DMA Form 1

DEFENSE MINERALS ADMINISTRATION
Control Slip

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DMA Docket No. 3471

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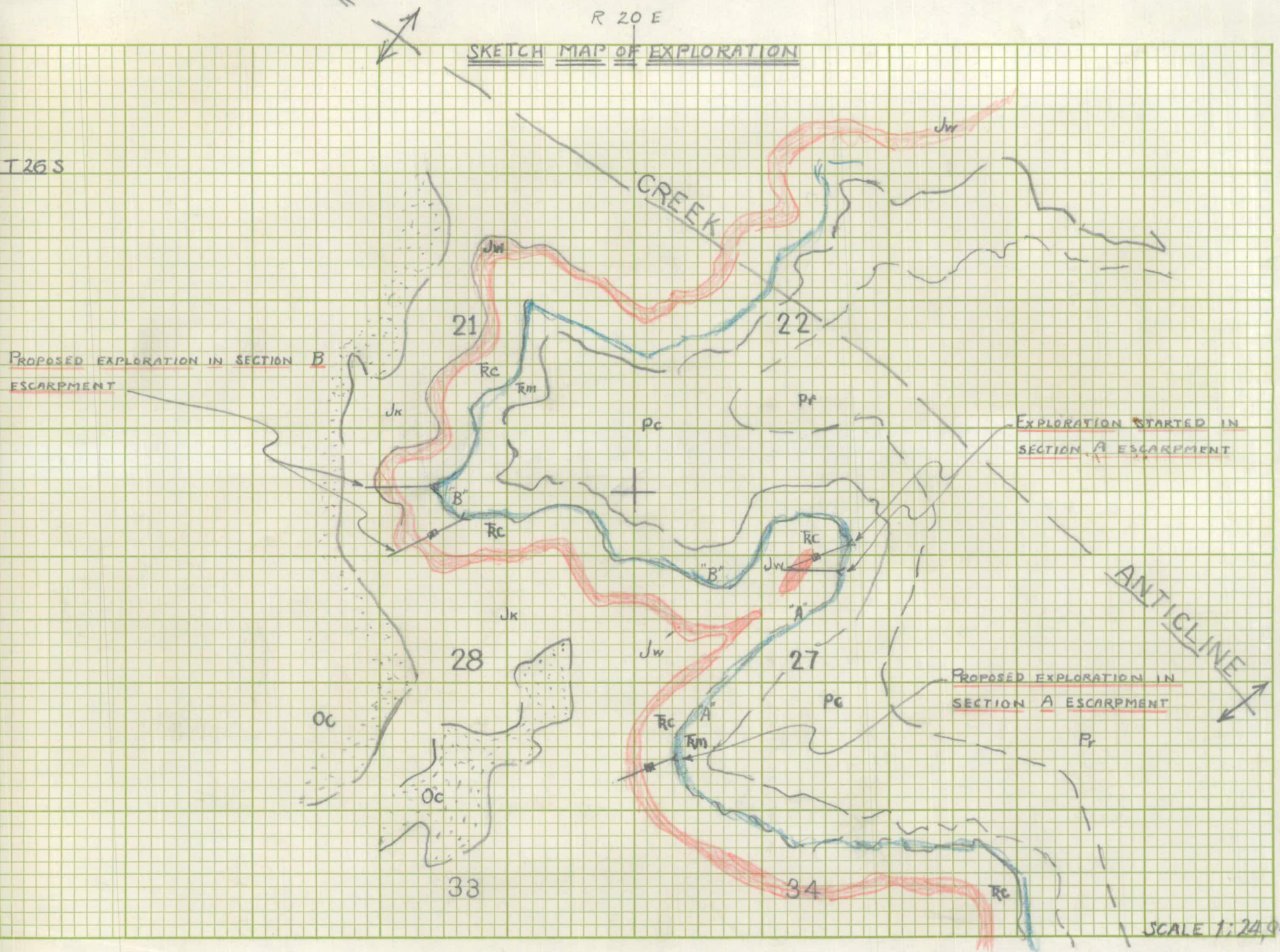

PHOTOGEOLOGIC MAP

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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. 3471
Metal or Mineral Uranium
Date Received
Estimated Cost $100,000
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: CHIEF URANIUM, LTD. Partnership State of Utah
P. O. Box 705,
MOAB, UTAH

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

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

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

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 Appendix "B"

(*b*) State any mine name by which the property is known. Claims Leased by CHIEF URANIUM, LTD.

(*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. See Appendix "C"

(*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. See Appendix "D", and Blueprint of Mining Claims

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

(*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 Uranium

(*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. See Photographic Map of Hole 15 and Sketch Map of Exploration in Big Bivouac

(*c*) The work will start within 30 days and be completed within 12 months from the date of an exploration project contract.

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

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

(*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.). See Appendix "G" Sec G (a) through G (h)

(*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.

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 August 25th, 195[illegible]

Gray Mining, Ltd.,
(Applicant)

By Harry Hand
Harry Hand, Partner

Walter Stein
Walter Stein, Partner

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.

INT.-DUP. SEC., WASH., D.C. 64941

Appendices Follow in Order as Noted on Form

Appendix "A"

Partners

General Partners:

Harry V. Hand	110 Camellia Way, San Antonio, Texas.
Nate Stein	713 Main Street, Durango, Colorado.
Joy A. McCartney	710 Alamo National Bank Building, San Antonio, Texas.

Limited Partners:

Harry V. Hand	110 Camellia Way, San Antonio, Texas.
Nate Stein	713 Main Street, Durango, Colorado.
Joy A. McCartney	710 Alamo National Bank Building, San Antonio, Texas.
Harry B. McCartney	Alice, Texas.
Warren T. Brown	448 Maple Street, Albuquerque, New Mexico.
A. S. Parks	Route 4, Box 505 E, Houston, Texas.
Art Brown	5300 Brown Way Road, Houston, Texas.

3. Applicant's property rights.-(a)

Unpatented mining property situated in Sections 27, 28, 33 and 34, in Township 26 South Range 20 East,, S.L.M., in Grand County, State of Utah.

See Appendix "D" for list of claim names, recording date, book and page numbers.

Appendix "C"

C O P Y

MINING LEASE

THIS AGREEMENT, made this 7th day of May, 1954, at Moab, Utah, by and between RICHARD M. MOHLER, ROBERT E. MOHLER, NICHOLAS MURPHY, SAMUEL R. ZIMMERMAN, EARL E. MURPHY, and MELBOURNE D. WALLACE, hereinafter called the Lessor, and HARRY V. HAND, of San Antonio, Texas, NATE STEIN of Durango, Colorado, and JOY McCARTNEY of San Antonio, Texas, hereinafter called the Lessee.

WITNESSETH, the Lessors do hereby lease to the Lessee upon terms and conditions hereinafter set forth the unpatented mining property situated in Sections 27, 28, 33 and 34, Township 26 S., Range 20 E., S.L.M., in Grand County, Utah, and consisting of the following claims:

Name of Claim	Book	Page	Date of Recording
Mile High #1	9-K	99	6/27/51
Mile High #2	9-K	99	6/27/51
Mile High #3	9-K	99	6/27/51
Mile High #4	9-K	99	6/27/51
Mile High #5	9-K	99	6/27/51
Mile High #6	9-K	100	6/27/51
Mile High #7	9-K	100	6/27/51
Mile High #8	9-K	100	6/27/51
Mile High #9	9-K	92	6/25/51
Mile High #10	9-K	92	6/25/51
Mile High #11	9-K	92	6/25/51
Mile High #12	9-K	92	6/25/51
Mile High #13	9-K	92	6/25/51
Mile High #14	9-K	93	6/25/51
Mile High #15	9-K	93	6/25/51
Mile High #16	9-K	93	6/25/51
Tank Form #1	9-K	196	8/14/51
Tank Form #2	9-K	197	8/14/51
Tank Form #3	9-K	198	8/14/51
Salty Dog #1	9-N	189	1/2/53
Salty Dog #2	9-N	190	1/2/53
Killpacker #1	9-N	183	1/2/53
Killpacker #2	9-N	184	1/2/53
Killpacker #3	9-N	185	1/2/53

Appendix "C", Copy of Mining Lease in 13 pages

C O P Y

Name of Claim	Book	Page	Date of Recording
Killpacker #4	9-N	186	1/2/53
Killpacker #5	9-N	187	1/2/53
Killpacker #6	9-N	188	1/2/53
Security #1	17	168	1/23/54
Security #2	17	169	1/23/54
Security #3	17	170	1/23/54
Security #4	17	171	1/23/54
Security #5	17	172	1/23/54
Security #6	17	173	1/23/54
Security #7	17	174	1/23/54
Security #8	17	175	1/23/54
Security #9	17	176	1/23/54
Security #10	17	177	1/23/54
Security #11	17	178	1/23/54
Security #12	17	179	1/23/54
Security #16	17	180	1/23/54
Security #17	17	181	1/23/54
Security #18	17	182	1/23/54
Security #19	17	183	1/23/54
Security #20	17	185	1/23/54
Security #21	17	186	1/23/54

TO HAVE AND TO HOLD said premises for mining purposes from the first day of May, 1954, to the thirtieth day of April, 2004, and as long thereafter as the Lessee shall continuously produce ore in commercial quantities unless sooner forfeited, cancelled, or terminated through the violation of any of the covenants, conditions herein or hereafter provided.

And in consideration of said leasing it is agreed:

LESSEE TO WORK MINES

1. Lessee agrees to enter and work said premises in mine fashion in a manner necessary to good mining so as to take out the greatest amount of ore possible, with due regard to development and preservation os said mining premises. This paragraph shall have reference to the efficiency of operation and not to the minimum quantity of ore to be produced.

TIMBERING

2. Lessee agrees to repair all old timbering wherever it may become necessary, and to well and sufficiently timber said mine and

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mining premises at all points where proper and necessary in accordance with good and safe mining.

LESSOR CAN INSPECT

3. Lessee agrees to allow the Lessor or their agent from time to time to enter upon and descend into all parts of said leased premises for the purpose of inspection, surveys or taking samples therefrom, and to render to said parties proper assistance in making such inspection, surveys or examination.

DIS-COVERIES

4. Lessee agrees to occupy and hold as the property of the Lessor all cross and parallel lodes, spurs, rolls, and mineral deposits of every kind which may be uncovered, disclosed or discovered within said leased ground by the said Lessee or any person or persons under or in privity with him, with privilege to said Lessee to work and mine the same as part and parcel of said premises during the term hereof.

LOOSE ROCK

5. Lessee agrees to keep at all times the drifts, shafts, tunnels and other workings thoroughly drained and clear of loose rock and rubbish, unless prevented by extraordinary mining casualty.

HOLD HARMLESS CLAUSE

6. The Lessee agrees to hold harmless and indemnify the Lessor and hereby does assume all responsibility in case of accident or injury to Lessee, Lessee's agents, employees, or invitees, in or about said property.

TAXES

7. The Lessee agrees to pay all taxes assessed against the said demised premises for improvements placed thereon by the Lessee. Each party shall pay a pro-rata share of all taxes assessed against the demised premises for ores mined produced, and shipped in the ratio that parties interest in the ore bears to the whole.

INDUSTRIAL ACCIDENT INSURANCE

8. Lessee agrees to take out, carry and maintain full industrial insurance with the Utah State Industrial Commission or other carrier approved by the State of Utah for any and all persons employed in or upon

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said premises by the Lessee, and to conduct all operations so as to comply fully with the laws of the State of Utah or the Federal Government relating to mining, safety regulations and in every other respect.

9. Lessee agrees that Lessee or their agent shall post notices in at least two conspicuous places at each place of entry on the mining property showing that the property is being operated by the Lessee or their agent and that all creditors must look to the said Lessee for payment of any accounts incurred after operations commenced by the Lessee and to hold harmless the Lessor from any and all claims, demands, or liabilities arising or growing out of the exploration, development and operation of said properties by the Lessee or their agent.

NON-RESPONSIBILITY NOTICES

10. Lessee agrees to adequately equip said premises within a reasonable time with necessary machinery and equipment to effectively develop and operate said premises so as to take out the greatest amount of ore possible with due regard to the preservation of the same as a workable mine. This paragraph shall have reference to the efficiency of operation and not to minimum quantity to be produced.

MACHINERY FOR EFFECTIVE DEVELOPMENT

11. Lessee agrees to pay to the Lessor, as royalty, subject to such minimum and maximum royalties as hereinafter set forth, ten (10%) per cent of the returns received from the sale of ores extracted or which may be found upon the above mentioned premises. All of said royalties to be reserved by the mills purchasing such ores, and Lessee hereby consents to the Lessor making demands upon the said mill or mills for such royalties and further consents to the payment by the said mills to the Lessor of such royalties. As used herein the term "the returns received from the sale of ore" shall be defined to mean the sums of money received by the Lessee from authorized agents of United States Atomic Energy Commission under the schedule in effect at the time of payment including the following, but not excluding any other sums of money which may be received from

ROYALTIES

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time to time for the payment of ore, to-wit (a) basis payment, (b) payment of bonus for grade, (c) development allowances, (d) a special production bonus whether designated by that name or otherwise however, any allowances for shipping or tansportation is excluded and shall be paid direct to Lessee. In the event that there is no official United States Atomic Energy Commission schedule of payments in effect, then the ores shall be sold at the highest price obtainable.

