team, Reg. III

From: Superintendent, Denver Experiment Station, Reg. III

Subject: Docket DMEA 4158 (Uranium), Hunt Oil Company, Sunset claim group, et al., San Miguel County, Colorado

The subject application in the amount of $198,518.89 was received in this office on March 2, 1956.

A field examination will be made and suitable report prepared by an engineer from the Denver or Grand Junction office.

JOHN F. SHAW
John F. Shaw

cc: W. M. Traver (2)
E. N. Marshman
J. W. Mesler
M. H. Salsbury
J. F. Shaw

RECEIVED

MAR - 8 1956

March 2, 1956

Memorandum

To: W. M. Traver, Executive Officer, DMEA Field Team, Reg. III

From: Superintendent, Denver Experiment Station, Reg. III

Subject: Docket DMEA 4158 (Uranium), Hunt Oil Company, Sunset claim group, et al., San Miguel County, Colorado

The subject application in the amount of $198,518.89 was received in this office on March 2, 1956.

A field examination will be made and suitable report prepared by an engineer from the Denver or Grand Junction office.

JOHN F. SHAW

John F. Shaw

cc: W. M. Traver (2)
E. H. Harshman
J. W. Hasler
M. H. Salsbury
J. F. Shaw

3/5/56

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

RECEIVED
MAR - 5 1956

March 1, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: J. F. Shaw (2) (With brochure)
J. W. Easler

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA 4158 (Uranium), Hunt Oil Company, Sunset claim group, et al., San Miguel County, Colorado

Enclosed is the subject application in the amount of $198,518.89. A field examination and suitable report are requested. Also enclosed is a copy of a letter from the Chairman of the Operating Committee dated February 27, 1956 and attached memoranda of review of the application by W. F. Williams and John E. Crawford.

W. M. TRAVER

W. M. Traver

Enclosures

HMC:ab

cc: Harshman
Chair. Op. Comm. (2)
Docket 4158
Chron.

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

RECEIVED
MAR - 5 1956

March 1, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: J. F. Shaw (2) (With brochure)
J. W. Hasler

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA 4158 (Uranium), Hunt Oil Company, Sunset claim group, et al., San Miguel County, Colorado

Enclosed is the subject application in the amount of $198,518.89. A field examination and suitable report are requested. Also enclosed is a copy of a letter from the Chairman of the Operating Committee dated February 27, 1956 and attached memoranda of review of the application by W. P. Williams and John E. Crawford.

W. M. TRAVER

W. M. Traver

Enclosures

HMC:ab

cc: Harshman
Chair. Op. Comm. (2)
Docket 4158
Chron.

700

FILE COPY
Surname:

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

FEB 27 1956

Mr. W. M. Traver
Executive Officer
DMEA Field Team, Region III
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMEA-4158 (Uranium)
Hunt Oil Company
Sunset claim group, et al.
San Miguel County, Colorado

Dear Mr. Traver:

The captioned application is referred to your office for a field examination and report on the proposed project.

Enclosed are memoranda dated February 14 and 17, 1956, from W. P. Williams, USGS, and John E. Crawford, USBM, respectively, relating to the subject project.

If the Field Team recommends an exploration program as submitted or revised by the Applicant, we will then require, in addition to the usual information, the following:

1. Bids from three contractors if drilling is to be done by an independent contractor, and

2. Request the Applicant to furnish Consent to Lien forms, signed by all the land owners, that cover all the lands to be included in the project.

The agreement between Mr. John F. Hayman, trustee, and the land owners, transmitted to this office with your memorandum dated February 9, 1956, does not authorize Mr. Hayman to execute the Owner's Consent to Lien.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee

Enclosures

APPROVED:

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

Thor H. Kiilsgaard
Member, Geological Survey

Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA

FLKnouse/izm 2-21-56
cc to: Docket
Code 700
Mr. Knouse
Admr.'s Reading File
Operating Committee

700

FILE COPY
Surname:

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

FEB 27 1956

Hunt Oil Company
700 Mercantile Bank Building
Dallas, Texas

Re: Docket No. DMEA-4158 (Uranium)
Sunset claim group, et al.
San Miguel County, Colorado

Gentlemen:

The application for assistance in exploring the subject land, under the captioned docket number, has been reviewed by the Rare and Miscellaneous Metals Division of the Defense Minerals Exploration Administration. It has been referred for a field examination to the Executive Officer of Region III at the following address:

Mr. W. H. Traver
Executive Officer
DMEA Field Team, Region III
224 New Customhouse Building
Denver 2, Colorado

Any assistance you may give the members of the Field Team during the examination will be appreciated.

Sincerely yours,

C. O. Mitchell

Administrator

FLKnouse/izm 2-21-56

cc to: Docket
Code 700
Mr. Knouse
Admr.'s Reading File
DMEA Field Team, Region III (2)

R.C.B.

2/20/56 Lyn

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

RECEIVED FEB 17 1956

February 17, 1956

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee, Room 4445

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

Subject: Application for assistance, DMEA Docket 4158, Hunt Oil Company, Sunset, North, East, West, Gray, Glen, Dolores, E. B., and Dolorous groups of claims, San Miguel County, Colorado

I have reviewed the attached application of the Hunt Oil Company, DMEA Docket 4158, dated February 10 and received in this office February 13. I have also discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

The Hunt Oil Company has drilled 15 holes on the Hoyman-Wilmoth, et al., lease in San Miguel County, Colo. Of the 15 holes drilled, 33 percent showed ore-grade mineralization. The U. S. Geological Survey also drilled some 49 holes on the claims, of which 14 percent were mineralized.

The proposed exploration work would consist of drilling 22 holes in a first stage. Holes are planned to offset presently known ore holes at about 200 feet. Each hole would be approximately 1,000 feet in depth, indicating a total footage of 22,000 feet.

In Stage II, ore holes would be offset with four additional holes. Some 36 holes might be required, each hole averaging 980 feet in depth. Total footage drilled would be approximately 36,000 feet.

Total cost of the proposed project is estimated at $198,518.89.

We feel the application merits a field examination. The Field Team should consult with Mr. E. R. Gordon, Atomic Energy Commission, Grand Junction, Colo., for the benefit of any information he might have about the area.

John E Crawford
John E. Crawford

Attachment

2-15-56 fm

IN REPLY REFER TO:

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

RECEIVED
FEB 15 1956

February 14, 1956

Memorandum

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

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

Subject: Review of application, DMEA 4158, Hunt Oil Company, Sunset, et al. claims, Slick Rock District, San Miguel County, Colorado.

The applicant proposes to explore for uranium in the Morrison formation on a large block of 219 claims. The estimated total cost of the project, according to the applicant, is $198,519.00.

Because many of the holes are collared in the Burro Canyon and Dakota formations, some of the proposed drilling will be as deep as 1,000 feet or more. There are several favorable features, however, to recommend the property. Government drilling has delineated favorable ground on the claims. Several ore holes are present in the area.

It appears that the subject property warrants DMEA participation in an exploration project. I agree with the Grand Junction office that the property be examined, and the Field Team should be asked for recommendations concerning the proposed project.

WPWilliams

W. P. Williams

IN REPLY REFER TO:

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

RECEIVED
FEB 15 1956

February 14, 1956

Memorandum

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

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

Subject: Review of application, DMEA 4158, Hunt Oil Company, Sunset, et al. claims, Slick Rock District, San Miguel County, Colorado.

The applicant proposes to explore for uranium in the Morrison formation on a large block of 219 claims. The estimated total cost of the project, according to the applicant, is $196,519.00.

Because many of the holes are collared in the Burro Canyon and Dakota formations, some of the proposed drilling will be as deep as 1,000 feet or more. There are several favorable features, however, to recommend the property. Government drilling has delineated favorable ground on the claims. Several ore holes are present in the area.

It appears that the subject property warrants DMEA participation in an exploration project. I agree with the Grand Junction office that the property be examined, and the Field Team should be asked for recommendations concerning the proposed project.

WPWilliams:iml
G-2/14/56

W. P. Williams

cc: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
J. E. Crawford, 3641
J. O. Hosted, 3210

2/13/56

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

RECEIVED
FEB 13 1956

February 10, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for 4158 DMEA Aid (Uranium and Vanadium), Hunt Oil Company, Sunset, North, East, West, Gray, Glen, Dolores, E.B. and Dolorous groups of claims, San Miguel County, Colorado

Enclosed are the original and three copies of a joint memorandum of review of the subject property by members of the Grand Junction office.

They recommend a field examination, and we concur in this recommendation.

W. M. Traver

W. M. Traver

Enclosures

4mc

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. Box 360
Grand Junction, Colorado

IN REPLY REFER TO:

DMEA
RECEIVED
FEB 8 1956
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

DMEA
Rec'd
FEB 9 1956

February 7, 1956

Memorandum BUREAU OF MINES
Denver, Colorado

RECEIVED
FEB 13 1956

To: Executive Officer, DMEA Field Team, Region III

Through: E. N. Harshman EMH

From: J. William Hasler
M. H. Salsbury

Subject: Application for DMEA aid (Uranium and vanadium), Hunt Oil Company, Sunset, North, East, West, Gravy, Glen, Dolores, E. B., and Dolorous group of claims, San Miguel County, Colo.

The Hunt Oil Company's application for DMEA aid, was sent to this office for recommendations relative to the necessity of a field examination. We have carefully reviewed the application with Daniel R. Shaw, Slick Rock district project chief, of U. S. Geological Survey's exploration program.

The applicant proposes to explore for uranium in an area of ground established as being favorable by USGS drilling. Approximately 14 percent of the holes drilled by the Survey in the applicant's area are ore holes. The Survey estimates the reserve of about 6,700 tons of ore from this drilling. It is probable that several ore bodies in the 30- to 100,000-ton class may be found in the area. The applicant's area lies adjacent to property owned and operated by the Union Carbide Nuclear Company (formerly USV), in which they have an estimated tonnage of several hundred thousand tons of ore.

Because of these favorable factors, it is recommended that a field examination be made.