Minimum and maximum royalties shall be as follows:

(1) For the period from April 1, 1954, to April 30, 1955, a minimum royalty of the sum of twenty thousand ($20,000) dollars payable as follows: (a) five thousand ($5,000) dollars heretofore paid receipt of which is hereby acknowledged, (b) five thousand ($5,000) dollars due and payable upon completion of the survey of the property, (c) ten thousand ($10,000) dollars due and payable on April 30, 1955.

(2) For the period beginning May 1, 1955, and ending on April 30, 1963, the annual minimum royalty shall be twenty-five thousand ($25,000) dollars each year due and payable on the 30th day of April, 1956, and on the 30th day of April of each and every succeeding year thereafter to and including the 30th day of April, 1963.

(3) For the period from May 1st, 1963, to and including the 30th day of April, 2004, and as long thereafter as ore shall be produced in commercial quantities the annual minimum royalty shall be one hundred ($100) dollars.

(4) It is further provided that at such time as the total gross royalty so paid to the Lessee shall be one million ($1,000,000) dollars then and after such time the royalty shall be reduced

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to one (1%) per cent and provided further that such reduction shall occur whether said maximum royalty of one million ($1,000,000) dollars shall have been paid before or after April 30, 1963, and provided further that the said royalty of one (1%) per cent shall continue as long as the Lessee shall produce ore in commercial quantities.

(5) Royalties shall be paid when the right to payment at the mill shall have accrued. The due dates set forth in this schedule shall be the date when any existing deficiencies, in the payment of minimum royalties shall be due and payable.

SHIPPING COSTS

12. It is mutually agreed in the event that the United States Atomic Energy Commission shall discontinue or cease to pay an allowance for shipping then in that event the Lessor shall bear a Pro-rata share of the cost of transportation from the premises to the point of delivery.

DEVELOPMENT MONEY

13. The Lessee agrees to expend for actual development work on the premises, any sums allowed for that purpose by the Atomic Energy Commission and received by them and, provided further that the Lessee shall furnish upon request, a written account of the development work done and the moneys expended for such development work.

14. Said Lessee further covenants not to allow any person not in privity with the parties hereto to take or hold possession of said premises, or any part thereof, under any pretex whatever, without written permission of the Lessors.

NON-ASSIGNMENT

15. Lessee agrees not to assign this lease or any part thereof or to sublet the whole or any part of said lease premises without the written consent of the Lessor first had and obtained.

16. Lessee agrees to deliver to said Lessor quiet and peaceable possession of said premises in good condition upon the termination or

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DELIVERY

cancellation of this lease, it being agreed that all timbers and ore bins or improvements of a permanent nature attached to the premises or dumps and ore upon the premises shall become the property of Lessor provided, that the Lessee may remove all trackage, pipes, and lines placed on the premises by Lessee as well as his machinery and equipment from the premises for a period of sixty (60) days after such termination or cancellation, in the event Lessee is not indebted to the Lessor.

NOTICE TO CORRECT

17. a- It is agreed upon violation of any covenant or conditions herein set forth, at option of Lessor, the Lessor may thereupon, after thirty (30) days written notice posted at the mine entrance upon the premises and mailed to the address of the Lessee, enter and dispossess all persons occupying the premises, provided, the deficiencies complained of in said notice have not been corrected or the Lessee has not diligently carried on the process of correction work during said period when the deficiencies complained of are such that correction is untenable during said thirty (30) day period. The Lessor shall in case of such cancellation, retain all consideration theretofore received by them as liquidated damages for non-performance, as well as all improvements, dumps, and ore placed upon the premises by the Lessee.

NOTICE of CANCEL-LATION

17. b- It is agreed that full compliance by Lessee shall be a condition precedent to Lessees right of possession of premises in the event Lessee shall fail to comply with the terms and conditions of this lease, Lessor may at their option cancel and forfeit all of Lessees right under this lease and all the Lessees interest in said mining property as follows, to-wit by depositing in the United States Mails, registered and postage prepaid, a written declaration addressed to the Lessee and such written declaration when so mailed shall be conclusive proof in favor of subsequent purchasers or encumbrances in good faith for valuable consideration of such default, forfeiture and cancellation. Upon such forfeiture,

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cancellation and default, all of the rights, estates, interest hereby created in the Lessee or then existing in favor of the Lessee shall cease and become null and void and the right of possession and all equitable and legal interest in the said mining lands, mining claims and mining rights shall revert to, vest in, and become the sole property of the Lessor.

17. c- The address to which notices are to be sent are as follows:

LESSORS:

Nicholas Murphy,	Moab, Utah
Richard Mohler,	Moab, Utah
Robert Mohler,	Moab, Utah
Samuel R. Zimmerman,	14321 E. Ramona Blvd., Baldwin Park, California.

LESSEES:

Harry V. Hand,	110 Camellia Street, San Antonio, Texas.
Nate Stein,	Durango, Colorado.
Reynolds & Dixon, Attorneys,	Moab, Utah.
Joy McCartney, Attention: Hart Brown	5300 Brownway Road, Houston 19, Texas.

It is also requested that telephone or telegraphic notice be given to not less than two of other party by party giving notice.

CHANGE OF ADDRESS

17. d- It is agreed that the addresses herein set forth shall be sufficient and shall be deemed to be the addresses to which notices by either party to the other are to be sent provided further that either party may from time to time designate different or additional addresses by giving to the other party notice in writing of such change.

TIME IS ESSENCE

d 18. Time is of the essence of this agreement, and the breach of any covenant shall be a breach of a condition. Any waiver of the breach of the terms of this agreement shall not constitute a continuing waiver on the part of the Lessor.

FORCE MAJUERE

19. a- In the event of either party hereto being rendered unable wholly or in part by Force Majuere to carry out its obligations under this contract, other than to make payment of amounts due hereunder, it is agreed that the obligations of such part, so far as they are affected by such Force

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Majuere, shall be suspended during the continuance of any inability so caused, but for no longer period. Such cause shall, so far as possible be remedied with all reasonable dispatch.

19. b- The term "Force Majuere" as employed herein shall mean acts of God, strikes, lock-outs or other industrial disturbances, acts of the public, wars, blockades or insurrections, riots, epidemics, land slides, lightning, earthquakes, fires, storms, floods, washouts, arrest and restraints of rulers and peoples, including difficulty in obtaining any material, or other difficulty in carrying out the mining and development program herein set out because of government edict or regulation, civil disturbances, explosions, breakage or accident to machinery or other items within such operations and any other cause, whether of the kind herein enumerated or otherwise, not within the control of the party claiming suspension, all of which by the exercise of due dilligence such party is unable to foresee or overcome but provided, however, that the settlement of strikes or lockouts shall be entirely within the discretion of party having the difficulty and that the above requirement that any Force Majuere shall be remedied with the exercise of due diligence shall not require the settlement of strikes or lockouts by acceding to the demands of opposing party when such course is inadvisable in the discretion of the party having the difficulty.

SUSPENSION OF OPERATORS

19. c- In addition to the above, operations may be suspended by Lessee when the market for the ore produced from the premises, as determined by the prudent operators in the general district, is such that operations should be temporarily suspended. During such period the minimum royalty clause shall be suspended and the royalty limited to the percentage only provided, however that the length of time when the minimum royalty shall be suspended shall be added to the period set forth in paragraph 11 (1) and 11 (2) and ending April 30, 1963, and shall extend such period beyond April 30th, 1963, for the period of time that operations

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shall not be suspended prior to May 1st 1955, and provided further that the total cumulative period of time, whether on one or more occasions, when operations shall be suspended shall not exceed two years. It if is determined that this clause shall be unenforceable then the same shall not void the lease, and only this paragraph shall fail.

20. It is mutually agreed that in the event any dispute shall arise between the parties as to the interpretation of this agreement, or as to the effect of any paragraph, or as to any matter concerning the duties, obligation, or rights of the parties, then the matter shall be settled in the following manner, to-wit: (1) The party aggrieved shall notify in writing the other of his intent to mediate and shall within five (5) days thereafter appoint a representative, and (2) thereupon, the other party shall within ten (10) days appoint a representative, and (3) the two so appointed shall appoint a third representative thereafter the three representatives shall review the matter and the decision of any two representatives shall be binding upon both parties and such decision may be enforced in a court of law except upon a showing of fraud, deceit, collusion, or gross misjudgement.

ARBITRATION

21. During the term of this mining lease, the Lessees agree to perform all assessment work and annual labor required by Federal and State laws on the said mining claims, and shall timely file proper proofs thereof so as to protect said claims and keep the same in full force and in good standing. The Lessees may, however, at any time prior to May 1st of any year relinquish and quitclaim to the Lessors this Lease or any part thereof and the property described herein provided the Lessees be not then delinquent for royalty payments or otherwise under this Lease and thereby be relieved of all obligations thereunder to Lessor as to such portions relinquished but the Lessees shall not abandon the said properties after May 1st in any year without having given written notice to the Lessors on

ANNUAL ASSESSMENT WORK

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or before May 1st of the same year of the Lessees' intention to take such action. Relinquishment of a part or portion of the premises shall not sever or reduce the roya ties herein provided.

21. b- It is agreed that the Lessor shall have the right at any time to undertake and to patent any or all of the mining claims hereby leased and for such purpose the Lessor may claim the benefit of any work performed by the Lessee and the Lessee agrees to execute any and all documents necessary or convenient to patent said claims providing however that nothing contained in this paragraph shall obligate or require or place a duty upon the Lessor to patent any or all of the said claims.

RIGHTS TO PATENT

22. Lessees agree to make a full disclosure of all ores shipped and monies received for ores, and for such purpose permission is hereby given to Lessors to examine the books and records of the Lessee as to ore produced and sold and Lessors are also given the right and permission to call upon any or all mills or purchasers of ores to disclose payments by the said mill or purchasers to Lessee and the Lessee hereby consents to the disclosure by such mills or purchasers of said information to the Lessors or their agents and releases the said mills and purchasers from liability for such disclosure.

DISCLOSURE OF ORE SALES

23. The titles set forth in the margin of this lease are for the purpose of convenience only and shall have no import or effect upon the interpretation or meaning of this lease or any paragraph.

24. In the event it should be determined that the land covered by the above described mining claims, or any of them, should not be open to location under the United States mining laws either because (a) it is included in an offer, application, permit or lease under the Mineral Leasing Act of 1920, as amended, or (b) said lands are reserved, classified or known to be valuable for minerals leasable under that Act, then in such event, Lessor shall timely comply with the requirements of the

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Atomic Energy Commission Domestic Uranium Program, Circular 7 in applying for and securing a lease, as provided in said Circular 7, upon securing said lease and consent to assign, then Lessor shall assign said lease and the said lease shall have the same effect, as far as legally possible, as if it were included hereunder. Failure to secure said lease under Circular 7 shall not defeat or invalidate this lease agreement and in such event this lease shall remain in full force and effect.

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

LESSORS:

(Signed) Richard N. Mohler	(Signed) Ruth M. Mohler
(Signed) Robert E. Mohler	(Signed) Betty E. Mohler
(Signed) Nicholas Murphy	(Signed) Thelma Murphy
(Signed) Samuel R. Zimmerman	14321 E. Ramona Blvd. Baldwin Park, Calif.
(Signed) Melbourne D. Wallace	(Signed) Zaida M. Wallace
(Signed) Earl E. Murphy	(Signed) Vera P. Murphy

LESSEES:

(Signed) Harry V. Hand	San Antonio, Texas
(Signed) Nate Stein	Durango, Colorado
(Signed) Joy McCartney	710 Alamo National Bldg. San Antonio, Texas

C O P Y

STATE OF UTAH)
) ss
COUNTY OF GRAND)

On this 15th day of May, 1954, before me personally appeared _____ and acknowledged to me that they executed the foregoing instrument.