J. William Hasler
J. William Hasler,
U. S. Geological Survey

M. H. Salsbury by JWH
M. H. Salsbury,
U. S. Bureau of Mines

JWH/mlr

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

7-13

RECEIVED
FEB 13 1956

February 10, 1956

224 New Customhouse
Denver 2, Colorado

DMEA-415

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA Aid (Uranium and Vanadium), Hunt Oil Company, Sunset, Kurth, East, West, Gray, Glen, Dolores, E.B. and Dolorous groups of claims, San Miguel County, Colorado

Enclosed are the original and three copies of a joint memorandum of review of the subject property by members of the Grand Junction office.

They recommend a field examination, and we concur in this recommendation.

W. M. TRAVER,

W. M. Traver

Enclosures

MINERAL RESOURCES
IN REPLY REFER TO:
RECEIVED
FEB 8 1956
GEOLOGICAL SURVEY
DENVER, COLORADO

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

RECEIVED
FEB 13 1956

P. O. Box 360
Grand Junction, Colorado

February 7, 1956

FEB 9 1956
BUREAU OF MINES
Denver, Colorado

Memorandum

To: Executive Officer, DMEA Field Team, Region III

Through: E. N. Harshman

From: J. William Hasler
M. H. Salsbury

Subject: Application for DMEA aid (Uranium and vanadium), Hunt Oil Company, Sunset, North, East, West, Gravy, Glen, Dolores, E. B., and Dolorous group of claims, San Miguel County, Colo.

The Hunt Oil Company's application for DMEA aid, was sent to this office for recommendations relative to the necessity of a field examination. We have carefully reviewed the application with Daniel R. Shaw, Slick Rock district project chief, of U. S. Geological Survey's exploration program.

The applicant proposes to explore for uranium in an area of ground established as being favorable by USGS drilling. Approximately 14 percent of the holes drilled by the Survey in the applicant's area are ore holes. The Survey estimates the reserve of about 6,700 tons of ore from this drilling. It is probable that several ore bodies in the 30- to 100,000-ton class may be found in the area. The applicant's area lies adjacent to property owned and operated by the Union Carbide Nuclear Company (formerly USV), in which they have an estimated tonnage of several hundred thousand tons of ore.

Because of these favorable factors, it is recommended that a field examination be made.

J. William Hasler
J. William Hasler,
U. S. Geological Survey

M. H. Salsbury by JWH
M. H. Salsbury,
U. S. Bureau of Mines

JWH/mlr

2-14-56 dgm

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

RECEIVED
FEB 13 1956

February 9, 1956

224 New Customhouse
Denver 2, Colorado

DMEA-4158

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA Aid (Uranium and Vanadium), Hunt Oil Company, a Delaware Corporation, Sunset, North, East, West, Gray, Glen, Dolores, E.B. and Dolorous groups of claims, San Miguel County, Colorado

Enclosed are the following:

1. Two copies of a letter from the applicant dated December 1, 1955

2. Two copies of our reply to the applicant dated December 5, 1955

3. Two copies of a letter from the applicant dated February 7, 1956

4. Two copies of our reply to the applicant dated February 9, 1956

5. Two certified copies of an Agreement dated November 20, 1953 apportioning the share of royalties and profits from the Hunt Lease and making John F. Hoyman, Trustee.

Will you please advise if the signature of John F. Hoyman, Trustee, would be acceptable for an Owner's Consent to Lien on this property.

W. M. Traver

W. M. Traver

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

RECEIVED
FEB 13 1956

February 9, 1956

224 New Customhouse
Denver 2, Colorado

Mr. D. E. Hoffman
Hunt Oil Company
P. O. Box 1798
Grand Junction, Colorado

Re: Application for DMEA Aid (Uranium and Vanadium), Hunt Oil Company, a Delaware Corporation, Sunset, North, East, West, Gray, Glen, Dolores, E.B. and Dolorous groups of claims, San Miguel County, Colorado

Dear Mr. Hoffman:

This will acknowledge receipt of your letter dated February 7, 1956 and the Agreement dated the 20th day of November, 1953 stating that John F. Hoyman, Trustee, has the power to distribute the royalties and other profits realized from the lease on the subject property. We find no stipulation in this Agreement giving John F. Hoyman, Trustee, the power to place a lien on the property. Therefore, we believe that the Owner's Consent to Lien must be signed by Hubert Sellard, Ed F. Kraus, G. L. Wilmoth, E. B. Blair, John F. Hoyman, and George T. McCall, the lessors, of the property.

We are forwarding the Agreement to the DMEA Washington office for legal advice, and should they rule John F. Hoyman, Trustee, has the power to sign the Owner's Consent to Lien, we will notify you.

Very truly yours,

W. M. TRAVER,

W. M. Traver
Executive Officer, DMEA
Field Team, Region III

HMC:ab
cc: Chair. Op. Comm. (2)
Harshman
Shaw (2)
Hasler
Subject
Chron.

HUNT OIL COMPANY
P. O. Box 1798
Grand Junction, Colorado

DEC 2 1955

RECEIVED
FEB 13 1956

December 1, 1955

Bureau of Mines
224 New Customhouse Building,
Denver 2, Colorado

Gentlemen:

We are in the process of preparing an application for D.M.E.A. loan on property we have under lease. This property of course has a great many owners and they have made John Hoyman, a lawyer at Telluride, Colorado, trustee. Mr. Hoyman has received answers to his letters directed to the major interest holders, giving him authority to lien; however, he has been unsuccessful in obtaining answers from some of the small interest holders, probably through neglect more than anything.

Your office in Grand Junction has stated that they feel that Mr. Hoyman can give us a Consent to Lien for the entire group as the trustee. They suggested that we ask this question of you and also ask you to provide us with the necessary Consent to Lien forms to be used in this instance.

Please give this matter your consideration and advise us at your earliest convenience.

Thanking you, we remain

Yours very truly,

HUNT OIL COMPANY

D. E. Hoffman

D. E. Hoffman

DEH/bb

FEB 1 3 1963

December 5, 1955

[illegible] New Customhouse
Denver 2, Colorado

Mr. D. E. Hoffman
Hunt Oil Company
P. O. Box 1798
Grand Junction, Colorado

Dear Mr. Hoffman:

This responds to your letter of December 1 requesting information on Owner's Consent to Lien, Form MF-203.

It is not necessary or desirable to submit the Owner's Consent to Lien forms with your application for DMEA aid. The Forms MF-203, copy of which is attached for your information, are prepared by this office prior to the preparation of the DMEA contract. These Owner's Consent to Lien are forwarded the applicant in sufficient to obtain the owners' signatures on all copies.

It is suggested that when you submit your application for DMEA assistance, you include a copy of the Trust Agreement held by Mr. John Hoyman and you will be advised if his signature on the Owner's Consent to Lien would be acceptable.

Very truly yours,

E. H. Kurzhuma
Acting Executive Officer, DMEA
Field Team, Region III

Enclosure

Bert

EHC:db

cc: Reg. Op. Com. (2)
Kurzhuma
Shaw (2)
Subject
Chron.

RECEIVED
FEB 13 1956

**HUNT OIL COMPANY**
P. O. Box 1798
Grand Junction, Colorado

Norbert ☆ ?

February 7th, 1956

DMEA
Date Rec'd.
FEB 8 1956
BUREAU OF MINES
Denver, Colorado

U. S. Department of the Interior
Defense Minerals Exploration Administration
224 New Customhouse
Denver 2, Colorado

Attention: Mr. E. N. Harshman

Dear Mr. Harshman:

On January 31st of this year, we forwarded an application for DMEA loan on uranium potential property, leased from Sellard, Kraus, Wilmoth, Blair, Hoyman, and McCall, located in the SW corner of T. 44 N., R. 18 W., San Miguel County, Colorado.

At the time we forwarded this application to your office, we did not have the certified copy of the Trust Agreement held by Mr. John Hoyman. Since then, we have received this certified copy of agreement and are attaching it for the purpose of complying with your request by letter, dated December 5th, 1955, concerning request for information on Owners Consent to Lien.

I am sorry we did not have this certificate to forward with the application and hope that it has not caused you any inconvenience.

Yours very truly,

HUNT OIL COMPANY

D. E. Hoffman

D. E. Hoffman

DEH/bb
Enc.

(CERTIFIED COPY)

STATE OF COLORADO
COUNTY OF SAN MIGUEL } ss.

I, Charles C. Cammann County Clerk and Recorder in and for said County and State, do hereby certify that the within and foregoing is a full, true and correct copy of Agreement

No. 121585 as it appears of record in my office in Book 223 at page 398

Witness my hand and official seal at Telluride, Colo., this 2 day of Feb 1956

Issued to John Hausman

No. 1891 Fee 1.50

Charles C. Cammann
County Clerk and Recorder, San Miguel County, Colorado.

By _____ Deputy.

13 Out West Prtg. & Staty. Co., Colo. Spgs M4172

AGREEMENT

Ptf. Ex. #2
#1838

In order to arrive at a workable, fair and equitable manner of sharing the royalties and other profits derived from the lease of the claims included in Dolores, Dolorous, E.B., Gravy, North, West, Glen, East and Sunset Groups of mining claims located in Lower San Miguel Mining District in San Miguel County, Colorado; and

In order to facilitate the distribution of the royalties and other profits realized from the lease of the foregoing claims; and

In order to permit lessee Hunt Oil Company to better operate the above claims; and

In order to forestall and otherwise avoid disagreements between and among the undersigned; and

In order to bind the parties hereto for the term of the lease entered into between the undersigned and lessee Hunt Oil Company.

RECEIVED
FEB 13 1956

NOW THEREFORE,

In consideration of the mutual covenants and stipulations hereinafter contained, and in consideration of the signature of this instrument by the parties hereto;

We the undersigned to hereby agree, covenant and stipulate as follows;

That each of the undersigned shall, for the term of the lease with the Hunt Oil Company, be bound by the terms hereof; and shall accept as his share of the royalties from the aforementioned claims, the following percentage share of all royalties and profits realized from the lease of said claims;

| | |
|---|---|
| Hubert Sellard | 5% |
| Ed. F. Kraus | 22% |
| G. L. Wilmoth | 34% |
| E. B. Blair | 24% |
| John F. Hoyman | 10% |
| George T. McCall | 5% |

That all royalties are to be deposited by lessee in the San Miguel Basin State Bank in Norwood, Colorado to an account entitled

John F. Hoyman, Trustee; and the said John F. Hoyman shall procure a corporate surety bond in the amount of $10,000.00 to secure the undersigned; and that the Trustee's fee shall not without consent in writing expressed exceed two per centum (2%) of the money so received; and that said Trustee shall distribute ( in accordance with the foregoing schedule) within thirty days of the receipt thereof all funds received from lessee;

That this agreement shall bind all the parties hereto, their successors, assigns, administrators and executors;

That said Trustee shall insofar as possible, audit all mill statements furnished him by lessee Hunt Oil Company;

That the undersigned do hereby assign, sell, grant and otherwise quitclaim unto one another all their interests, right and property in the lease executed by the undersigned with Hunt Oil Company, and are bound by the terms of this instrument for the term of said lease.

In witness whereof we have set our hands this 20th day of November, A. D. 1953.

Hubert Sellard

E. B. Blair

E. F. Kraus

John F. Hoyman

G. L. Wilmoth

George T. McCall

No. 121585

AGREEMENT

Hubert Sellard et al

to

John F. Hoyman

State of Colorado, )
County of San Miguel.) ss.

Filed for record at 4:00 o'clock P. M. December 3, 1954 and duly recorded in Book 223 Page 399.

Charles C. Carriere
Recorder

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

RECEIVED
FEB 13 1956

February 9, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA Aid (Uranium and Vanadium), Hunt Oil Company, a Delaware Corporation, Sunset, North, East, West, Gray, Glen, Dolores, N.B. and Doloreus groups of claims, San Miguel County, Colorado

Enclosed are the following:

1. Two copies of a letter from the applicant dated December 1, 1955

2. Two copies of our reply to the applicant dated December 5, 1955

3. Two copies of a letter from the applicant dated February 7, 1956

4. Two copies of our reply to the applicant dated February 9, 1956

5. Two certified copies of an Agreement dated November 20, 1953 apportioning the share of royalties and profits from the Hunt Lease and making John F. Hoyman, Trustee.

Will you please advise if the signature of John F. Hoyman, Trustee, would be acceptable for an Owner's Consent to Lien on this property.

W. M. TRAVER,

W. M. Traver

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

RECEIVED
FEB 13 1956

February 9, 1956

224 New Customhouse
Denver 2, Colorado

Mr. D. E. Hoffman
Hunt Oil Company
P. O. Box 1798
Grand Junction, Colorado

Re: Application for DMEA Aid (Uranium and Vanadium), Hunt Oil Company, a Delaware Corporation, Sunset, North, East, West, Gray, Glen, Dolores, E.E. and Dolorous groups of claims, San Miguel County, Colorado

Dear Mr. Hoffman:

This will acknowledge receipt of your letter dated February 7, 1956 and the Agreement dated the 20th day of November, 1953 stating that John F. Moyman, Trustee, has the power to distribute the royalties and other profits realized from the lease on the subject property. We find no stipulation in this Agreement giving John F. Moyman, Trustee, the power to place a lien on the property. Therefore, we believe that the Owner's Consent to Lien must be signed by Robert Sellard, Ed F. Kraus, G. L. Wilmoth, E. B. Klair, John F. Moyman, and George T. McCall, the lessors, of the property.

We are forwarding the Agreement to the DMEA Washington office for legal advice, and should they rule John F. Moyman, Trustee, has the power to sign the Owner's Consent to Lien, we will notify you.

Very truly yours,

W. M. TRAVER,

W. M. Traver
Executive Officer, DMEA
Field Team, Region III

HMC:ab
cc: Chair. Op. Comm. (2)
Harshman
Shaw (2)
Hasler
Subject
Chron.

HUNT OIL COMPANY
P. O. Box 1798
Grand Junction, Colorado

December 1, 1955

RECEIVED
FEB 13 1956

Bureau of Mines
224 New Customhouse Building,
Denver 2, Colorado

Gentlemen:

We are in the process of preparing an application for D.M.E.A. loan on property we have under lease. This property of course has a great many owners and they have made John Hoyman, a lawyer at Telluride, Colorado, trustee. Mr. Hoymanhas received answers to his letters directed to the major interest holders, giving him authority to lien; however, he has been unsuccessful in obtaining answers from some of the small interest holders, probably through neglect more than anything.

Your office in Grand Junction has stated that they feel that Mr. Hoyman can give us a Consent to Lien for the entire group as the trustee. They suggested that we ask this question of you and also ask you to provide us with the necessary Consent to Lien forms to be used in this instance.

Please give this matter your consideration and advise us at your earliest convenience.

Thanking you, we remain

Yours very truly,

HUNT OIL COMPANY

D. E. Hoffman

DEH/bb

December 5, 1955

224 New Customhouse
Denver 2, Colorado

RECEIVED
FEB 13 1956

Mr. D. E. Hoffman
Kent Oil Company
P. O. Box 1798
Grand Junction, Colorado

Dear Mr. Hoffman:

This responds to your letter of December 1 requesting information on Owner's Consent to Lien, Form MF-203.

It is not necessary or desirable to submit the Owner's Consent to Lien forms with your application for DMEA aid. The Forms MF-203, copy of which is attached for your information, are prepared by this office prior to the preparation of the DMEA contract. These Owner's Consent to Lien are forwarded the applicant in sextuplet to obtain the owners' signatures on all copies.

It is suggested that when you submit your application for DMEA assistance, you include a copy of the Trust Agreement held by Mr. John Moyman and you will be advised if his signature on the Owner's Consent to Lien would be acceptable.

Very truly yours,

E. H. Karshmer
Acting Executive Officer, DMEA
Field Team, Region XII

Enclosure

EHS:ab

cc: Sec. Op. Comm. (2)
Karshmer
Chron (2)
Subject
Chron.

RECEIVED
FEB 13 1956

HUNT OIL COMPANY
P. O. Box 1798
Grand Junction, Colorado

February 7th, 1956

DMEA
Date Rec'd.
FEB 8 1956

BUREAU OF MINES
Denver, Colorado

U. S. Department of the Interior
Defense Minerals Exploration Administration
224 New Customhouse
Denver 2, Colorado

Attention: Mr. E. N. Harshman

Dear Mr. Harshman:

On January 31st of this year, we forwarded an application for DMEA loan on uranium potential property, leased from Sellard, Kraus, Wilmoth, Blair, Hoyman, and McCall, located in the SW corner of T. 44 N., R. 18 W., San Miguel County, Colorado.

At the time we forwarded this application to your office, we did not have the certified copy of the Trust Agreement held by Mr. John Hoyman. Since then, we have received this certified copy of agreement and are attaching it for the purpose of complying with your request by letter, dated December 5th, 1955, concerning request for information on Owners Consent to Lien.

I am sorry we did not have this certificate to forward with the application and hope that it has not caused you any inconvenience.

Yours very truly,

HUNT OIL COMPANY

D. E. Hoffman

DEH/bb
Enc.

(CERTIFIED COPY)

STATE OF COLORADO }
COUNTY OF SAN MIGUEL } ss.

I, Charles C. Cammins County Clerk and Recorder in and for said County and State, do hereby certify that the within and foregoing is a full, true and correct copy of Agreement

No. 121515 as it appears of record in my office in Book 223 at page 398

Witness my hand and official seal at Telluride, Colo., this 7 day of Feb 19 56

Issued to John Heyman

No. 1891 Fee 1.50

Charles C. Cammins
County Clerk and Recorder, San Miguel County, Colorado.

By _____ Deputy.

13 Out West Prtg. & Stnty. Co., Colo. Spgs M4172

AGREEMENT

Ptf. Ex. #2
#1838

In order to arrive at a workable, fair and equitable manner of sharing the royalties and other profits derived from the lease of the claims included in Dolores, Dolorous, E.B., Gravy, North, West, Glen, East and Sunset Groups of mining claims located in Lower San Miguel Mining District in San Miguel County, Colorado; and

In order to facilitate the distribution of the royalties and other profits realized from the lease of the foregoing claims; and

In order to permit lessee Hunt Oil Company to better operate the above claims; and

In order to forestall and otherwise avoid disagreements between and among the undersigned; and

In order to bind the parties hereto for the term of the lease entered into between the undersigned and lessee Hunt Oil Company.

NOW THEREFORE,

In consideration of the mutual covenants and stipulations hereinafter contained, and in consideration of the signature of this instrument by the parties hereto;

We the undersigned to hereby agree, covenant and stipulate as follows;

That each of the undersigned shall, for the term of the lease with the Hunt Oil Company, be bound by the terms hereof; and shall accept as his share of the royalties in the aforementioned claims, the following percentage share of all royalties and profits realized from the lease of said claims;

| | |
|---|---|
| Hubert Sellard | 5% |
| Ed. F. Kraus | 22% |
| G. L. Wilmoth | 34% |
| E. B. Blair | 24% |
| John F. Hoyman | 10% |
| George T. McCall | 5% |

RECEIVED
FEB 1 9 1956

That all royalties are to be paid direct by lessee in the San Miguel Basin State Bank in Norwood, Colorado to an account entitled

John F. Hoyman, Trustee; and the said John F. Hoyman shall procure a corporate surety bond in the amount of $10,000.00 to secure the undersigned; and that the Trustee's fee shall not without consent in writing expressed exceed two per centum (2%) of the money so received; and that said Trustee shall distribute ( in accordance with the foregoing schedule) within thirty days of the receipt thereof all funds received from lessee;

That this agreement shall bind all the parties hereto, their successors, assigns, administrators and executors;

That said Trustee shall insofar as possible, audit all mill statements furnished him by lessee Hunt Oil Company;

That the undersigned do hereby assign, sell, grant and otherwise quitclaim unto one another all their interests, right and property in the lease executed by the undersigned with Hunt Oil Company, and are bound by the terms of this instrument for the term of said lease.

In witness whereof we have set our hands this 20th day of November, A. D. 1953.

| | |
|---|---|
| Hubert Sellard | E. B. Blair |
| E. F. Kraus | John F. Hoyman |
| G. L. Wilmoth | George T. McCall |

No. 121585

AGREEMENT

Mark Sellard et al

to

John F. Hoyman

State of Colorado, )
County of San Miguel.) ss.