SEAL

(Signed) Carroll J. Meador
Notary Public

My Commission expires:

Dec. 16, 1954

Residing in: Moab, Utah

Appendix "D"

Name of Claim	Book	Page	Date of Recording
Mile High #1	9-K	99	6/27/51
Mile High #2	9-k	99	6/27/51
Mile High #3	9-K	99	6/27/51
Mile High #4	9-K	99	6/27/51
Mile High #5	9-K	99	6/27/51
Mile High #6	9-K	100	6/27/51
Mile High #7	9-K	100	6/27/51
Mile High #8	9-K	100	6/27/51
Mile High #9	9-K	92	6/27/51
Mile High #10	9-K	92	6/25/51
Mile High #11	9-K	92	6/25/51
Mile High #12	9-K	92	6/25/51
Mile High #13	9-K	92	6/25/51
Mile High #14	9-K	93	6/25/51
Mile High #15	9-K	93	6/25/51
Mile High #16	9-K	93	6/25/51
Tank Form #1	9-K	196	8/14/51
Tank Form #2	9-K	197	8/14/51
Tank Form #3	9-K	198	8/14/51
Salty Dog #1	9-N	189	1/2/53
Salty Dog #2	9-N	190	1/2/53
Kilpacker #1	9-N	183	1/2/53
Kilpacker #2	9-N	184	1/2/53
Kilpacker #3	9-N	185	1/2/53
Kilpacker #4	9-N	186	1/2/53
Kilpacker #5	9-N	187	1/2/53
Kilpacker #6	9-N	188	1/2/53
Security #1	17	168	1/23/54
Security #2	17	169	1/23/54
Security #3	17	170	1/23/54
Security #4	17	171	1/23/54
Security #5	17	172	1/23/54
Security #6	17	173	1/23/54
Security #7	17	174	1/23/54
Security #8	17	175	1/23/54
Security #9	17	176	1/23/54
Security #10	17	177	1/23/54
Security #11	17	178	1/23/54
Security #12	17	179	1/23/54
Security #16	17	180	1/23/54
Security #17	17	181	1/23/54
Security #18	17	182	1/23/54
Security #19	17	183	1/23/54
Security #20	17	185	1/23/54
Security #21	17	186	1/23/54

Appendix "E"

4. Physical description.-(a):

Accessibility:

Access road begins 3 miles Northwest on Utah State Highway 160 from Moab and proceeds downstream along the Colorado River for 19 miles, thence 3 miles of side canyon road to the Chief Uranium, Ltd., camp.

From the camp, the mine road climbs through switchbacks some 500 feet in elevation to the outcropping Shinarump formation.

Existing Mine Workings:

Three-quarters of a mile at the base of the Shinarump (see Sketch Map) drift tunnels are being driven to explore indicated uranium ore. The usual air, water, rock handling and ventilation facilities are operating to carry on these drives.

Camp Facilities:

Installations include a 12-man mess hall, two sleeping cabins, and tentage.

Camp installations include butane and water facilities.

Interest in Operations:

The following participation arrangement is in effect:

10% of gross proceeds to claim owners (Less development and haulage payments).

10% of gross proceeds divided as follows:

Harry V. Hand	2-1/2%
Nate Stein	2-1/2%
Joy McCartney	2-1/2%
Santex Mining Camp (now performing operations for Chief Uranium, Ltd., under contract)	2-1/2%

80% Chief Uranium, Ltd.

4. (b): Past and current production - none.
Ore reserves - Prospective only.

4. (c): The property is located at about the top of the Cane Creek Anticline with the bedding, in general, plunging to the Southwest. The Shinarump and Chinle are exposed along the canyon escampment for 3-1/4 miles at around 500 feet below the Mesa.

Mineralization occurs along the base of the Chinle or in the Shinarump conglomerate. Ore minerals identified are carnotite and uraninite. Many outcropping exposures indicate ore by use of the geiger counter. Lime content of the ore is rather high.

The type of deposit is a flat dipping conglomerate bed.

The reasons for wanting to explore is to develop positive, mineable reserves of uranium ore for immediate marketing.

4. (d): Accessibility of Project:

Access Roads:

Moab via Highway 160 -- 3 miles
Dirt road downstream along Colorado -- 19 miles
Side canyon road to camp -- 3 miles
Camp to mine workings -- 1-1/2 miles

Distances to Shipping:

Mine - Moab Stockpiling --------- 23 miles
Mine - Thompsons, Utah ---------- 60 miles
Mine - Monticello ---------- 83 miles

Supply and Residence Points:

Mine - Moab ---------- 26 miles

4. (e): Availability of Following:

Manpower -- adequate
Materials -- sufficient
Supplies -- sufficient
Equipment -- good supply
Water -- Spring source: 1,000 gals. per day subject to further development; Colorado River is 3 miles distant
Power -- No installation to date and no R.E.A. in vicinity

Appendix "F"

5. (d): The applicant is a partnership, members of which have extensive background in business and administration, personnel management and finance.

The operations are conducted by the Santex Mining Corporation of Deming, New Mexico, and qualified for operations in Utah and Colorado besides New Mexico. Their engineer and superintendent of mining operations is Lawrence E. Smith, graduate of Colorado School of Mines, 1931, and with some 20 years of practical operation in the field, both domestic and foreigh. All personnel of position are well experienced in the phases of mining.

Appendix "G"

6. Estimate of costs.

(a) Hereunder are submitted approximate costs based on a figure of $30.00 per foot which includes all labor, supervision, supplies and materials, general overhead and contingencies.

Cost of Road Improvements:

Access road to Camp on contract		$ 6,000
Camp to mine workings (both improvement & extension)		$ 10,000

Camp Additions & Improvements:

Buildings	$ 2,500	
Services (water, etc.)	500	$ 3,000

Exploratory Projects:

Section A:		
Drift Tunnel - 1 Northeast		
400 ft. x $30	$12,000	
Drift Tunnel - 2 Northeast		
300 ft. x $30	9,000	
Drift Tunnel - 1 Southeast		
400 ft. x $30	12,000	
Exploratory Raises & Crosscuts	10,000	
		43,000
Section B:		
Preparation (Trails, pipelines, etc.)	$10,000	
Drift Tunnel - 1 West	12,000	
Drift Tunnel - 2 West	9,000	
Exploratory Raises & Crosscuts	7,000	
		$ 38,000
Total		$100,000

6. (b): Labor, supervision, consultants.

Schedule of Pay Rates:

2 - Foreman	$ 2.25	per hour
4 - Miner	2.00	per hour
4 - Unskilled	1.50	per hour
1 - Supervision Engineer	1,000.00	per month
1 - Contract Bulldozing	10.00	per hour
1 - Cook	250.00	per month
1 - Bookkeeper-Accountant	300.00	per month

6. (c): Schedule of Operating Materials & Supplies:

Fuel	$ 400.00	per month
Explosives	400.00	" "
Messhouse Food	600.00	" "
Miscellaneous Mine Supplies	500.00	" "
Underground Support Timber & Bolts	500.00	" "
Miscellaneous Spare Parts	200.00	" "

6. (d): Schedule of Operating Equipment:

Bulldozer	$10.00	per hour	(Rental Contract)
105 cu. ft. Compressor	3.00	" "	(Owned)
250 cu. ft. Compressor	4.00	" "	
D-2 Cat, Mucker	3.00	" "	
Air Drill Equipment	1.00	" "	
Fordson Mucker	2.00	" "	
4 Vehicles	0.00		

6. (e): Rehabilitation & Repairs:

To existing installations.....$ 500.00

6. (f): Buildings, improvements, installations:

See 6 (a) - Cost Estimates).....$3,000.00

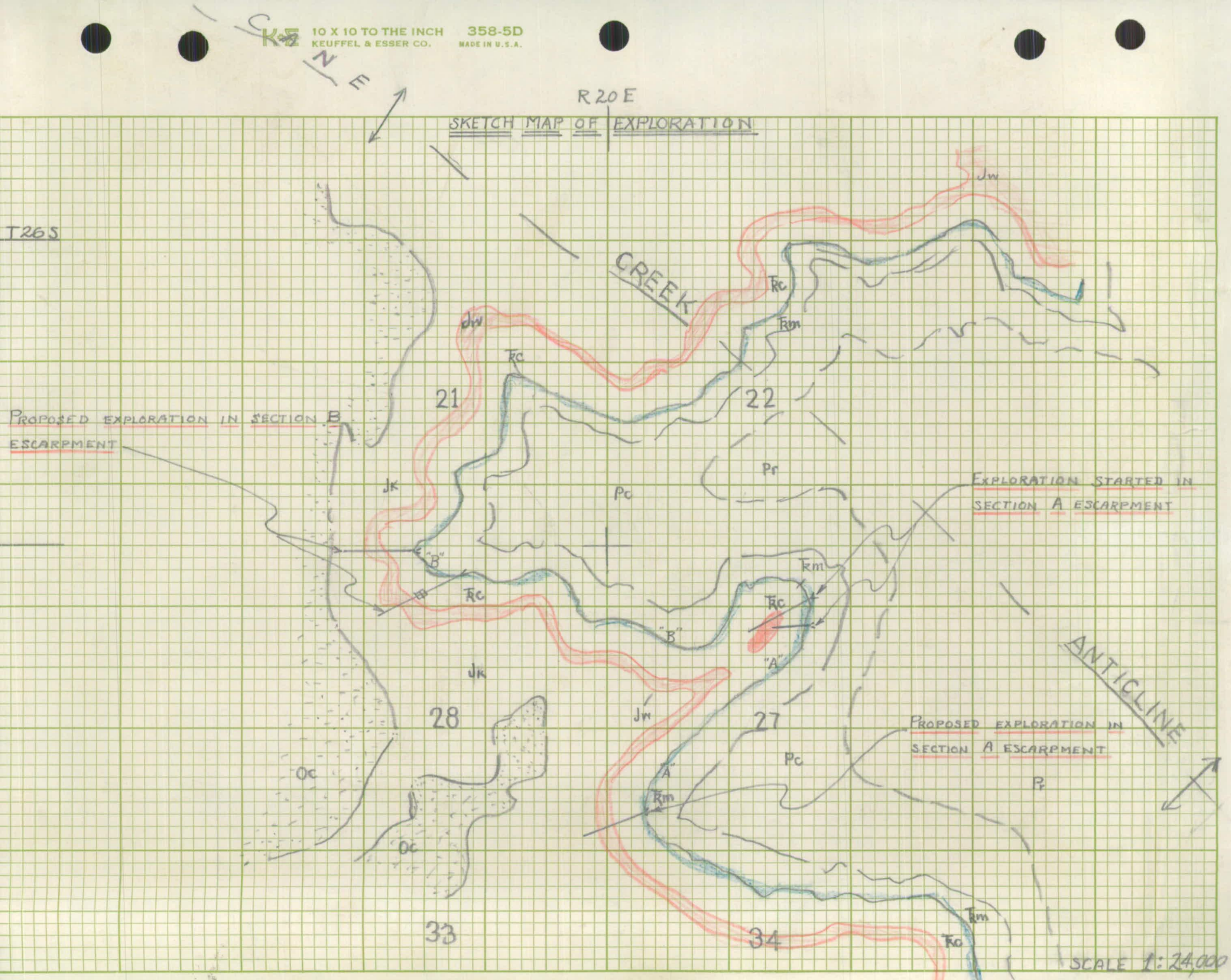
6. (g): Miscellaneous:

Workmen's Compensation & Liability Insurance. This will vary with the number of men employed and the rest of the information is contained above.

6. (h): Contingencies:

Included in 6 (a) Total.

K&E 10 X 10 TO THE INCH 358-5D
KEUFFEL & ESSER CO. MADE IN U.S.A.



MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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. 3471
Metal or Mineral Uranium
Date Received
Estimated Cost $100,000
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: [illegible]

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

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

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

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 Appendix "B"

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

(*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. See Appendix "C"

(*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. See Appendix "B" [illegible]

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 Appendix "D" [illegible]

(*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 Uranium

(*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. See Photogeologic Map of Moab 15; and Sketch map of Exploration in Map Envelope

(*c*) The work will start within 30 days and be completed within 12 months from the date of an exploration project contract.

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

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 See Appendix "G"

(*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.). See Appendix "G" fpr 6 (a) through 6 (h)

(*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.

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 August 25th, 1954

CHIEF URANIUM, LTD.,
(Applicant)

By Harry V. Hand
Harry V. Hand, Partner

Nate Stein, Partner
Nate Stein

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.

INT.-DUP. SEC., WASH., D.C. 64941

Appendixes Follow in Order as Noted on Form

Appendix "A"

Partners

General Partners:

Harry V. Hand	110 Camellia Way, San Antonio, Texas.
Nate Stein	713 Main Street, Durango, Colorado.
Joy A. McCartney	710 Alamo National Bank Building, San Antonio, Texas.

Limited Partners:

Harry V. Hand	110 Camellia Way, San Antonio, Texas.
Nate Stein	713 Main Street, Durango, Colorado.
Joy A. McCartney	710 Alamo National Bank Building, San Antonio, Texas.
Harry B. McCartney	Alice, Texas.
Warren T. Brown	448 Maple Street, Albuquerque, New Mexico.
A. S. Parks	Route 4, Box 505 E, Houston, Texas.
Art Brown	5300 Brown Way Road, Houston, Texas.

3. Applicant's property rights.-(a)

Unpatented mining property situated in Sections 27, 58 33 and 34, in Township 26 South Range 2 East., S.L.M., in Grand County, State of Utah.

See Appendix "D" for list of claim names, recording date, book and page numbers.