Filed for record at 4:00 o'clock P. M. December 3, 1954 and duly recorded in Book 223 Page 399.

Charles C. Carriere
Recorder

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: Chief, Operation's Control and Statistics Division

Subject: Assignment of Docket Number

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

DMEA - 4158 Hunt Oil Company

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

February 7, 1956
Subject: DMEA-4158
Re: Exploration Assistance
Sunset, North, East, West,
Gravy, Glen, Dolores, E.B. &
Dolorous Claims

Hunt Oil Company
700 Mercantile Bank Building
Dallas, Texas

Gentlemen:

The receipt of your application dated December 20, 1955, for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-4158 and referred to the Rare & Misc. Metals Division.

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

Sincerely yours,

Robert E. Adams, Chief
Operations Control and
Statistics Division

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

RECEIVED
FEB - 6 1956

February 3, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA aid (Uranium and Vanadium), Hunt Oil Company, a Delaware Corporation, Sunset, North, East, West, Gravy, Glen, Dolores, E. B. and Dolorous groups of claims, San Miguel County, Colorado

Enclosed are two copies of the subject application in the amount of $198,518.89. One copy of the application has been forwarded to the Grand Junction Office of the U. S. Geological Survey and one copy is retained in our files.

Also enclosed are two copies of a letter from the Operator regarding a Trust Agreement which will be submitted as soon as copies can be obtained.

W. M. Traver

W. M. Traver

Enclosures

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

February 3, 1956

224 New Customhouse
Denver 2, Colorado

RECEIVED
FEB - 6 1956

Memorandum

To: J. W. Hasler

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA aid (Uranium and Vanadium), Hunt Oil Company, A Delaware Corporation, Sunset, North, East, West, Gravy, Glen, Dolores, E. B. and Dolorous groups of claims, San Miguel County, Colorado

Enclosed is a copy of the subject application and a copy of our letter of transmittal to the Washington office. Please discuss the application with the Atomic Energy Commission and Bureau of Mines representatives and forward to this office eight copies of your joint recommendations.

W. M. TRAVER,

W. M. Traver

Enclosures

JDC:ab

cc: Sec. Op. Comm. (2)
Harshman
Shaw (2)
Connors
Chron.
Subject

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

February 3, 1956

224 New Customhouse
Denver 2, Colorado

RECEIVED
FEB - 6 1956

Memorandum

To: J. W. Hasler

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA aid (Uranium and Vanadium), Hunt Oil Company, A Delaware Corporation, Sunset, North, East, West, Gravy, Ulen, Dolores, E. B. and Dolorous groups of claims, San Miguel County, Colorado

Enclosed is a copy of the subject application and a copy of our letter of transmittal to the Washington office. Please discuss the application with the Atomic Energy Commission and Bureau of Mines representatives and forward to this office eight copies of your joint recommendations.

W. M. TRAVER,

W. M. Traver

Enclosures

JDC:ab

cc: Sec. Op. Comm. (2)
Harshman
Shaw (2)
Connors
Chron.
Subject

DMEA
Date Rec'd.

FEB 2 1956

BUREAU OF MINES
Denver, Colorado

**HUNT OIL COMPANY**
P. O. Box 1798
Grand Junction, Colorado

January 31st, 1956

RECEIVED
FEB - 6 1956

U. S. Department of the Interior
Defense Minerals Exploration Administration
224 New Customhouse
Denver 2, Colorado

Gentlemen:

Attached please find an original and three copies of application for GOVERNMENT AID IN DEFENSE EXPLORATION PROJECTS, along with the necessary copies of mining lease and maps, attached to each copy of the application. This application is being submitted for your consideration and approval.

It was suggested in a letter dated December 5th, from 224 New Customhouse, Denver, Colorado; signed by E. N. Harshman, Acting Executive Officer, DMEA Field Team, Region III, that we include with our application a copy of the Trust Agreement held by Mr. Hoyman. Because of delay in obtaining a copy of this filed and recorded Trust Agreement from the County Courthouse at Telluride, we are unable to include it with the application, at the moment. We felt that rather than delay this application further because of this agreement, we would submit the application now and forward the Trust Agreement as soon as it is received in this office.

With kindest regards, we remain

Yours very truly,

HUNT OIL COMPANY

D. E. Hoffman

D. E. Hoffman

DEH/bb

Encls.

MF-103
(Revised April 1952)

DMEA
Date Rec'd. FEB 2 1956

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

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

BUREAU OF MINES
Denver, Colorado

# 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-4158
Metal or Mineral Uranium
Date Received 2-6-56
Estimated Cost $198,518.89
Participation (Government %)

RECEIVED
FEB 6 1956

## 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: Hunt Oil Company, a Delaware Corporation.
700 Mercantile Bank Building
Dallas, Texas

(*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 attached Schedule No. 1)

(*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 attached Schedule No. 2

(*b*) State any mine name by which the property is known. None

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

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

(*e*) If you own the land, describe any liens or encumbrances on it

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. (Included with Schedule No. 2 in 3 above.)

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. (see attached Schedule No 3)

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

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

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

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

# HUNT OIL COMPANY

RECEIVED
FEB - 6 1956

Schedule No. 1

1.
(c)

H. L. Hunt-President
700 Mercantile Bank Bldg.,
Dallas, Texas

Sidney Latham-Vice President
c/o Hunt Oil Company
700 Mercantile Bank Bldg.,
Dallas, Texas

Roy Lee-Secretary-Treasurer
c/o Hunt Oil Company
700 Mercantile Bank Bldg.,
Dallas, Texas

# HUNT OIL COMPANY

Schedule No. 2

3. Applicant's property rights.

(a) Claims are located in SW corner of T 44N, R 18W, Sections 20, 21, 27, 28, 29, 32, 33, 34, and 36, and claims located in the NW corner of T 43N, R 18W, Sections 2,3, 10, and 11, San Miguel County, Colorado as follows:

| | | (Book) | (Page) |
|---|---|---|---|
| Sunset group | Nos. 1-22 inc. | 227 | 244-267 inc. |
| West group | Nos. 1-38 inc. | 225 | 681-718 inc. |
| Gravy group | Nos. 1-6 inc. | 224 | 54-58 inc. |
| Gravy group | Nos. 7-12 inc. | 224 | 393-398 inc. |
| Glen group | Nos. 1-10 inc. | 227 | 234-243 inc. |
| North group | Nos. 1-33 inc. | 225<br>224 | 719-751 inc.<br>112-162 inc. |
| Dolores group | Nos. 1-68 inc. | 224 | 112-162 inc.<br>185-201 inc. |
| E. B. group | Nos. 1-6 inc. | 224 | 49-53 inc. & 110 |
| Dolorous group | Nos. 1-6 inc. | 224 | 387-392 inc. |
| East group | Nos. 1-36 inc. | 227 | 268-303 inc. |

Note:

The following claims are staked on Government withdrawn land and invalid.

1- West No. 1-3 inc.
2- West No. 12-14 inc.
3- West No. 15-17 inc.
4- West No. 36-38 inc.

# HUNT OIL COMPANY

Schedule No. 3

RECEIVED
FEB - 6 1956

4. Physical Description.

(a) Past exploration.

(1) Primary drilling program.

In January of 1954 a drilling program was initiated on the Hoyman-Wilmoth et al Lease to evaluate the Salt Wash member of the lower Morrison formation. A total of 8,635 feet were drilled with an average depth of approximately 865 feet. The maximum depth attained was 942 feet on D-3A and the shallowest was 590 feet on D-5 located in the Joe Davis Canyon. Of these ten holes drilled, five were ore holes, three were mineralized, and two were barren. D-1 located in Dolores No. 39 was drilled in the southern part of the project area and not deep enough to penetrate the Salt Wash sand member. With the exception of drill holes No. D-8, D-9, and D-10, no effort was made to offset ore holes and spacing was wide being of the order of plus 600 feet. No definite ore trend was established but one ore zone was blocked out in West claim No. 18. Cores were taken on all holes drilled into the Salt Wash member.

10 holes

(2) Secondary Drill Program.

Starting in June of 1955, five holes were drilled for a total of 4,764 feet or an average depth of approximately 952 feet. The deepest hole was 1,002 feet located in West No. 27 and the shallowest was 830 feet in West No. 18. Of these five holes drilled one was an ore hole, three showed mineralization, and one was barren. D-14, the barren hole, was in a favorable sand; however, only one hole was an offset to an ore hole, D-11, and the other holes drilled were on wide spacings in excess of 700 feet. Cores were obtained from all holes through the prospective mineralized zones.

5 holes

All drilling for the Hunt Oil Company in this area was done by Sprague & Henwood Drilling Company of Grand Junction, Colorado.

(3) U.S.G.S. Drilling Program.

49 holes

The United States Geological Survey has conducted an extensive drilling program in this area and has disclosed mineralization over a wide area of this project. To date the U.S.G.S. has drilled 49 holes on the Hoyman-Wilmoth et al Lease and these hole numbers are preceded by the "DV" designation on the accompanying drill map. Approximately 14% of the holes

drilled by the U.S.G.S. were designated as ore holes. Most of this drilling program was conducted as wide spaced drilling with the exception of the area around DV-9 located in West claim No. 18.

(4) Interest in Operations.

The area of the Hoyman-Wilmoth Lease embraces an area of 231 claims less 12 claims staked on Government withdrawn land at the extreme west portion of the area which are invalid, or approximately 4,480 acres and much of this area shows favorable mineralization from holes drilled to date. U.S.G.S. drill hole DV-9 has 5½ feet of ore and several others such as DV-8, DV-81, DV-91, DV-97, and DV-112A had 2 feet or better of ore. Although no definite ore trends were outlined it is reasonable to expect that there are several ore trends crossing this project or either it is an area of broad mineralization. There are several producing mines adjacent to this area on the west and it can be expected that these ore bodies will trend in an easterly-westerly direction across this project, which is characteristic of the Salt Wash member.

Drilling done to date has indicated a high percentage of ore holes; 14% on U.S.G.S. drilling and 33% on drilling done by the Hunt Oil Company. However, several of the holes drilled by Hunt Oil Company were offsets to DV-9 and cannot be classed as exploratory drill holes.