Appendix "C"

C O P Y

MINING LEASE

THIS AGREEMENT, made this 7th day of May, 1954, at Moab, Utah, by and between RICHARD M. MOHLER, ROBERT E. MOHLER, NICHOLAS MURPHY, SAMUEL R. ZIMMERMAN, EARL E. MURPHY, and MELBOURNE D. WALLACE, hereinafter called the Lessor, and HARRY V. HARD, of San Antonio, Texas, NATE STEIN of Durango, Colorado, and JOY McCARTNEY of San Antonio, Texas, hereinafter called the Lessee.

WITNESSETH, the Lessors do hereby lease to the Lessee upon terms and conditions hereinafter set forth the unpatented mining property situated in Sections 27, 28, 33 and 34, Township 26 S. Range 20 E., S.L.M., in Grand County, Utah, and consisting of the following claims:

Name of Claim	Book	Page	Date of Recording
Mile High #1	9-K	99	6/27/51
Mile High #2	9-K	99	6/27/51
Mile High #3	9-K	99	6/27/51
Mile High #4	9-K	99	6/27/51
Mile High #5	9-K	99	6/27/51
Mile High #6	9-K	100	6/27/51
Mile High #7	9-K	100	6/27/51
Mile High #8	9-K	100	6/27/51
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Mile High #12	9-K	92	6/25/51
Mile High #13	9-K	92	6/25/51
Mile High #14	9-K	93	6/25/51
Mile High #15	9-K	93	6/25/51
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Tank Form #3	9-K	198	8/14/51
Salty Dog #1	9-N	189	1/2/53
Salty Dog #2	9-N	190	1/2/53
Killpacker #1	9-N	183	1/2/53
Killpacker #2	9-N	184	1/2/53
Killpacker #3	9-N	185	1/2/53

Appendix "C", Copy of Mining Lease in 13 pages

C O P Y

Name of Claim	Book	Page	Date of Recording
Killpacker #4	9-N	186	1/2/53
Killpacker #5	9-N	187	1/2/53
Killpacker #6	9-N	188	1/2/53
Security #1	17	168	1/23/54
Security #2	17	169	1/23/54
Security #3	17	170	1/23/54
Security #4	17	171	1/23/54
Security #5	17	172	1/23/54
Security #6	17	173	1/23/54
Security #7	17	174	1/23/54
Security #8	17	175	1/23/54
Security #9	17	176	1/23/54
Security #10	17	177	1/23/54
Security #11	17	178	1/23/54
Security #12	17	179	1/23/54
Security #16	17	180	1/23/54
Security #17	17	181	1/23/54
Security #18	17	182	1/23/54
Security #19	17	183	1/23/54
Security #20	17	185	1/23/54
Security #21	17	186	1/23/54

TO HAVE AND TO HOLD said premises for mining purposes from the first day of May, 1954, to the thirtieth day of April, 2004, and as long thereafter as the Lessee shall continuously produce ore in commercial quantities unless sooner forfeited, cancelled, or terminated through the violation of any of the covenants, conditions herein or hereafter provided.

And in consideration of said leasing it is agreed:

LESSEE TO WORK MINES

1. Lessee agrees to enter and work said premises in mine fashion in a manner necessary to good mining so as to take out the greatest amount of ore possible, with due regard to development and preservation as said mining premises. This paragraph shall have reference to the efficiency of operation and not to the minimum quantity of ore to be produced.

TIMBERING

2. Lessee agrees to repair all old timbering wherever it may become necessary, and to well and sufficiently timber said mine and

C O P Y

mining premises at all points where proper and necessary in accordance with good and safe mining.

LESSOR CAN INSPECT

3. Lessee agrees to allow the Lessor or their agent from time to time to enter upon and descend into all parts of said leased premises for the purpose of inspection, surveys or taking samples therefrom, and to render to said parties proper assistance in making such inspection, surveys or examination.

DIS COVERIES

4. Lessee agrees to occupy and hold as the property of the Lessor all cross and parallel lodes, spurs, rolls, and mineral deposits of every kind which may be uncovered, disclosed or discovered within said leased ground by the said Lessee or any person or persons under or in privity with him, with privilege to said Lessee to work and mine the same as part and parcel of said premises during the term hereof.

LOOSE ROCK

5. Lessee agrees to keep at all times the drifts, shafts, tunnels and other workings thoroughly drained and clear of loose rock and rubbish, unless prevented by extraordinary mining casualty.

HOLD HARMLESS CLAUSE

6. The Lessee agrees to hold harmless and indemnify the Lessor and hereby does assume all responsibility in case of accident or injury to Lessee, Lessee's agents, employees, or invitees, in or about said property.

TAXES

7. The Lessee agrees to pay all taxes assessed against the said demised premises for improvements placed thereon by the Lessee. Each party shall pay a pro-rata share of all taxes assessed against the demised premises for ores mined, produced, and shipped in the ratio that parties interest in the ore bears to the whole.

INDUSTRIAL ACCIDENT INSURANCE

8. Lessee agrees to take out, carry and maintain full industrial insurance with the Utah State Industrial Commission or other carrier approved by the State of Utah for any and all persons employed in or upon

C O P Y

said premises by the Lessee and to conduct all operations so as to comply fully with the laws of the State of Utah or the Federal Government relating to mining, safety regulations and in every other respect.

9. Lessee agrees that Lessee or their agent shall post notices in at least two conspicuous places at each place of entry on the mining property showing that the property is being operated by the Lessee or their agent and that all creditors must look to the said Lessee for payment of any accounts incurred after operations commenced by the Lessee and to hold harmless the Lessor from any and all claims, demands, or liabilities arising or growing out of the exploration, development and operation of said properties by the Lessee or their agent.

NON RESPONSIBILITY NOTICES

10. Lessee agrees to adequately equip said premises within a reasonable time with necessary machinery and equipment to effectively develop and operate said premises so as to take out the greatest amount of ore possible with due regard to the preservation of the same as a workable mine. This paragraph shall have reference to the efficiency of operation and not to minimum quantity to be produced.

MACHINERY FOR EFFECTIVE DEVELOPMENT

11. Lessee agrees to pay to the Lessor as royalty, subject to such minimum and maximum royalties as hereinafter set forth, ten (10%) per cent of the returns received from the sale of ores extracted or which may be found upon the above mentioned premises. All of said royalties to be reserved by the mills purchasing such ores, and Lessee hereby consents to the Lessor making demands upon the said mill or mills for such royalties and further consents to the payment by the said mills to the Lessor of such royalties. As used herein the term "the returns received from the sale of ore" shall be defined to mean the sums of money received by the Lessee from authorized agents of United States Atomic Energy Commission under the schedule in effect at the time of payment including the following, but not excluding any other sums of money which may be received from

ROYALTIES

C O P Y

time to time for the payment of ore, to-wit: (a) basis payment, (b) payment of bonus for grade, (c) development allowances, (d) a special production bonus whether designated by that name or otherwise; however, any allowances for shipping or transportation is excluded and shall be paid direct to Lessee. In the event that there is no official United States Atomic Energy Commission schedule of payments in effect, then the ores shall be sold at the highest price obtainable.

Minimum and maximum royalties shall be as follows:

(1) For the period from April 1, 1954, to April 30, 1955, a minimum royalty of the sum of twenty thousand ($20,000) dollars payable as follows: (a) five thousand ($5,000) dollars heretofore paid receipt of which is hereby acknowledged, (b) five thousand ($5,000) dollars due and payable upon completion of the survey of the property, (c) ten thousand ($10,000) dollars due and payable on April 30, 1955.

(2) For the period beginning May 1, 1955, and ending on April 30, 1963, the annual minimum royalty shall be twenty-five thousand ($25,000) dollars each year due and payable on the 30th day of April, 1956, and on the 30th day of April of each and every succeeding year thereafter to and including the 30th day of April, 1963.

(3) For the period from May 1st, 1963, to and including the 30th day of April, 2004, and as long thereafter as ore shall be produced in commercial quantities the annual minimum royalty shall be one hundred ($100) dollars.

(4) It is further provided that at such time as the total gross royalty so paid to the Lessee shall be one million ($1,000,000) dollars then and after such time the royalty shall be reduced

C O P Y

to one (1%) per cent and provided further that such reduction shall occur whether said maximum royalty of one million ($1 000.000) dollars shall have been paid before or after April 30 1963, and provided further that the said royalty of one (1%) per cent shall continue as long as the Lessee shall produce ore in commercial quantities.

(5) Royalties shall be paid when the right to payment at the mill shall have accrued. The due dates set forth in this schedule shall be the date when any existing deficiencies, in the payment of minimum royalties shall be due and payable.

12. It is mutually agreed in the event that the United States Atomic Energy Commission shall discontinue or cease to pay an allowance for shipping then in that event the Lessor shall bear a Pro-rata share of the cost of transportation from the premises to the point of delivery.

SHIPPING COSTS

13. The Lessee agrees to expend for actual development work on the premises any sums allowed for that purpose by the Atomic Energy Commission and received by them and, provided further that the Lessee shall furnish upon request, a written account of the development work done and the moneys expended for such development work.

DEVELOPMENT MONEY

14. Said Lessee further covenants not to allow any person not in privity with the parties hereto to take or hold possession of said premises, or any part thereof, under any pretex whatever without written permission of the Lessors.

15. Lessee agrees not to assign this lease or any part thereof or to sublet the whole or any part of said lease premises without the written consent of the Lessor first had and obtained.

NON ASSIGN MENT

16. Lessee agrees to deliver to said Lessor quiet and peaceable possession of said premises in good condition upon the termination or

C O P Y

RE-DELIVERY

cancellation of this lease, it being agreed that all timbers and ore bins or improvements of a permanent nature attached to the premises or dumps and ore upon the premises shall become the property of Lessor provided, that the Lessee may remove all trackage, pipes, and lines placed on the premises by Lessee as well as his machinery and equipment from the premises for a period of sixty (60) days after such termination or cancellation, in the event Lessee is not indebted to the Lessor.

17. a- It is agreed upon violation of any covenant or conditions herein set forth, at option of Lessor, the Lessor may thereupon, after thirty (30) days written notice posted at the mine entrance upon the premises and mailed to the address of the Lessee, enter and dispossess all persons occupying the premises, provided, the deficiencies complained of in said notice have not been corrected or the Lessee has not diligently carried on the process of correction work during said period when the deficiencies complained of are such that correction is untenable during said thirty (30) day period. The Lessor shall in case of such cancellation retain all consideration theretofore received by them as liquidated damages for non-performance, as well as all improvements, dumps, and ore placed upon the premises by the Lessee.

NOTICE TO CORRECT

17. b- It is agreed that full compliance by Lessee shall be a condition precedent to Lessees right of possession of premises in the event Lessee shall fail to comply with the terms and conditions of this lease, Lessor may at their option cancel and forfeit all of Lessees right under this lease and all the Lessees interest in said mining property as follows, to-wit by depositing in the United States Mails, registered and postage prepaid, a written declaration addressed to the Lessee and such written declaration when so mailed shall be conclusive proof in favor of subsequent purchasers or encumbrances in good faith for valuable consideration of such default, forfeiture and cancellation. Upon such forfeiture

NOTICE of CANCEL-LATION

C O P Y

cancellation and default, all of the rights, estates, interest hereby created in the Lessee or then existing in favor of the Lessee shall cease and become null and void and the right of possession and all equitable and legal interest in the said mining lands, mining claims and mining rights shall revert to, vest in, and become the sole property of the Lessor.

17. c- The address to which notices are to be sent are as follows:

LESSORS:

Nicholas Murphy,	Moab, Utah
Richard Mohler,	Moab, Utah
Robert Mohler,	Moab, Utah
Samuel R. Zimmerman,	14321 E. Ramona Blvd., Baldwin Park, California.

LESSEES:

Harry V. Hand,	110 Camellia Street, San Antonio, Texas.
Nate Stein,	Durango, Colorado.
Reynolds & Dixon, Attorneys,	Moab, Utah.
Joy McCartney, Attention: Hart Brown	5300 Broadway Road, Houston 19, Texas.

It is also requested that telephone or telegraphic notice be given to not less than two of other party by party giving notice.

CHANGE OF ADDRESS

17. d- It is agreed that the addresses herein set forth shall be sufficient and shall be deemed to be the addresses to which notices by either party to the other are to be sent provided further that either party may from time to time designate different or additional addresses by giving to the other party notice in writing of such change.

TIME IS ESSENCE

d 18. Time is of the essence of this agreement, and the breach of any covenant shall be a breach of a condition. Any waiver of the breach of the terms of this agreement shall not constitute a continuing waiver on the part of the Lessor.

FORCE MAJEURE

19. a- In the event of either party hereto being rendered unable wholly or in part by Force Majeure to carry out its obligations under this contract, other than to make payment of amounts due hereunder, it is agreed that the obligations of such part, so far as they are affected by such Force

C O P Y

Majuere, shall be suspended during the continuance of any inability so caused, but for no longer period. Such cause shall, so far as possible be remedied with all reasonable dispatch.