Additional drilling done by the U.S.G.S. has indicated a favorable hole drilled in West No. 37 and another west of Gravy No. 1 in the Joe Davis Canyon.

(b) production and reserves.

(1)
No production has come from this property.

(2)
No ore has been definitely blocked out with the exception of drill hole DV-9 and this is mostly conjecture. On the basis of an average thickness of 1.9 feet in this vicinity, it is reasonable to expect there would be approximately 3,900 tons of ore without further extensions.

(3)
Calculating reserves on the basis of ore on a 25 foot radius around each ore hole and excluding mineralized holes, ore reserves could be conservatively figured at about 6,800 tons including the ore in the vicinity of drill hole DV-9.

(c) Geology.

(1) Physiography.

The Hoyman-Wilmoth et al Lease is located in San Miguel County, Colorado in the SW corner of Township 44 North and the NW corner of Township 43 North, Range 18 West. The south and west boundries are generally determined by the Canyon of the Dolores River and the north boundary is outlined by the Burro Canyon. The 12 claims comprising the West Group of claims are on withdrawn government land and are indicated on the map. The area of the claims is in the center of NW end of Disappointment Valley and the claims are on a gently undulating surface with the exception of the claims in the Joe Davis Canyon. Relief over a given area should not exceed 200 feet and most areas are readily accessible.

(2) Regional Geology.

The area of the lease block is located in the NW center of the NW-SE trending syncline and dips are gently NE. This is a region of alternating NW-SE trending anticlines and synclines which are often disrupted by high angle normal faults which generally strike NW-SE. Faulting in the vicinity of anticlines has often produced pronounced grabens, along the axis. The area is bordered on the SW side by the Dolores Anticline and on the NE by the Big Gypsum Valley Anticline.

(3) Stratigraphy.

The surface of the lease area consists of Cretaceous shales and sandstones. The East Group of claims in Section 36, Township 44 North and part of the Dolores Group in Section 2, Township 43 North are on the Mancos Shale and the balance of the claims are either Dakota SS or Burro Canyon of lower Cretaceous age. The Dakota SS has been partially eroded away in most areas and generally averages about 50 feet. The Burro Canyon varies in thickness from 90 to 230 feet. Most of the canyons of the Dolores River are mainly composed of the Brushy Basin and Salt Wash members of the Morrison formation which is Upper Jurrasic in age. The thickness of the Morrison formation is approximately 720 feet. The Salt Wash sandstone member which is the prospective mineralized zone varies in thickness from 28 to 270 feet and is located near the top of the section. The Salt Wash thickens to the west, but thins to the south and intertongues with the Recapture member in New Mexico. This zone of the Salt Wash is the sandstone and mudstone facies in which most of the channel type uranium ore bodies have been discovered. This sandstone member is fine to medium grained, is usually crossbedded, ripple marked, and lenticular in planiform.

Sand lenses indicate deposition occurred as scour and fill channels under fluvial conditions. Drilling on this project indicates that the sandstone member varies from 22 feet at DV-27 to 105 feet at DV-42 and the average being about 64 feet over the entire area. Sandstones are generally discontinuous and grade laterally into shales and mudstones. Several ore holes indicated approximately 3 feet of altered green mudstone immediately underlying the ore sands which is one of the important indications in locating Morrison ore. Other favorable indications are limonite stain, a high carbon content and considerable woody material.

Approximately 100 feet of the Summerville formation of the San Rafael group is exposed along the Dolores River.

(4) Mineralogy.

The uranium minerals found in this area are the typical uranyl vanadates of the Salt Wash member which is predominantly carnotite but contains some Tyuyamunite. This area generally carries a high percentage of vanadium oxide which is usually coincident with favorable uranium oxide content in the Salt Wash member and is probably the factor which decreases the solubility of the carnotite in the presence of circulating ground waters. Several of the drill holes with good V205 were Dv-82 with 3.40%, DV-81 with 1.97%, and DV-112A with 2.68%. As there were not many chemical assays run it is expected that the vanadium oxide content will be high in this area. Most of the mineral zones are elongate, sharply dipping, rolls which are often more than 100 feet and generally trend in a NW-SE direction in groups of several ore bodies.

(5) Reasons for requesting additional exploration.

Exploration completed to date has disclosed a high percentage of mineralized holes on wide spacing over a large area of the project but no ore trends have been defined. Considerable additional drilling will be required to properly evaluate this project. U.S.V. is presently opening a mine shaft in an ore trend on the north side of Burro Canyon and this trend which is almost certain to extend into the project, should be drilled. Additional drilling would be planned to offset mineralized holes in an attempt to establish and define several possible trends in the area. As stated previously, U.S.G.S. drilling has revealed two ore holes in proximity to the project; the one hole being in West No. 37 and the other 500 feet west of Gravy No. 1.

(d( Accessibility.

(1) The claims are readily accessible from

Colorado State Highway No. 80 which traverses the area in a northwest-southeast direction and from access roads previously constructed by the U.S.G.S. and the Hunt Oil Company. These roads are in a good state of repair and the only extensive dozer work which would be required is in the Joe Davis Canyon. Most of the area is on a gentle undulating surface which can be traversed without roads.

(2) Shipping points: The mills located at Monticello, Utah and Uravan, Colorado are approximately 47 miles from the project area. However, the Monticello mill would traverse approximately 22 miles of improved highway whereas only 8 miles would be on improved highways to Uravan.

Supplies are available at Monticello, Utah, Naturita, Colorado and Grand Junction, Colorado.

Resident facilities are available at Monticello, Utah and Dove Creek, Colorado.

(e) Logistics (availability of manpower,materials, supplies, etc.)

(1) Experienced manpower is readily available. Hunt Oil Company can furnish one geologist to do logging and probing on a full time basis and two if necessary, plus adequate supervisory assistance. R. W. Patenaude, geologist for Hunt Oil Company, did the original work on this project and is familiar with the geology, drilling, and other problems encountered.

It would be planned to set this up on a contract drilling basis as several drilling companies have the necessary equipment and experience in this immediate area. To date Sprague & Henwood, Inc., Grand Junction, Colorado and Joy Mfg. Company, Salt Lake City, Utah have done all of the drilling for both the U.S.G.S. and Hunt Oil Company and the past costs can be used in setting up an equitable figure for future drilling.

(2) Materials, supplies, equipment, etc:

Available at Monticello, Utah and Grand Junction, Colorado,

(3) Water.

Available from the Dolores River and is no greater distance than four miles from any part of the project area.

(4) Power.

None available in the area.

5. The Exploration Project.

(a) See application.

(b) Proposed work. (See attached map)

(1) Phase 1

The plan is to offset ore holes with four holes each on a radius of 200 feet. This would require offsets to DV-91 in Gravy No. 12, the holes approximately 1,000 feet in depth; DV-97 in Dolores No. 19, the holes approximately 920 feet in depth and DV-112A in North No. 15, the holes approximately 1,150 feet in depth. Six holes were also proposed in West group No's 35, 34, 33, and 32 on an indicated ore trend established by USV on the north side of Burro Canyon the depth to approximately 900 feet. Four holes were proposed in Gravy claims No's 1 and 2 to offset a USGS ore hole west of Gravy No. 1 and DV-28. This drilling would be approximately 550 feet in depth.

The initial phase would propose a total of 22 holes to be drilled for a total footage of approximately 20,000 feet. It is expected that a minimum of 25% of the holes will be ore holes or show favorable mineralization.

22,000?

(2) Phase 2

It is proposed that Stage No. 2 be set up to offset each ore hole with four offsets on a 100 foot radius. This would require offsetting the holes originally offset on the initial phase with four holes each; DV-91, DV-97, and DV-112A. As stated, at least 25% of the initial phase drilling or 6 holes are expected to be ore holes or 24 additional offsets for a total of 36 holes to be drilled. It is expected that hole depths will average approximately 980 feet in depth for a total of approximately 36,000 feet under the second phase of drilling.

It is planned to conduct this proposed drilling program with a minimum of eight rotary drilling rigs, each capable of drilling a minimum of 1,000 feet per month.

The initial and secondary phases of this proposed exploration program were set up after consultation with the USGS personnel familiar with the project area.

# HUNT OIL COMPANY

## Phase #1

22 holes to be drilled on 200 ft. radius from ore holes.

-Breakdown of holes with estimated depth-

| | | |
|---|---|---|
| 6 holes east of USV | to 900 ft. | 5400 ft. |
| 4 holes east of DV-93 | to 550 ft. | 2200 ft. |
| 4 holes around DV-91 | to 1000 ft. | 4000 ft. |
| 4 holes around DV-97 | to 920 ft. | 3680 ft. |
| 4 holes around DV-112A | to 1150 ft. | 4600 ft. |

Total footage Phase #1.....19,880 ft.

## Phase #2

36 holes estimated to be drilled on 100 ft. radius from ore holes.

-Breakdown of holes with estimated depth-

| | | |
|---|---|---|
| 4 holes around DV-91 | to 1000 ft. | 4000 ft. |
| 4 holes around DV-97 | to 920 ft. | 3680 ft. |
| 4 holes around DV-112A | to 1150 ft. | 4600 ft. |
| 24 holes estimated, at 100 ft. offsets to ore holes, average depth 980 ft. (based on 25% of holes drilled on Phase #1 being ore holes.) | | 23,520 ft. |

Total footage Phase #2.....35,800 ft.

Total footage Phase #1 and #2.....55,680 ft.

(c) Refer to application.

(d) Operating experience.

The Hunt Oil Company has been operating on the Colorado Plateau and adjacent areas in a search for uranium, both by air and ground prospecting, since December of 1952. We commenced exploration by drilling in December of 1953 and have had drilling operations under way almost constantly since then. The number of drills in exploration at various times has varied considerable but to date we have drilled in excess of 100,000 feet, both core, non core and wagon drilling. The major portion of this footage has been done with the rotary type drill suitable for core sampling, which is the type of equipment that will be used on the project covered by this application.