19. b- The term "Force Majuere" as employed herein shall mean acts of God, strikes, lock-outs or other industrial disturbances, acts of the public, wars, blockades or insurrections, riots, epidemics, land slides, lightning, earthquakes, fires, storms, floods, washouts, arrest and restraints of rulers and peoples, including difficulty in obtaining any material, or other difficulty in carrying out the mining and development program herein set out because of government edict or regulation, civil disturbances, explosions, breakage or accident to machinery or other items within such operations and any other cause, whether of the kind herein enumerated or otherwise, not within the control of the party claiming suspension, all of which by the exercise of due dilligence such party is unable to foresee or overcome but provided, however, that the settlement of strikes or lockouts shall be entirely within the discretion of party having the difficulty and that the above requirement that any Force Majuere shall be remedied with the exercise of due diligence shall not require the settlement of strikes or lockouts by acceding to the demands of opposing party when such course is inadvisable in the discretion of the party having the difficulty.

SUSPENSION OF OPERATORS

19. c- In addition to the above, operations may be suspended by Lessee when the market for the ore produced from the premises, as determined by the prudent operators in the general district, is such that operations should be temporarily suspended. During such period the minimum royalty clause shall be suspended and the royalty limited to the percentage only provided, however that the length of time when the minimum royalty shall be suspended shall be added to the period set forth in paragraph 11 (1) and 11 (2) and ending April 30, 1963, and shall extend such period beyond April 30th, 1963, for the period of time that operations

C O P Y

shall not be suspended prior to May 1st 1955, and provided further that the total cumulative period of time, whether on one or more occasions, when operations shall be suspended shall not exceed two years. It if is determined that this clause shall be unenforceable then the same shall not void the lease, and only this paragraph shall fail.

ARBITRATION

2 . It is mutually agreed that in the event any dispute shall arise between the parties as to the interpretation of this agreement, or as to the effect of any paragraph, or as to any matter concerning the duties, obligation, or rights of the parties, then the matter shall be settled in the following manner, to-wit: (1) The party aggrieved shall notify in writing the other of his intent to mediate and shall within five (5) days thereafter appoint a representative, and (2) thereupon, the other party shall within ten (10) days appoint a representative, and (3) the two so appointed shall appoint a third representative thereafter the three representatives shall review the matter and the decision of any two representatives shall be binding upon both parties and such decision may be enforced in a court of law except upon a showing of fraud, deceit, collusion, or gross misjudgement.

ANNUAL ASSESSMENT WORK

21. During the term of this mining lease, the Lessees agree to perform all assessment work and annual labor required by Federal and State laws on the said mining claims, and shall timely file proper proofs thereof so as to protect said claims and keep the same in full force and in good standing. The Lessees may, however, at any time prior to May 1st of any year relinquish and quitclaim to the Lessors this Lease or any part thereof and the property described herein provided the Lessees be not then delinquent for royalty payments or otherwise under this Lease and thereby be relieved of all obligations thereunder to Lessor as to such portions relinquished but the Lessees shall not abandon the said properties after May 1st in any year without having given written notice to the Lessors on

C O P Y

or before May st of the same year of the Lessees' intention to take such action. Relinquishment of a part or portion of the premises shall not sever or reduce the royalties herein provided.

21. b- It is agreed that the Lessor shall have the right at any time to undertake and to patent any or all of the mining claims hereby leased and for such purpose the Lessor may claim the benefit of any work performed by the Lessee and the Lessee agrees to execute any and all documents necessary or convenient to patent said claims providing however that nothing contained in this paragraph shall obligate or require or place a duty upon the Lessor to patent any or all of the said claims.

RIGHTS TO PATENT

22. Lessees agree to make a full disclosure of all ores shipped and monies received for ores, and for such purpose permission is hereby given to Lessors to examine the books and records of the Lessee as to ore produced and sold and Lessors are also given the right and permission to call upon any or all mills or purchasers of ores to disclose payments by the said mill or purchasers to Lessee and the Lessee hereby consents to the disclosure by such mills or purchasers of said information to the Lessors or their agents and releases the said mills and purchasers from liability for such disclosure.

DISCLOSURE OF ORE SALES

23. The titles set forth in the margin of this lease are for the purpose of convenience only and shall have no import or effect upon the interpretation or meaning of this lease or any paragraph.

24. In the event it should be determined that the land covered by the above described mining claims, or any of them, should not be open to location under the United States mining laws either because (a) it is included in an offer, application, permit or lease under the Mineral Leasing Act of 192 , as amended, or (b) said lands are reserved, classified or known to be valuable for minerals leasable under that Act, then in such event, Lessor shall timely comply with the requirements of the

C O P Y

Atomic Energy Commission Domestic Uranium Program, Circular 7 in applying for and securing a lease, as provided in said Circular 7, upon securing said lease and consent to assign, then Lessor shall assign said lease and the said lease shall have the same effect, as far as legally possible, as if it were included hereunder. Failure to secure said lease under Circular 7 shall not defeat or invalidate this lease agreement and in such event this lease shall remain in full force and effect.

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

LESSORS:

(Signed) Richard N. Mohler	(Signed) Ruth M. Mohler
(Signed) Robert E. Mohler	(Signed) Betty E. Mohler
(Signed) Nicholas Murphy	(Signed) Thelma Murphy
(Signed) Samuel R. Zimmerman	14321 E. Ramona Blvd. Baldwin Park, Calif.
(Signed) Melbourne D. Wallace	(Signed) Zaida M. Wallace
(Signed) Earl E. Murphy	(Signed) Vera P. Murphy

LESSEES:

(Signed) Harry V. Hand	San Antonio, Texas
(Signed) Nate Stein	Durango, Colorado
(Signed) Joy McCartney	710 Alamo National Bldg. San Antonio, Texas

C O P Y

STATE OF UTAH)
) ss
COUNTY OF GRAND)

On this 15th day of May, 1954, before me personally appeared _____ and acknowledged to me that they executed the foregoing instrument.

SEAL

(Signed) Carroll J. Meador
Notary Public

My Commission expires:

Dec. 16, 1954

Residing in: Moab, Utah

Appendix "D"

Name of Claim	Book	Page	Date of Recording
Mile High #1	9-K	99	6/27/51
Mile High #2	9-K	99	6/27/51
Mile High #3	9-K	99	6/27/51
Mile High #4	9-K	99	6/27/51
Mile High #5	9-K	99	6/27/51
Mile High #6	9-K	100	6/27/51
Mile High #7	9-K	100	6/27/51
Mile High #8	9-K	100	6/27/51
Mile High #9	9-K	92	6/27/51
Mile High #10	9-K	92	6/25/51
Mile High #11	9-K	92	6/25/51
Mile High #12	9-K	92	6/25/51
Mile High #13	9-K	92	6/25/51
Mile High #14	9-K	93	6/25/51
Mile High #15	9-K	93	6/25/51
Mile High #16	9-K	93	6/25/51
Tank Form #1	9-K	196	8/14/51
Tank Form #2	9-K	197	8/14/51
Tank Form #3	9-K	198	8/14/51
Salty Dog #1	9-N	189	1/2/53
Salty Dog #2	9-N	190	1/2/53
Kilpacker #1	9-N	183	1/2/53
Kilpacker #2	9-N	184	1/2/53
Kilpacker #3	9-N	185	1/2/53
Kilpacker #4	9-N	186	1/2/53
Kilpacker #5	9-N	187	1/2/53
Kilpacker #6	9-N	188	1/2/53
Security #1	17	168	1/23/54
Security #2	17	169	1/23/54
Security #3	17	170	1/23/54
Security #4	17	171	1/23/54
Security #5	17	172	1/23/54
Security #6	17	173	1/23/54
Security #7	17	174	1/23/54
Security #8	17	175	1/23/54
Security #9	17	176	1/23/54
Security #10	17	177	1/23/54
Security #11	17	178	1/23/54
Security #12	17	179	1/23/54
Security #16	17	180	1/23/54
Security #17	17	181	1/23/54
Security #18	17	182	1/23/54
Security #19	17	183	1/23/54
Security #20	17	185	1/23/54
Security #21	17	186	1/23/54

Appendix "E"

4. Physical description.-(a):

Accessibility:

Access road begins 3 miles Northwest on Utah State Highway 16 from Moab and proceeds downstream along the Colorado River for 19 miles, thence 3 miles of side canyon road to the Chief Uranium, Ltd., camp.

From the camp, the mine road climbs through switchbacks some 500 feet in elevation to the outcropping Shinarump formation.

Existing Mine Workings:

Three-quarters of a mile at the base of the Shinarump (see Sketch Map) drift tunnels are being driven to explore indicated uranium ore. The usual air, water, rock handling and ventilation facilities are operating to carry on these drives.

Camp Facilities:

Installations include a 12-man mess hall, two sleeping cabins, and tentage.

Camp installations include butane and water facilities.

Interest in Operations:

The following participation arrangement is in effect:

10% of gross proceeds to claim owners (Less development and haulage payments).

10% of gross proceeds divided as follows:

Harry V. Hand	2-1/2%
Nate Stein	2-1/2%
Joy McCartney	2-1/2%
Santex Mining Camp (now performing operations for Chief Uranium, Ltd., under contract)	2-1/2%

80% Chief Uranium, Ltd.

4. (b): Past and current production - none.
Ore reserves - Prospective only.

4. (c): The property is located at about the top of the Cane Creek Anticline with the bedding, in general, plunging to the Southwest. The Shinarump and Chinle are exposed along the canyon escarpment for 3-1/4 miles at around 500 feet below the Mesa.

Mineralization occurs along the base of the Chinle or in the Shinarump conglomerate. Ore minerals identified are carnotite and uraninite. Many outcropping exposures indicate ore by use of the geiger counter. Lime content of the ore is rather high.

The type of deposit is a flat dipping conglomerate bed.

The reasons for wanting to explore is to develop positive, mineable reserves of uranium ore for immediate marketing.

4. (d): Accessibility of Project:

Access Roads:

Moab via Highway 160 -- 3 miles
Dirt road downstream along Colorado -- 19 miles
Side canyon road to camp -- 3 miles
Camp to mine workings -- 1-1/2 miles

Distances to Shipping:

Mine - Moab Stockpiling --------- 23 miles
Mine - Thompsons, Utah --------- 60 miles
Mine - Monticello ---------- 83 miles

Supply and Residence Points:

Mine - Moab ---- ---------- 26 miles

4. (e): Availability of Following:

Manpower -- adequate
Materials -- sufficient
Supplies -- sufficient
Equipment -- good supply
Water -- Spring source: 1,000 gals. per day subject to further development; Colorado River is 3 miles distant
Power -- No installation to date and no R.E.A. in vicinity

Appendix "F"

5. (d): The applicant is a partnership, members of which have extensive background in business and administration, personnel management and finance.

The operations are conducted by the Santex Mining Corporation of Deming, New Mexico, and qualified for operations in Utah and Colorado besides New Mexico. Their engineer and superintendent of mining operations is Lawrence E. Smith, graduate of Colorado School of Mines, 1931, and with some 20 years of practical operation in the field, both domestic and foreign. All personnel of position are well experienced in the phases of mining.

Appendix "G"

6. Estimate of costs.

(a) Hereunder are submitted approximate costs based on a figure of $30.00 per foot which includes all labor, supervision, supplies and materials, general overhead and contingencies.

Cost of Road Improvements:

Access road to Camp on contract.....		$ 6,000
Camp to mine workings (both improvement & extension).....		$ 10,000

Camp Additions & Improvements:

Buildings.....	$ 2,500	
Services (water, etc.).....	500	$ 3,000

Exploratory Projects:

Section A:			
Drift Tunnel - 1 Northeast			
400 ft. x $30.....	$12,000		
Drift Tunnel - 2 Northeast			
300 ft. x $30.....	9,000		
Drift Tunnel - 1 Southeast			
400 ft. x $30.....	12,000		
Exploratory Raises & Crosscuts...	10,000		43,000
Section B:			
Preparation (Trails, pipelines, etc.)....	$10,000		
Drift Tunnel - 1 West.....	12,000	(400')	
Drift Tunnel - 2 West.....	9,000	(300')	
Exploratory Raises & Crosscuts.....	7,000	?	$ 38,000
Total.....			$100,000

6. (b): Labor, supervision, consultants.