This amount of drilling over a two year period has of course given us considerable experience in various areas on the Plateau, both in the methods of drilling and the gathering and compiling of information obtained from the various projects. Approximately 12,500 feet of the drilling mentioned above has been accomplished on the area covered by this application. For this reason we are quite familiar with the problems involved in drilling and the logging of holes to obtain the necessary information. In addition to this we have kept close contact with the U. S. Geological Survey during the process of their exploration and have of course, obtained considerable information which will be beneficial to us in additional exploration in the area.

We have two geologists on our staff who will probably divide the responsibility of supervising this operation should our request for loan be granted. These men are Robert Patenaude and Donald Manke, both competent and qualified geologists. Mr. Patenaude has been with us since October of 1953 and Mr. Manke since February of 1955. Mr. Patenaude has had experience supervising core drilling on the east slope of the La Sal Mountains, also he supervised a portion of the drilling that has previously been accomplished on the area covered by this application. He is not only familiar with the procedure and problems involved but has had first hand experience in the area. Because of his experience and knowledge obtained during his term of employment with us we feel that he is well qualified to handle the supervision of a project such as this.

During the time Mr. Manke has been employed by us, he has handled two drilling programs in a most able and satisfactory manner. He is careful to obtain correct information and most thorough in accomplishing any task assigned to him. From his past performance we do not hesitate to state

that we feel he will be well qualified to carry out his portion of the supervision of this project.

Our field office was established in Grand Junction for the purpose of supervising our uranium activities. Sufficient experience has been obtained over the past three years to carry out the details involved in an exploration program of this type. The Hunt Oil Company as a whole, has been engaged in the exploration for oil and other natural resources for many years and the entire staff is accustomed to directing exploration programs similar to this.

6. Estimate of Costs.

| ITEM | FUNCTION | RATE | AMOUNT | TOTAL |
|---|---|---|---|---|
| (a) Independent Contracts: | | | | |
| Bulldozer..... | Building road and drill sites | $12.00 per hr. | 5 days.. | $480.00 |
| | | plus moving..... | | $100.00 |
| | | chg. estimate | | $ 580.00 |
| Drilling Estimate: | | | | |
| | Non-Core Drilling | | | |
| | 0 to 500', 28,880' | @ 2.50..... | | $72,000.00 |
| | 500' to 750', 13,500' | @ 3.25..... | | $43,875.00 |
| | 750' to 1000', 7,180' | @ 4.25..... | | $30,515.00 |
| | Core Drilling | | | |
| | 500' to 750', 400' | @ 5.00..... | | $ 2,000.00 |
| | 750' to 1000', 4600' | @ 6.00..... | | $27,600.00 |
| | 1000' to 1250', 1200' | @ 7.50..... | | $ 9,000.00 |
| Estimated delay time 100 hrs. | | @ $12.00..... | | $ 1,200.00 |
| | Total estimated drilling cost..... | | | $186,190.00 |
| (b) Labor, Supervision, Consultants: | | | | |
| Supervisory (office) Includes traveling and field expenses..... | | $250.00 | 8 mons | $ 2,000.00 |
| Geologist (Supervising Project) Includes traveling and field expenses... | | $580.00 per mon. | 8 mons | $ 4,640.00 |
| Rodman for surveying. Includes traveling and field expenses.... | | $1.65 per hr. | 80 hrs. | $ 132.00 |
| (c) Operating materials and supplies..... | | | | none |
| (d) Operating equipment: | | | | |
| Pickup truck (owned) | transportation (includes gas and oil) | $10.00 per da. | 160 days | $ 1,600.00 |

(continued) **HUNT OIL COMPANY**

| ITEM | FUNCTION | RATE | AMOUNT | TOTAL |
|---|---|---|---|---|
| Hole probe... (owned) | Geiger counter, probe & Esterline-Angus Recorder | $3.67 per da. | 67 holes | $ 245.89 |

(e) Rehabilitation and repairs..... none

(f) New buildings, improvements, installations..... none

(g) Miscellaneous:

| | | | |
|---|---|---|---|
| Core boxes..... | $1.50 per box | 335 boxes | $ 502.50 |
| Assays..... | $5.00 per sample | 50 samples | $ 250.00 |
| Office records and accounting..... | $100.00 per month | 8 months | $ 800.00 |
| Drafting..... | $ 25.00 per month | 8 months | $ 200.00 |
| Typing..... | $ 12.00 per day | 20 days | $ 240.00 |
| Reproduction..... | $ 10.00 per month | 8 months | $ 80.00 |
| Workman's Compensation and Liability Insurance..... | | 8 months | $ 16.90 |
| Payroll tax..... | | 8 months | $ 96.64 |
| Unemployment Insurance..... | | 8 months | $ 144.96 |

(h) Contingencies:

| | | | |
|---|---|---|---|
| Allowance for unforeseen expenses..... | $100.00 per month | 8 months | $ 800.00 |

Total Expense of Project..... $198,518.89

# HUNT OIL COMPANY

Drilling done by Hunt Oil Company on Hoyman-Wilmouth et al Lease in San Miguel County, Colorado

| Hole No. | Claim | Depth | Remarks | Description |
|---|---|---|---|---|
| D-1 | Dolores No. 39 | 278' | Unfavorable | |
| D-2 | Dolores No. 22 | 841' | " | |
| D-3 | West No. 31 | 887.7-888.9 (1.2') | Favorable | .022% U308 |
| | | 879.5-880.3 (0.8') | " | |
| D-4 | West No. 21 | 873' | " | Slightly mineralized. |
| D-5 | Gravy No. 3 | 555-558' (3.0') | " | " " |
| D-6 | West No. 10 | 856' | " | 1.0' of .16% U308 |
| D-7 | West No. 18 | 796.4-796.8 (0.4') | " | .03% U308 |
| | | 810.0-811.0 (1.0') | " | .02% U308 |
| D-8 | West No. 18 | 792.5-794.5 (2.0') | " | .12% U308<br>2.63% V205 |
| D-9 | West No. 17 | 793.2-794.3 (1.1') | " | .64% U308 |
| | | 798.4-799.5 (0.9') | " | .03% U308 |
| D-10 | West No. 18 | 826.0-828.0 (2.0') | " | Slightly mineralized. |
| D-11 | West No. 18 | 830' | " | " " |
| D-12 | West No. 29 | 854.5-855.2 (0.7') | " | .13% U308 |
| | | 898.0-898.6 (0.6') | " | .025% " |
| | | 941.0-941.8 (0.8') | " | .034% " |
| D-13 | Glen No. 6 | 909.4-910.3 (0.9') | " | .010% " |
| | | 938.5-939.4 (0.9') | " | .010% " |
| | | 978.5-979.3 (0.8') | " | .024% " |
| D-14 | Sunset No. 6 | 935.0-986.0 (51.0') | Semi-fav. | Good sand but no count. |
| D-15 | West No. 30 | 869.8-870.9 (1.1') | Favorable | .010% U308 |
| | | 924.0-925.1 (1.1') | " | .013% " |
| | | 931.4-932.1 (0.7') | " | .10% " |
| | | 932.1-933.2 (1.1') | " | .025% " |
| | | 933.2-934.6 (1.4') | " | .010% " |
| | | 953.1-954.1 (1.0') | " | .005% " |

FEB - 6 1956

No. 109697 Date: January 18, 1954 Time: 11:15 A. M.

Charles C. Carriere
Recorder

# MINING LEASE

THIS AGREEMENT, Made and entered into this 16th day of November, 1953, by and between HERBERT SELLARD, ED F. KRAUS, E. B. BLAIR, G. L. WILMOTH, JOHN F. HOYMAN and GEORGE T. McCALL, hereinafter referred to as Lessor (whether one or more), and the HUNT OIL COMPANY, hereinafter referred to as Lessee.

WITNESSETH:

That the Lessor, for and in consideration of Six Thousand Five Hundred Dollars ($6500.00) cash in hand paid, the receipt of which is hereby acknowledged, and of the covenants and agreements hereinafter contained, has demised, leased and let, and by these presents does demise, lease and let exclusively unto the said Lessee, its successors or assigns, the hereinafter described land with the exclusive right and privilege to explore for, develop, mine, extract, and remove from the alluvium soil or earth, or any sedimentary formation or rocks, or instrusive or igneous dike, vein or fissure and dispose of all the uranium, thorium, and any other fissionable material together with vanadium, manganese and non-fissionable materials associated with fissionable materials, and all other minerals except oil and gas, together with such rights of ingress and egress and the right to erect and use such structures as are necessary for Lessee to enjoy the rights and privileges granted hereby, and any and all other rights and privileges necessary, incident to, or convenient for operations hereunder, said land being situated in the lower San Miguel Mining District, County of San Miguel, State of Colorado, and more particularly described as follows:

Claims

| | | |
|---|---|---|
| (1-68) | Dolores | 1 through 68 |
| (69-74) | Dolorous | 1 through 6 |
| (75-80) | E. B. | 1 through 6 |
| (81-116) | East | 1 through 36 |
| (117-128) | Gravy | 1 through 12 |
| (129-161) | North | 1 through 33 |
| (162-199) | West | 1 through 38 |
| (200-209) | Glen | 1 through 10 |
| (210-231) | Sunset | 1 through 22 |

It is the intention hereof to describe and to cover and include and the Lessor does hereby lease not only the above described land but also all lands owned or claimed by the Lessor and located in said survey or adjoining surveys, and adjoining the herein specifically described land up to the boundaries of the abutting landowners. The land herein leased is leased in gross and the cash bonus payment is a gross consideration for this lease. It is understood that in the event the Lessee should acquire mining interest in properties within 1000 feet of the exterior boundary lines of the said claims, the benefits of said interest shall inure to the benefit of the Lessor on the basis of royalty payments, as hereinafter set forth.

1. Subject to the other provisions herein contained, this lease shall be for a term of 10 years from the date hereof and so long thereafter as any minerals covered hereby shall be mined and marketed or Lessee is conducting mining operations in a manner consistent with good and economical mining practices. Notwithstanding anything to the contrary herein contained, if the United States of America, or its duly authorized buyers or representatives shall suspend buying of uranium, thorium and any other fissionable material for a period of time, and there is no other market, this lease shall not expire during such period of suspended buying and shall not be subject to cancellation by the Lessor during such period.

2. A royalty of 12½% as to uranium, thorium, and any other fissionable material together with vanadium, manganese, and non-fissionable materials associated with fissionable materials, determined by the uranium (U308) assays of the ores, shall be paid to the Lessor with respect to ores containing the above named minerals mined and marketed by Lessee from the lands covered by this lease.

Lessor shall be paid the foregoing applicable royalty percentages of the net mill return, including bonus payments and premiums, but excluding allowances for transportation and development, as paid by the Atomic Energy Commission or other Government authorized agency or mill, or, in the absence thereof, at the current field market price, for all crude ores, as to the minerals enumerated above in this paragraph, mined and marketed each month by Lessee from the lands covered hereby, the mineral content of which is owned by Lessor.

As to all other minerals mined hereunder, Lessor shall be paid twelve and one-half percent (12½) of the current field market price of crude ore mined and marketed each month by Lessee.

If Lessor owns less than the entire and undivided fee simple estate to the mineral content thereof the royalties herein provided shall be paid to Lessor only in the proportion which Lessor's interest bears to the entire undivided fee.

A copy of the various settlement sheets shall be furnished to Lessor.

Payment of royalties shall be made by depositing them to the account of John F. Hoyman, Trustee, in the San Miguel Basin State Bank in Norwood, Colorado.

3. All ores mined during the term of this lease which, in the opinion of Lessee, are of too low a grade or quality for

shipment or milling during the term of this lease, shall remain the property of, and be subject to the control and disposition of Lessor after the expiration or termination of this lease.

4. Lessee shall conduct all mining operations and workings hereunder in a good and workmanlike manner and without unnecessary injury to the property of the Lessor, and shall mine and develop such area or areas as good mining practice dictates. Work shall be commenced upon said property within sixty (60) days from the date hereof; it being understood that the moving on of drilling equipment hired by the Lessee shall be considered commencement of work.

Should it become apparent that certain of said claims do not contain uranium ore in commercial quanity, by mutual agreement between the parties, said claims may be abandoned and assessment work discontinued.

5. All taxes, assessments and other burdens validly levied or asserted by any legally constituted public authority against Lessee's property and rights shall be paid in full and due solely by Lessee. Lessee shall pay, as due, all expenses, charges and liabilities connected in any manner with its operations hereunder, lienable or otherwise, and will protect Lessor and all said property from establishment of any such liability connected with such operations and property payable by Lessee. The annual assessment work shall be performed by the Lessee.

6. Lessor shall, at all reasonable times during the term hereof, have access to and may enter upon said property through its agents, servants and employees in such a manner as will not interfere with the operations of Lessee, for the purpose of inspecting same and taking samples and assays therefrom, and the Lessor shall be permitted to inspect the cores taken from the

said property and may inspect the logs kept by the Lessee. It is understood and agreed, however, that such right is to be enjoyed and all such entries made at its or their own risk and Lessor assumes the risk of all damages that might be incurred or occasioned by any such entries or the enjoyment of such rights.

7. The rights of either party hereunder may be assigned in whole or in part and the provisions hereof shall extend to the heirs, executors, administrators, successors and assigns, but no change or division in ownership of the land or royalties, however accomplished, shall operate to enlarge the obligations or diminish the rights of Lessee. No such change or division in the ownership of the land or royalties shall be binding upon Lessee for any purpose until such person acquiring any interest has furnished Lessee, at its principal place of business, with the instrument or instruments, or certified copies thereof, constituting his chain of title from the original Lessor. Assignment of the interest of the Lessee shall be made only with the written consent of the Lessor.

8. In case of suit, adverse claim, dispute or question as to the ownership of the royalties (or some part thereof) payable under this lease, Lessee shall not be held in default in payment of such royalties (or the part thereof in doubt) until such suit, claim, dispute or question has been finally disposed of, and Lessee shall have thirty (30) days after being furnished with the original instrument or instruments disposing of such suit, claim or dispute (or a certified copy or copies thereof), or after being furnished with proof sufficient, in Lessee's opinion, to settle such question, within which to make payment. Should the rights or interest of Lessee hereunder be disputed by Lessor, or any other person, the time covered by the pendency of such dispute shall not be counted against Lessee either as affecting the term of the lease or for

any other purpose, and Lessee may suspend all payments without interest until there is a final adjudication or other determination of such dispute.

9. Upon violation of any of the covenants herein contained, and upon the part of said Lessee to be kept, paid, and performed, said Lessor may, at his option and upon written notice to said Lessee specifying the specific violation or violations complained of, and giving notice of his intention so to do, cancel and annul this lease, unless Lessee shall, within thirty (30) days after receipt of such written notice, cease such violations and pay to said Lessor all monies then due under this lease and otherwise remedy the matter or matters in which Lessee is in default. If the defaults so specified be not remedied by Lessee within thirty (30) days, this lease shall terminate absolutely.

10. Lessee shall not be liable to Lessor for any damages incurred by Lessor, as to the lands and premises herein leased and let so long as Lessee conducts operations hereunder in a reasonable and prudent manner without negligence on the part of Lessee.

11. The breach or failure to perform any of the covenants or conditions hereof on the part of the Lessee shall not be a ground for cancellation or termination or forfeiture hereof, if such breach or failure to perform is caused, or compliance is prevented by severe winter weather, explosion, unusual mining casualty, fire, flood, civil or military authority, insurrection, riots, strikes, inability after diligent effort to obtain competent workmen or material, acts of God or any other circumstance or condition beyond the control of Lessee.

12. Lessor hereby warrants and agrees to defend the title to the lands herein described, and agrees that the lessee at its

option shall have the right to redeem for Lessor, by payment, any mortgage, taxes or other liens on the above described lands, in the event of default of payment by Lessor, and be subrogated to the rights of the holder thereof. In case of payment of any such mortgage, taxes or other liens by Lessee, in addition to the right of subrogation herein granted, Lessee shall also have the right to retain any royalties which become due Lessor hereunder and to repay itself therefrom, and the retention of such royalties by Lessee shall have the same effect as if paid to the Lessor in whose behalf payment of any mortgage, taxes or other liens was made.

13. This lease shall be binding upon all who execute it, whether or not named in the body hereof as Lessor, and without regard to whether this instrument, or any copy thereof, shall be executed by any other Lessor named above.

IN WITNESS WHEREOF, this instrument is executed as of the date first above written.

Hubert Sellard (SEAL)

E. F. Kraus (SEAL)

(SEAL)

(SEAL)

(SEAL)

(SEAL)

LESSORS

HUNT OIL COMPANY INCORPORATED 1934 DELAWARE

ATTEST:

Secretary

HUNT OIL COMPANY

By (SEAL)

# AMENDMENTS TO MINING LEASE

Since it is necessary to amend the leasing agreement as originally drawn between HUBERT SELLARD, ED F. KRAUS, E. B. BLAIR, G. L. WILMOTH, JOHN F. HOYMAN and GEORGE T. McCALL, referred to as Lessor, and the HUNT OIL COMPANY, referred to as Lessee, to reflect the agreement of the parties; and, since it is considered desirable to accomplish said amendments by the drawing of a separate instrument rather than by a redrafting of the entire lease, the said lease of the following claims,

| | | |
|---|---|---|
| (1-68) | Dolores | 1 through 68 |
| (69-74) | Dolorous | 1 through 6 |
| (75-80) | E. B. | 1 through 6 |
| (81-116) | East | 1 through 36 |
| (117-128) | Gravy | 1 through 12 |
| (129-161) | North | 1 through 33 |
| (162-199) | West | 1 through 38 |
| (200-209) | Glen | 1 through 10 |
| (210-231) | Sunset | 1 through 22 |

located in the Lower San Miguel Mining District, in San Miguel County, Colorado, is amended as follows, said amendments hereby being made a part of that lease as though included therein:

1. The first sentence of Section 1 of said lease is amended to read as follows:

"Subject to the other provisions herein contained, this lease shall be for a term of 5 years from the date hereof, and so long thereafter as any minerals covered hereby shall be mined and marketed or Lessee is conducting mining operations in a manner consistent with good and economical mining practices."

2. The second paragraph of Section 4 is amended to read as follows:

"Should the Lessee determine that any claim or claims do not contain uranium ore in commercial quantity, the Lessee may, by giving thirty days notice in writing to the Lessor, return the claim or claims to the Lessor. Upon the return of any claim or claims to the Lessor, the Lessee shall be relieved of all obligations in regard thereto and shall receive no benefit therefrom."

3. An addition to the lease agreement is made as follows:

"Notwithstanding any other provision of this lease agreement, Lessee shall have the right at any time after the expiration of the first year of the term of this lease to surrender same to Lessor by giving thirty (30) days notice in writing of Lessee's intention so to do; and upon the surrender thereof all obligations of Lessee created hereby shall terminate save and except its obligation to pay any sums of money due Lessor as royalties and to protect Lessor from claims of creditors of Lessee."

IN WITNESS WHEREOF, the parties hereto have set their hands and seals this 16th day of December, 1953.

John E. Stone (SEAL)
E. A. Krause (SEAL)
Everett B. Blair (SEAL)
(SEAL)
Phil Church (SEAL)
Hubert Sellard (SEAL)
George T. McCaa (SEAL)
LESSORS

HUNT OIL COMPANY
INCORPORATED
1934
DELAWARE

ATTEST:
Secretary

HUNT OIL COMPANY
By Vice President

## CORPORATION ACKNOWLEDGMENT

THE STATE OF TEXAS §
§
COUNTY OF DALLAS §

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared Sidney Latham, Vice-President of Hunt Oil Company, known to me to be the person and officer whose name is subscribed to the foregoing instrument, and acknowledged to me that the same was the act of the said Hunt Oil Company, a corporation, and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the 16th day of December, A. D. 1953.

Welch Wright
Notary Public in and for
Dallas County, Texas

WELCH WRIGHT Notary Public
in and for Dallas County, Texas
My Commission Expires June 1, 1956

NOTARY PUBLIC COUNTY OF DALLAS, TEXAS

State of Colorado ) SS.
County of San Miguel )

I, John F. Hoyman, a notary public in and for the said County, in the State aforesaid, do hereby certify that HUBERT SEILARD, ED F. KRAUS, E.B. PLAIR, G.L. WITMOTH & GEORGE T. MC CALL, who are personally known to me as the persons whose names are subscribed to the foregoing instrument, appeared before me the 29th day of December, A.D. in person and acknowledged that they signed, sealed and delivered the said instrument of writing as their free and voluntary act, for the uses and purposes therein set forth.