Schedule of Pay Rates:

2 - Foreman.....	$ 2.25	per hour
4 - Miner.....	2.00	per hour
4 - Unskilled.....	1.50	per hour
1 - Supervision Engineer.....	1,000.00	per month — ?
1 - Contract Bulldozing.....	10.00	per hour
1 - Cook.....	250.00	per month
1 - Bookkeeper-Accountant.....	300.00	per month

6. (c): **Schedule of Operating Materials & Supplies:**

Fuel	$ 400.00	per	month
Explosives	400.00	"	"
Messhouse Food	600.00	"	"
Miscellaneous Mine Supplies	500.00	"	"
Underground Support Timber & Bolts	500.00	"	"
Miscellaneous Spare Parts	200.00	"	"

6. (d): **Schedule of Operating Equipment:**

Bulldozer	$10.00	per	hour	(Rental Contract)
105 cu. ft. Compressor	3.00	"	"	(Owned)
250 cu. ft. Compressor	4.00	"	"	
D-2 Cat, Mucker	3.00	"	"	
Air Drill Equipment	1.00	"	"	
Ferdson Mucker	2.00	"	"	
4 Vehicles	0.00			

6. (e): **Rehabilitation & Repairs:**

To existing installations.....$ 500.00

6. (f): **Buildings, improvements, installations:**

See 6 (a) - Cost Estimates).....$3,000.00

6. (g): **Miscellaneous:**

Workmen's Compensation & Liability Insurance. This will vary with the number of men employed and the rest of the information is contained above.

6. (h): **Contingencies:**

Included in 6 (a) Total.

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

MAY 17 1955

Messrs. Harry V. Hand
and Nate Stein, Partners
Chief Uranium, Ltd.
P. O. Box 705
Moab, Utah

Re: Docket No. DMEA-3471 (Uranium)
Mile High, Security, et al. claims
Grand County, Utah

Gentlemen:

Reference is made to a letter dated March 25, 1955, directed to you by Mr. W. M. Traver, Executive Officer, Region III, in which you were informed that the subject docket would be considered closed unless certain information required to process the captioned application had reached our Denver Office on or before April 25, 1955. No answer to this letter having been received, we therefore inform you that the subject docket is considered closed effective as of that date.

This is without prejudice to the merits of your proposed project. We regret the necessity of this action and express appreciation for your interest in the exploration program during the period your application has been under consideration.

Sincerely yours,

O. Meadory

Administrator

Copies to:

Harry V. Hand
110 Camellia Way
San Antonio, Texas

Nate Stein
713 Main Street
Durango, Colorado

700

Surname copy

Ellis
Chambers
Selfridge
Johnson

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

MAY 17 1955

Messrs. Harry V. Hand
and Nate Stein, Partners
Chief Uranium, Ltd.
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Re: Docket No. DMEA-3471 (Uranium)
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This is without prejudice to the merits of your proposed project. We regret the necessity of this action and express appreciation for your interest in the exploration program during the period your application has been under consideration.

Sincerely yours,

C. O. Mittendorf

Administrator

EWEllis/gla
5-9-55
cc to: Admr.'s Reading File
Docket
Messrs. J. E. Crawford, Rm. 3641
T. H. Kiilsgaard, Rm. 5224
J. O. Hosted, Rm. 3210, GSA
Code 700
DMEA Field Team, Region III (2)

R.L.H.

5/6/55 gla

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

MAY 6 1955

224 New Customhouse
Denver 2, Colorado

May 3, 1955

Memorandum

To: Secretary to the Operating Committee

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA-3471 (Uranium), Chief Uranium, Ltd.
Mile High, Security, et al claims, Grand County, Utah

Reference is made to our letters dated October 6, 1954 and March 25, 1955 to the subject applicant. As this office has received no answer to our March 25, 1955 letter, we have closed our files on the subject docket.

W. M. Traver

W. M. Traver

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
MAY 6 - 1955

224 New Customhouse
Denver 2, Colorado

May 3, 1955

Memorandum

To: Secretary to the Operating Committee

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA-3471 (Uranium), Chief Uranium, Ltd.
Mile High, Security, et al claims, Grand County, Utah

Reference is made to our letters dated October 6, 1954 and March 25, 1955 to the subject applicant. As this office has received no answer to our March 25, 1955 letter, we have closed our files on the subject docket.

W. M. Traver

3/29/55 gla

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

Department of the Interior
Defense Minerals Administration
RECEIVED
MAR 28 1955

224 New Customhouse
Denver 2, Colorado

March 25, 1955

Chief Uranium, Ltd.
P. O. Box 705
Moab, Utah

Re: DMEA Docket 3471 (Uranium)
Chief Uranium, Ltd.
Mile High, Security, et al claims
Grand County, Utah

Gentlemen:

Reference is made to our letter to you dated October 6, 1954, concerning additional information to be submitted by you before your application can be processed. We are enclosing a copy of this letter.

As considerable time has elapsed without our receiving any word from you on this subject, this letter will serve to inform you that if we do not hear from you by April 25, 1955, we will consider that you are no longer interested in obtaining Government exploration assistance and your application will be considered closed.

Yours very truly,

W. M. TRAVER

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

Enclosure

RDB:ld

Copy to: Sec. Opr. Comm. ( )
Administrator, DMEA
R. D. Berkenhotter
Subject
Chron

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 28 1955

224 New Customhouse
Denver 2, Colorado

March 25, 1955

Chief Uranium, Ltd.
P. O. Box 705
Moab, Utah

Re: DMEA Docket 3471 (Uranium)
Chief Uranium, Ltd.
Mile High, Security, et al claims
Grand County, Utah

Gentlemen:

Reference is made to our letter to you dated October 6, 1954, concerning additional information to be submitted by you before your application can be processed. We are enclosing a copy of this letter.

As considerable time has elapsed without our receiving any word from you on this subject, this letter will serve to inform you that if we do not hear from you by April 25, 1955, we will consider that you are no longer interested in obtaining Government exploration assistance and your application will be considered closed.

Yours very truly,

W. M. TRAVER,

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

Enclosure

NDB:lm

Copy to: Loc. Gov. Com. ( )
Administrator, DMEA
R. D. Berkenhotter
Subject
Chron

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

224 New Customhouse
Denver 2, Colorado

March 23, 1955

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 28 1955

Chief Uranium, Ltd.
P. O. Box 705
Moab, Utah

Re: DMEA Docket 3471 (Uranium)
Chief Uranium, Ltd.
Mile High, Security, et al claims
Grand County, Utah

Gentlemen:

Reference is made to our letter to you dated October 6, 1954, concerning additional information to be submitted by you before your application can be processed. We are enclosing a copy of this letter.

As considerable time has elapsed without our receiving any word from you on this subject, this letter will serve to inform you that if we do not hear from you by April 25, 1955, we will consider that you are no longer interested in obtaining Government exploration assistance and your application will be considered closed.

Yours very truly,

W. M. TRAVER,

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

Enclosure

WMT:kk

Copy to: Sec. Opr. Comm. ( )
Administrator, DMEA
R. D. Bernhardsson
Subject
Carbon

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

Surname copy
Ellis
Selfridge
EJ Swan
Whitenday

MAR 21 1955

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

Re: Docket No. DMEA-3471 (Uranium)
Chief Uranium, Ltd.
Mile High, Security, et al claims
Grand County, Utah

Dear Mr. Traver:

A review of the captioned docket reveals that on October 1, 1954, the application was referred to your office for a field examination and Field Team recommendation. On October 6, 1954, Mr. King corresponded with the Applicant requesting that a map be prepared to show the location of the proposed work in relation to the claim boundaries. It was further stated that further processing of the application would be deferred pending receipt of the four copies of the requested map.

Since no further action has been noted in connection with this application, it is suggested that you write a letter to the Applicant in accordance with the Operating Committee's Memorandum No. 12 to all Field Teams, dated December 3, 1952, and thereafter make your recommendation to this office as to whether the docket should be closed.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (GCS)

APPROVED:

J. H. Hedges (JHH)
Member, Bureau of Mines

Thor H. Kiilsgaard (THK)
Member, Geological Survey

EWEllis/gla
3-17-55
cc to: Admr.'s Reading File
Operating Committee
Docket
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA
Code 700

R.C.H.

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

OCT - 8 1954

224 New Customhouse
Denver 2, Colorado

October 6, 1954

Chief Uranium Ltd.
P. O. Box 705
Moab, Utah

Re: DMEA Docket 3471 (Uranium)
Mile High, Security, et al claims
Grand County, Utah

Gentlemen:

The subject application has been referred to this office for a field examination.

Please have your engineer plot to scale your proposed work and existing mine workings along with the important geologic features of the area on the claim map submitted with your application. It is necessary that we know the location of proposed work in relation to your claim boundaries. Send four copies of this map to Executive Officer, DMEA, Region IV, Room 224, New Customhouse, Denver 2, Colorado, for our use during the field examination and for use of the Washington Office in the preparation of a possible contract.

Further processing of your application will be deferred pending receipt of the four copies of requested map.

Yours very truly,

W H King

W. H. King
Executive Officer, DMEA
Field Team, Region IV

RDB:mn

cc: DMEA Docket 3471
Sec. to the Oper. Comm.
C. O. Mittendorf
R. D. Berkenkotter
Chron.

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

Defense Minerals Administration
RECEIVED
OCT - 8 1954

224 New Customhouse
Denver 2, Colorado

October 6, 1954

Chief Uranium Ltd.
P. O. Box 705
Moab, Utah

Re: DMEA Docket 3471 (Uranium)
Mile High, Security, et al claims
Grand County, Utah

Gentlemen:

The subject application has been referred to this office for a field examination.

Please have your engineer plot to scale your proposed work and existing mine workings along with the important geologic features of the area on the claim map submitted with your application. It is necessary that we know the location of proposed work in relation to your claim boundaries. Send four copies of this map to Executive Officer, DMEA, Region 1V, Room 224, New Customhouse, Denver 2, Colorado, for our use during the field examination and for use of the Washington Office in the preparation of a possible contract.

Further processing of your application will be deferred pending receipt of the four copies of requested map.

Yours very truly,

W H King

W. H. King
Executive Officer, DMEA
Field Team, Region 1V

RDB:mn

cc: DMEA Docket 3471
Sec. to the Oper. Comm.
C. O. Mittendorf
R. D. Berkenkotter
Chron.

Docket 700

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

Ellis
Kilsgaard
Hedges
Selfridge

Chief Uranium, Ltd.
P. O. Box 705
Moab, Utah

OCT 1 1954

Re: Docket No. DMEA-3471 (Uranium)
Mile High, Security, et al, claims
Grand County, Utah

Gentlemen:

The application for assistance in exploring your property in Grand County, Utah, under the above-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 IV at the following address:

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

The Regional Office will contact you at the earliest opportunity in regard to your project.

Sincerely yours,

Frank E. Johnson

ACTING Administrator

EWEllis:am
9-30-54
cc to: Admr. Reading File
Docket
Code 700
DMEA Field Team, Region IV (2)

R.C.h.

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

Ellis
Selfridge
Johnson

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

OCT 1 1954

Re: Docket No. DMEA-3471 (Uranium)
Chief Uranium, Ltd.
Mile High, Security, et al claims
Grand County, Utah

Dear Mr. King:

The captioned application is referred to Region IV for a field examination and Field Team recommendation. A copy of the application and supporting data was forwarded to you on September 1. The delay in referring this application to the field was due to a misunderstanding of the new system of routing the Geological Survey's copy to the proper Survey commodity member.

Enclosed are copies of memoranda from John E. Crawford, dated September 27, and R. B. Trace, dated September 30, 1954, Bureau of Mines and Geological Survey Uranium Commodity Members, respectively.

In the interest of time saving, if a project is recommended, the Applicant should be requested to supply the new form (July 1, 1954) Owner's Consent to Lien in sextuplicate.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

Enclosures

APPROVED:

J. E. Hodges

Member, Bureau of Mines
Thor H. Kiilsgaard

Member, Geological Survey

EWEllis:am
9-30-54
cc to: Admr. Reading File
Operating Committee
Docket
Messrs. J. E. Crawford, Rm. 3641
T. H. Kiilsgaard, Rm. 5227
J. O. Hosted, Rm. 3210, GSA
Mr. Ellis
Code 700

R.C.S.

IN REPLY REFER TO:

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

September 30, 1954

Memorandum

REVIEW OF APPLICATION DMEA-3471 (Uranium)

To: E. W. Ellis, Defense Minerals Exploration Administration
From: R. D. Trace, U. S. Geological Survey
Applicant's name and address: Chief Uranium, Ltd., P. O. Box 705, Moab, Utah
Name of property: Mile High claims
Location of property: Grand County, Utah
Summary of applicant's proposal:

1) Road improvements -- $16,000
2) Camp improvements -- $3,000
3) Drive 5 adits, total 1,800 feet -- $64,000
4) Miscellaneous raises and crosscuts -- $17,000

Sources of information on applicant's property:

We have no information in Washington on applicant's property. USGS TEI-328 shows this general area to be in a wide east-trending belt of favorable ground.

Comments:

The application essentially gives only the following information: 1. Favorable host rock (probably Mossback sandstone) is present, and 2. Uraninite and carnotite are present. As no information is available in Washington Survey files, and as the data given by applicant are obviously inadequate, the application should be referred to the Field Team.

A few miscellaneous comments follow. The applicant's property is in a broad area believed to be generally favorable for pre-Morrison uranium deposits. In order to evaluate the property, however, somebody must examine 1) the mineral occurrences for possible size and grade of ore, and 2) evaluate the host rock in regard to geologic favorability for ore, such as the presence and size of Mossback channels.

I would guess that the project size should be cut very considerably. Drifting, rather than drilling however, is probably the most feasible method of exploration for this area.

Some of the cost figures should be checked, i.e. are the camp and road improvements necessary to the exploration.

RECOMMENDATIONS: Refer to Field Team.

R.D. Trace

R. D. Trace

IN REPLY REFER TO:

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

extra copy

September 30, 1954

Memorandum

REVIEW OF APPLICATION DMEA-3471 (Uranium)

To: E. W. Ellis, Defense Minerals Exploration Administration
From: R. D. Trace, U. S. Geological Survey
Applicant's name and address: Chief Uranium, Ltd., P. O. Box 705, Moab, Utah
Name of property: Mile High claims
Location of property: Grand County, Utah
Summary of applicant's proposal:

1) Road improvements -- $16,000
2) Camp improvements -- $3,000
3) Drive 5 adits, total 1,800 feet -- $44,000
4) Miscellaneous raises and crosscuts -- $17,000

Sources of information on applicant's property:

We have no information in Washington on applicant's property. USGS TEI-328 shows this general area to be in a wide east-trending belt of favorable ground.

Comments:

The application essentially gives only the following information: 1. Favorable host rock (probably Moenkopi sandstone) is present, and 2. Uraninite and carnotite are present. As no information is available in Washington Survey files, and as the data given by applicant are obviously inadequate, the application should be referred to the Field Team.

A few miscellaneous comments follow. The applicant's property is in a broad area believed to be generally favorable for pre-Morrison uranium deposits. In order to evaluate the property, however, somebody must examine 1) the mineral occurrences for possible size and grade of ore, and 2) evaluate the host rock in regard to geologic favorability for ore, such as the presence and size of Moenkopi channels.

I would guess that the project size should be cut very considerably. Drifting, rather than drilling however, is probably the most feasible method of exploration for this area.

Some of the cost figures should be checked, i.e. are the camp and road improvements necessary to the exploration.

RECOMMENDATIONS: Refer to Field Team.

R. D. Trace

RDTrace:hlm
G-9/30/54

Copy to: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
J. E. Crawford, 3641

9/27/54 gla

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

September 27, 1954

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee, Room 4640

From: John E. Crawford, Bureau of Mines Member
Uranium Commodity Committee, Room 3641

Subject: DMEA Docket 3471, Chief Uranium, Ltd., P. O. Box 705, Moab, Utah

I have reviewed the application included in the subject docket and have discussed it with Joseph O. Hosted, representative of the Atomic Energy Commission.

It is recommended that the application be referred to the Field Team for investigation and report, and that the Field Team be requested to discuss the application with Ernest R. Gordon, Atomic Energy Commission, Grand Junction, Colorado.

John E. Crawford

John E. Crawford

Attachment

September 1, 1954

Chief Uranium, Ltd.
P. O. Box 705
Moab, Utah

Subject: DMEA-3471
Re: Exploration Assistance

Gentlemen:

The receipt of your application dated August 25, 1954 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-3471 and referred to the Rare and Miscellaneous Metals Division.

Kindly refer to in any future correspondence relating to your application.

Sincerely yours,

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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. 3471
Metal or Mineral Uranium
Date Received
Estimated Cost $100,000
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: CHIEF URANIUM, LTD. Partnership State of Utah
P. O. Box 705,
MOAB, UTAH

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

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

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

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 Appendix "B"

(*b*) State any mine name by which the property is known. Claims Leased by CHIEF URANIUM, LTD.

(*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. See Appendix "C"

(*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. See Appendix "D", and Blueprint of Mining Claims

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

(*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 Uranium

(*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. See Photogeologic Map of Moab 15; and Sketch map of Exploration in Map Envelope

(*c*) The work will start within 30 days and be completed within 12 months from the date of an exploration project contract.

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

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. See Appendix "G"

(*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.). See Appendix "G" Par 6 (a) through 6 (h)

(*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.

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 August 25th, 1954

CHIEF URANIUM, LTD.,
(Applicant)

By Harry V. Hand
Harry V. Hand, Partner

Nate Stein, Partner
Nate Stein

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.

INT.-DUP. SEC., WASH., D.C. 64941

Appendixes Follow in Order as Noted on Form

Appendix "A"

Partners

General Partners:

Harry V. Hand	110 Camellia Way, San Antonio, Texas.
Nate Stein	713 Main Street, Durango, Colorado.
Joy A. McCartney	710 Alamo National Bank Building, San Antonio, Texas.

Limited Partners:

Harry V. Hand	110 Camellia Way, San Antonio, Texas.
Nate Stein	713 Main Street, Durango, Colorado.
Joy A. McCartney	710 Alamo National Bank Building, San Antonio, Texas.
Harry B. McCartney	Alice, Texas.
Warren T. Brown	448 Maple Street, Albuquerque, New Mexico.
A. S. Parks	Route 4, Box 505 E, Houston, Texas.
Art Brown	5300 Brown Way Road, Houston, Texas.

3. Applicant's property rights.-(a)

Unpatented mining property situated in Sections 27, 58, 33 and 34, in Township 26 South; Range 20 East., S.L.M., in Grand County, State of Utah.

See Appendix "D" for list of claim names, recording date, book and page numbers.

Appendix "C"

C O P Y

MINING LEASE

THIS AGREEMENT, made this 7th day of May, 1954, at Moab, Utah, by and between RICHARD M. MOHLER, ROBERT E. MOHLER, NICHOLAS MURPHY, SAMUEL R. ZIMMERMAN, EARL E. MURPHY, and MELBOURNE D. WALLACE, hereinafter called the Lessor, and HARRY V. HAND, of San Antonio, Texas, NATE STEIN of Durango, Colorado, and JOY McCARTNEY of San Antonio, Texas, hereinafter called the Lessee.

WITNESSETH, the Lessors do hereby lease to the Lessee upon terms and conditions hereinafter set forth the unpatented mining property situated in Sections 27, 28, 33 and 34, Township 26 S., Range 20 E., S.L.M., in Grand County, Utah, and consisting of the following claims:

Name of Claim	Book	Page	Date of Recording
Mile High #1	9-K	99	6/27/51
Mile High #2	9-K	99	6/27/51
Mile High #3	9-K	99	6/27/51
Mile High #4	9-K	99	6/27/51
Mile High #5	9-K	99	6/27/51
Mile High #6	9-K	100	6/27/51
Mile High #7	9-K	100	6/27/51
Mile High #8	9-K	100	6/27/51
Mile High #9	9-K	92	6/25/51
Mile High #10	9-K	92	6/25/51
Mile High #11	9-K	92	6/25/51
Mile High #12	9-K	92	6/25/51
Mile High #13	9-K	92	6/25/51
Mile High #14	9-K	93	6/25/51
Mile High #15	9-K	93	6/25/51
Mile High #16	9-K	93	6/25/51
Tank Form #1	9-K	196	8/14/51
Tank Form #2	9-K	197	8/14/51
Tank Form #3	9-K	198	8/14/51
Salty Dog #1	9-N	189	1/2/53
Salty Dog #2	9-N	190	1/2/53
Killpacker #1	9-N	183	1/2/53
Killpacker #2	9-N	184	1/2/53
Killpacker #3	9-N	185	1/2/53

Appendix "C", Copy of Mining Lease in 13 pages

C O P Y

Name of Claim	Book	Page	Date of Recording
Killpacker #4	9-N	186	1/2/53
Killpacker #5	9-N	187	1/2/53
Killpacker #6	9-N	188	1/2/53
Security #1	17	168	1/23/54
Security #2	17	169	1/23/54
Security #3	17	170	1/23/54
Security #4	17	171	1/23/54
Security #5	17	172	1/23/54
Security #6	17	173	1/23/54
Security #7	17	174	1/23/54
Security #8	17	175	1/23/54
Security #9	17	176	1/23/54
Security #10	17	177	1/23/54
Security #11	17	178	1/23/54
Security #12	17	179	1/23/54
Security #16	17	180	1/23/54
Security #17	17	181	1/23/54
Security #18	17	182	1/23/54
Security #19	17	183	1/23/54
Security #20	17	185	1/23/54
Security #21	17	186	1/23/54

TO HAVE AND TO HOLD said premises for mining purposes from the first day of May, 1954, to the thirtieth day of April, 2004, and as long thereafter as the Lessee shall continuously produce ore in commercial quantities unless sooner forfeited, cancelled, or terminated through the violation of any of the covenants, conditions herein or hereafter provided.

And in consideration of said leasing it is agreed:

LESSEE TO WORK MINES

1. Lessee agrees to enter and work said premises in mine fashion in a manner necessary to good mining so as to take out the greatest amount of ore possible, with due regard to development and preservation os said mining premises. This paragraph shall have reference to the efficiency of operation and not to the minimum quantity of ore to be produced.

TIMBERING

2. Lessee agrees to repair all old timbering wherever it may become necessary, and to well and sufficiently timber said mine and

C O P Y

mining premises at all points where proper and necessary in accordance with good and safe mining.

LESSOR CAN INSPECT

3. Lessee agrees to allow the Lessor or their agent from time to time to enter upon and descend into all parts of said leased premises, for the purpose of inspection, surveys or taking samples therefrom, and to render to said parties proper assistance in making such inspection, surveys or examination.

DIS-COVERIES

4. Lessee agrees to occupy and hold as the property of the Lessor all cross and parallel lodes, spurs, rolls, and mineral deposits of every kind which may be uncovered, disclosed or discovered within said leased ground by the said Lessee or any person or persons under or in privity with him, with privilege to said Lessee to work and mine the same as part and parcel of said premises during the term hereof.

LOOSE ROCK

5. Lessee agrees to keep at all times the drifts, shafts, tunnels and other workings thoroughly drained and clear of loose rock and rubbish, unless prevented by extraordinary mining casualty.

HOLD HARMLESS CLAUSE

6. The Lessee agrees to hold harmless and indemnify the Lessor and hereby does assume all responsibility in case of accident or injury to Lessee, Lessee's agents, employees, or invitees, in or about said property.

TAXES

7. The Lessee agrees to pay all taxes assessed against the said demised premises for improvements placed thereon by the Lessee. Each party shall pay a pro-rata share of all taxes assessed against the demised premises for ores mined, produced, and shipped in the ratio that parties interest in the ore bears to the whole.

INDUSTRIAL ACCIDENT INSURANCE

8. Lessee agrees to take out, carry and maintain full industrial insurance with the Utah State Industrial Commission or other carrier approved by the State of Utah for any and all persons employed in or upon

C O P Y

said premises by the Lessee, and to conduct all operations so as to comply fully with the laws of the State of Utah or the Federal Government relating to mining, safety regulations and in every other respect.

9. Lessee agrees that Lessee or their agent shall post notices in at least two conspicuous places at each place of entry on the mining property showing that the property is being operated by the Lessee or their agent and that all creditors must look to the said Lessee for payment of any accounts incurred after operations commenced by the Lessee and to hold harmless the Lessor from any and all claims, demands, or liabilities arising or growing out of the exploration, development and operation of said properties by the Lessee or their agent.

NON-RESPONSIBILITY NOTICES

10. Lessee agrees to adequately equip said premises within a reasonable time with necessary machinery and equipment to effectively develop and operate said premises so as to take out the greatest amount of ore possible with due regard to the preservation of the same as a workable mine. This paragraph shall have reference to the efficiency of operation and not to minimum quantity to be produced.

MACHINERY FOR EFFECTIVE DEVELOPMENT

11. Lessee agrees to pay to the Lessor, as royalty, subject to such minimum and maximum royalties as hereinafter set forth, ten (10%) per cent of the returns received from the sale of ores extracted or which may be found upon the above mentioned premises. All of said royalties to be reserved by the mills purchasing such ores, and Lessee hereby consents to the Lessor making demands upon the said mill or mills for such royalties and further consents to the payment by the said mills to the Lessor of such royalties. As used herein the term "the returns received from the sale of ore" shall be defined to mean the sums of money received by the Lessee from authorized agents of United States Atomic Energy Commission under the schedule in effect at the time of payment; including the following, but not excluding any other sums of money which may be received from

ROYALTIES

C O P Y

time to time for the payment of ore, to-wit; (a) basis payment, (b) payment of bonus for grade, (c) development allowances, (d) a special production bonus whether designated by that name or otherwise; however, any allowances for shipping or tansportation is excluded and shall be paid direct to Lessee. In the event that there is no official United States Atomic Energy Commission schedule of payments in effect, then the ores shall be sold at the highest price obtainable.

Minimum and maximum royalties shall be as follows:

(1) For the period from April 1, 1954, to April 30, 1955, a minimum royalty of the sum of twenty thousand ($20,000) dollars payable as follows: (a) five thousand ($5,000) dollars heretofore paid receipt of which is hereby acknowledged, (b) five thousand ($5,000) dollars due and payable upon completion of the survey of the property, (c) ten thousand ($10,000) dollars due and payable on April 30, 1955.