Given under my hand this 29th day of December, A D. 1953.

My commission expires March 23, 1956.

JOHN F. HOYMAN NOTARY PUBLIC

John F. Hoyman
Notary Public.

State of Colorado )
San Miguel County ( ss.

I, C.C. Carriere, County Clerk and Recorder in and for San Miguel County, in the State aforesaid, do hereby certify that John F. Hoyman, who is personally known to me as the person whose name is subscribed to the foregoing lease, appeared before me this 30th day of December, 1953, and acknowledged that he signed the foregoing instrument of writing as his own free and voluntary act, for the uses and purposes therein set forth.

Given under my hand December 30, 1953.

COUNTY CLERK SEAL SAN MIGUEL COUNTY, COLORADO

Charles C Carriere
County Clerk & Recorder
San Miguel County, Colorado.
By Kirean Peterson, Deputy

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

OFFICIAL BUSINESS

KNOXVILLE, TENN. 3
JA 31 6 30PM
1956

UNITED STATES POSTAGE
1 CENT 1

Mr. George C. Selfridge, Chairman
Operating Committee — D.M.E.A.
Dept. of the Interior
Washington 25, D.C.

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEFENSE MINERALS EXPLORATION ADMINISTRATION
JUNE 1956 DOCKET 4158

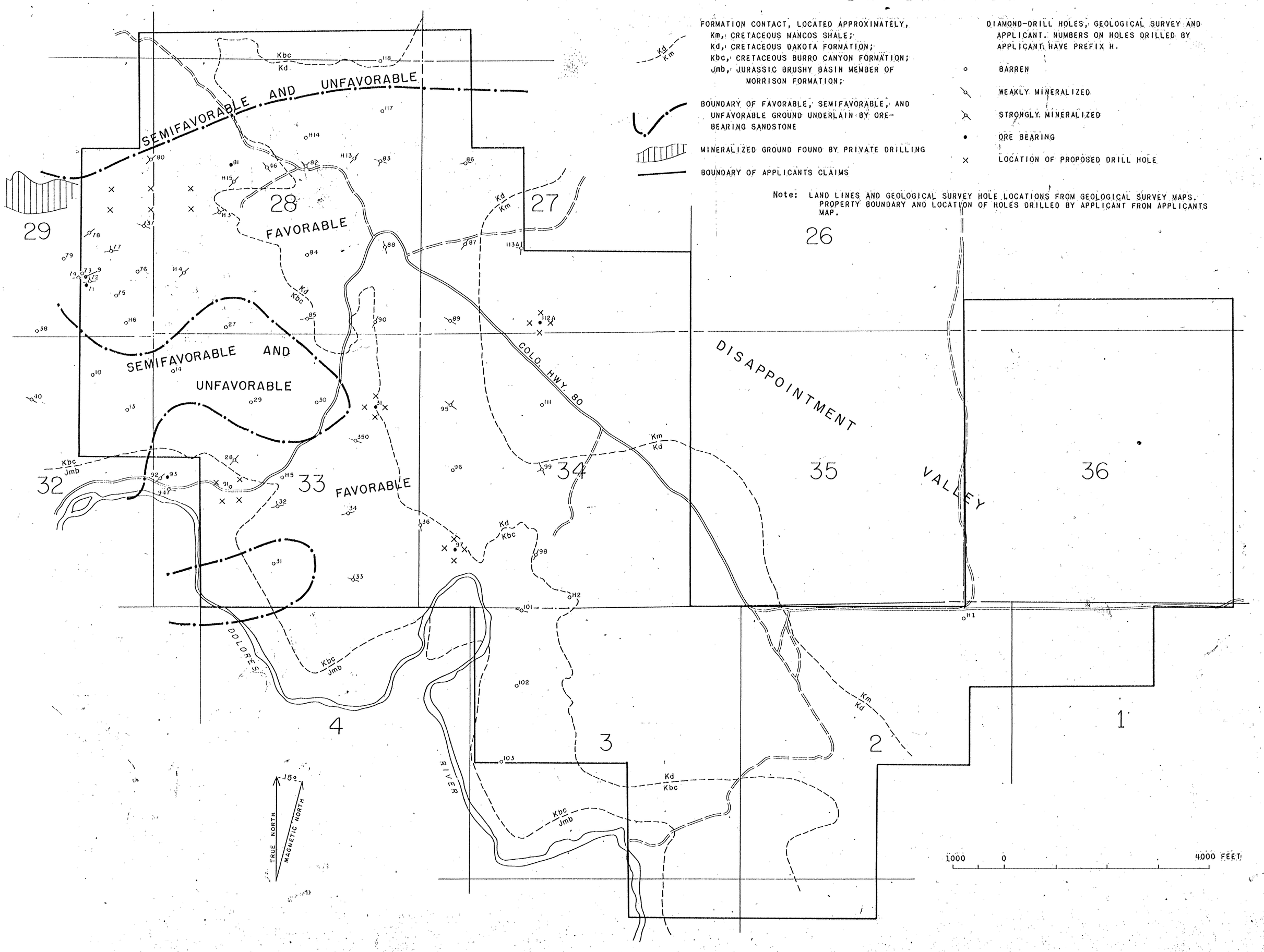
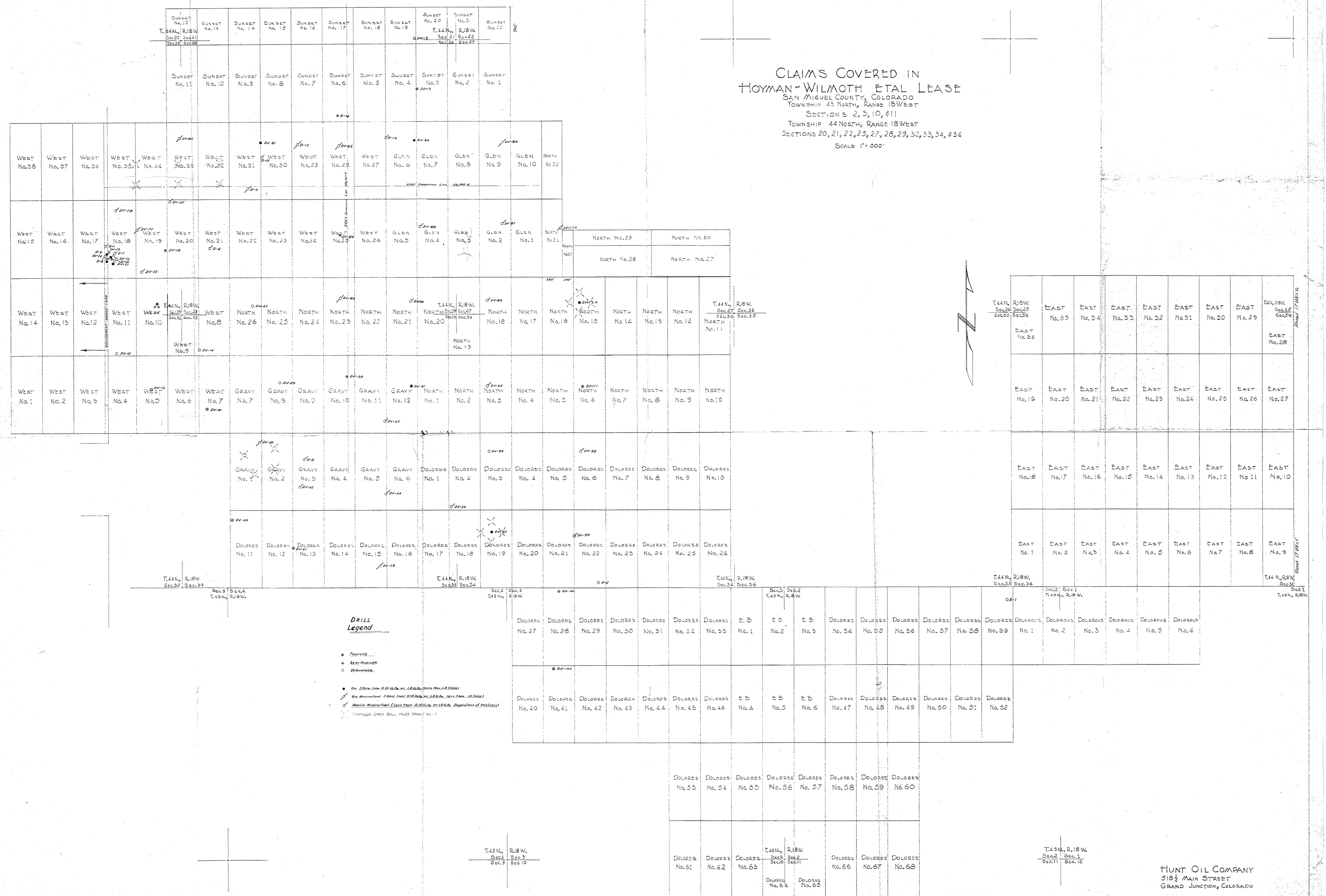



Figure 2. GEOLOGIC SKETCH MAP SHOWING THE AREA INCLUDED IN THE SUNSET (et al) GROUP OF CLAIMS, HUNT OIL COMPANY, SAN MIGUEL COUNTY, COLORADO.

# CLAIMS COVERED IN
# HOYMAN-WILMOTH ETAL LEASE

SAN MIGUEL COUNTY, COLORADO
TOWNSHIP 43 NORTH, RANGE 18 WEST
SECTIONS 2, 3, 10, & 11
TOWNSHIP 44 NORTH, RANGE 18 WEST
SECTIONS 20, 21, 22, 25, 27, 28, 29, 32, 33, 34, & 36
SCALE 1" = 500'




HUNT OIL COMPANY
518½ MAIN STREET
GRAND JUNCTION, COLORADO

DRAWN BY T.G. CROSSLEN JULY 15, 1955