(2) For the period beginning May 1, 1955, and ending on April 30, 1963, the annual minimum royalty shall be twenty-five thousand ($25,000) dollars each year due and payable on the 30th day of April, 1956, and on the 30th day of April of each and every succeeding year thereafter to and including the 30th day of April, 1963.

(3) For the period from May 1st, 1963, to and including the 30th day of April, 2004, and as long thereafter as ore shall be produced in commercial quantities the annual minimum royalty shall be one hundred ($100) dollars.

(4) It is further provided that at such time as the total gross royalty so paid to the Lessee shall be one million ($1,000,000) dollars then and after such time the royalty shall be reduced

C O P Y

to one (1%) per cent and provided further that such reduction shall occur whether said maximum royalty of one million ($1,000,000) dollars shall have been paid before or after April 30, 1963, and provided further that the said royalty of one (1%) per cent shall continue as long as the Lessee shall produce ore in commercial quantities.

(5) Royalties shall be paid when the right to payment at the mill shall have accrued. The due dates set forth in this schedule shall be the date when any existing deficiencies, in the payment of minimum royalties shall be due and payable.

SHIPPING COSTS

12. It is mutually agreed in the event that the United States Atomic Energy Commission shall discontinue or cease to pay an allowance for shipping then in that event the Lessor shall bear a Pro-rata share of the cost of transportation from the premises to the point of delivery.

DEVELOPMENT MONEY

13. The Lessee agrees to expend for actual development work on the premises, any sums allowed for that purpose by the Atomic Energy Commission and received by them; and, provided further that the Lessee shall furnish upon request, a written account of the development work done and the moneys expended for such development work.

14. Said Lessee further covenants not to allow any person not in privity with the parties hereto to take or hold possession of said premises, or any part thereof, under any pretex whatever, without written permission of the Lessors.

NON-ASSIGNMENT

15. Lessee agrees not to assign this lease or any part thereof or to sublet the whole or any part of said lease premises without the written consent of the Lessor first had and obtained.

16. Lessee agrees to deliver to said Lessor quiet and peaceable possession of said premises in good condition upon the termination or

C O P Y

cancellation of this lease, it being agreed that all timbers and ore bins or improvements of a permanent nature attached to the premises or dumps and ore upon the premises shall become the property of Lessor; provided, that the Lessee may remove all trackage, pipes, and lines placed on the premises by Lessee as well as his machinery and equipment from the premises for a period of sixty (60) days after such termination or cancellation, in the event Lessee is not indebted to the Lessor.

RE-DELIVERY

17. a- It is agreed upon violation of any covenant or conditions herein set forth, at option of Lessor, the Lessor may thereupon, after thirty (30) days written notice posted at the mine entrance upon the premises and mailed to the address of the Lessee, enter and dispossess all persons occupying the premises, provided, the deficiencies complained of in said notice have not been corrected or the Lessee has not diligently carried on the process of correction work during said period when the deficiencies complained of are such that correction is untenable during said thirty (30) day period. The Lessor shall in case of such cancellation, retain all consideration theretofore received by them as liquidated damages for non-performance, as well as all improvements, dumps, and ore placed upon the premises by the Lessee.

NOTICE TO CORRECT

17. b- It is agreed that full compliance by Lessee shall be a condition precedent to Lessees right of possession of premises; in the event Lessee shall fail to comply with the terms and conditions of this lease, Lessor may at their option cancel and forfeit all of Lessees right under this lease and all the Lessees interest in said mining property as follows, to-wit; by depositing in the United States Mails, registered and postage prepaid, a written declaration addressed to the Lessee and such written declaration when so mailed shall be conclusive proof in favor of subsequent purchasers or encumbrances in good faith for valuable consideration of such default, forfeiture and cancellation. Upon such forfeiture,

NOTICE of CANCEL-LATION

C O P Y

cancellation and default, all of the rights, estates, interest hereby created in the Lessee or then existing in favor of the Lessee shall cease and become null and void; and the right of possession and all equitable and legal interest in the said mining lands, mining claims and mining rights shall revert to, vest in, and become the sole property of the Lessor.

17. c- The address to which notices are to be sent are as follows:

LESSORS:	
Nicholas Murphy,	Moab, Utah
Richard Mohler,	Moab, Utah
Robert Mohler,	Moab, Utah
Samuel R. Zimmerman,	14321 E. Ramona Blvd., Baldwin Park, California.
LESSEES:	
Harry V. Hand,	110 Camellia Street, San Antonio, Texas.
Nate Stein,	Durango, Colorado.
Reynolds & Dixon, Attorneys,	Moab, Utah.
Joy McCartney, Attention: Hart Brown	5300 Brownway Road, Houston 19, Texas.

It is also requested that telephone or telegraphic notice be given to not less than two of other party by party giving notice.

CHANGE OF ADDRESS

17. d- It is agreed that the addresses herein set forth shall be sufficient and shall be deemed to be the addresses to which notices by either party to the other are to be sent provided further that either party may from time to time designate different or additional addresses by giving to the other party notice in writing of such change.

TIME IS ESSENCE

d 18. Time is of the essence of this agreement, and the breach of any covenant shall be a breach of a condition. Any waiver of the breach of the terms of this agreement shall not constitute a continuing waiver on the part of the Lessor.

FORCE MAJUERE

19. a- In the event of either party hereto being rendered unable wholly or in part by Force Majuere to carry out its obligations under this contract, other than to make payment of amounts due hereunder, it is agreed that the obligations of such part, so far as they are affected by such Force

C O P Y

Majuere, shall be suspended during the continuance of any inability so caused, but for no longer period. Such cause shall, so far as possible be remedied with all reasonable dispatch.

19. b- The term "Force Majuere" as employed herein shall mean acts of God, strikes, lock-outs or other industrial disturbances, acts of the public, wars, blockades or insurrections, riots, epidemics, land slides, lightning, earthquakes, fires, storms, floods, washouts, arrest and restraints of rulers and peoples, including difficulty in obtaining any material, or other difficulty in carrying out the mining and development program herein set out because of government edict or regulation, civil disturbances, explosions, breakage or accident to machinery or other items within such operations and any other cause, whether of the kind herein enumerated, or otherwise, not within the control of the party claiming suspension, all of which by the exercise of due dilligence such party is unable to foresee or overcome; but provided, however, that the settlement of strikes or lockouts shall be entirely within the discretion of party having the difficulty and that the above requirement that any Force Majuere shall be remedied with the exercise of due diligence shall not require the settlement of strikes or lockouts by acceding to the demands of opposing party when such course is inadvisable in the discretion of the party having the difficulty.

SUSPENSION OF OPERATORS

19. c- In addition to the above, operations may be suspended by Lessee when the market for the ore produced from the premises, as determined by the prudent operators in the general district, is such that operations should be temporarily suspended. During such period the minimum royalty clause shall be suspended and the royalty limited to the percentage only; provided, however that the length of time when the minimum royalty shall be suspended shall be added to the period set forth in paragraph 11 (1) and 11 (2) and ending April 30, 1963, and shall extend such period beyond April 30th, 1963, for the period of time that operations

C O P Y

shall not be suspended prior to May 1st, 1955, and provided further that the total cumulative period of time, whether on one or more occasions, when operations shall be suspended shall not exceed two years. It if is determined that this clause shall be unenforceable then the same shall not void the lease, and only this paragraph shall fail.

20. It is mutually agreed that in the event any dispute shall arise between the parties as to the interpretation of this agreement, or as to the effect of any paragraph, or as to any matter concerning the duties, obligation, or rights of the parties, then the matter shall be settled in the following manner, to-wit: (1) The party aggrieved shall notify in writing the other of his intent to mediate and shall within five (5) days thereafter appoint a representative, and (2) thereupon, the other party shall within ten (10) days appoint a representative, and (3) the two so appointed shall appoint a third representative; thereafter the three representatives shall review the matter and the decision of any two representatives shall be binding upon both parties and such decision may be enforced in a court of law except upon a showing of fraud, deceit, collusion, or gross misjudgement.

ARBITRATION

21. During the term of this mining lease, the Lessees agree to perform all assessment work and annual labor required by Federal and State laws on the said mining claims, and shall timely file proper proofs thereof so as to protect said claims and keep the same in full force and in good standing. The Lessees may, however, at any time prior to May 1st of any year, relinquish and quitclaim to the Lessors this Lease or any part thereof and the property described herein, provided the Lessees be not then delinquent for royalty payments or otherwise under this Lease; and thereby be relieved of all obligations thereunder to Lessor as to such portions relinquished but the Lessees shall not abandon the said properties after May 1st in any year without having given written notice to the Lessors on

ANNUAL ASSESSMENT WORK

C O P Y

or before May 1st of the same year of the Lessees' intention to take such action. Relinquishment of a part or portion of the premises shall not sever or reduce the royalties herein provided.

RIGHTS TO PATENT

21. b- It is agreed that the Lessor shall have the right at any time to undertake and to patent any or all of the mining claims hereby leased and for such purpose the Lessor may claim the benefit of any work performed by the Lessee and the Lessee agrees to execute any and all documents necessary or convenient to patent said claims providing however that nothing contained in this paragraph shall obligate or require or place a duty upon the Lessor to patent any or all of the said claims.

DIS-SURE OF ORE SALES

22. Lessees agree to make a full disclosure of all ores shipped and monies received for ores, and for such purpose permission is hereby given to Lessors to examine the books and records of the Lessee as to ore produced and sold and Lessors are also given the right and permission to call upon any or all mills or purchasers of ores to disclose payments by the said mill or purchasers to Lessee and the Lessee hereby consents to the disclosure by such mills or purchasers of said information to the Lessors or their agents and releases the said mills and purchasers from liability for such disclosure.

23. The titles set forth in the margin of this lease are for the purpose of convenience only and shall have no import or effect upon the interpretation or meaning of this lease or any paragraph.

24. In the event it should be determined that the land covered by the above described mining claims, or any of them, should not be open to location under the United States mining laws either because (a) it is included in an offer, application, permit or lease under the Mineral Leasing Act of 1920, as amended, or (b) said lands are reserved, classified or known to be valuable for minerals leasable under that Act, then in such event, Lessor shall timely comply with the requirements of the

C O P Y

Atomic Energy Commission Domestic Uranium Program, Circular 7 in applying for and securing a lease, as provided in said Circular 7, upon securing said lease and consent to assign, then Lessor shall assign said lease and the said lease shall have the same effect, as far as legally possible, as if it were included hereunder. Failure to secure said lease under Circular 7 shall not defeat or invalidate this lease agreement and in such event this lease shall remain in full force and effect.

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

LESSORS:

(Signed) Richard N. Mohler	(Signed) Ruth M. Mohler
(Signed) Robert E. Mohler	(Signed) Betty E. Mohler
(Signed) Nicholas Murphy	(Signed) Thelma Murphy
(Signed) Samuel R. Zimmerman	14321 E. Ramona Blvd. Baldwin Park, Calif.
(Signed) Melbourne D. Wallace	(Signed) Zaida M. Wallace
(Signed) Earl E. Murphy	(Signed) Vera P. Murphy

LESSEES:

(Signed) Harry V. Hand	San Antonio, Texas
(Signed) Nate Stein	Durango, Colorado
(Signed) Joy McCartney	710 Alamo National Bldg. San Antonio, Texas

C O P Y

STATE OF UTAH)
) ss
COUNTY OF GRAND)

On this 15th day of May, 1954, before me personally appeared _____ and acknowledged to me that they executed the foregoing instrument.

SEAL

(Signed) Carroll J. Meador
Notary Public

My Commission expires:

Dec. 16, 1954

Residing in: Moab, Utah

Appendix "D"

Name of Claim	Book	Page	Date of Recording
Mile High #1	9-K	99	6/27/51
Mile High #2	9-k	99	6/27/51
Mile High #3	9-K	99	6/27/51
Mile High #4	9-K	99	6/27/51
Mile High #5	9-K	99	6/27/51
Mile High #6	9-K	100	6/27/51
Mile High #7	9-K	100	6/27/51
Mile High #8	9-K	100	6/27/51
Mile High #9	9-K	92	6/27/51
Mile High #10	9-K	92	6/25/51
Mile High #11	9-K	92	6/25/51
Mile High #12	9-K	92	6/25/51
Mile High #13	9-K	92	6/25/51
Mile High #14	9-K	93	6/25/51
Mile High #15	9-K	93	6/25/51
Mile High #16	9-K	93	6/25/51
Tank Form #1	9-K	196	8/14/51
Tank Form #2	9-K	197	8/14/51
Tank Form #3	9-K	198	8/14/51
Salty Dog #1	9-N	189	1/2/53
Salty Dog #2	9-N	190	1/2/53
Kilpacker #1	9-N	183	1/2/53
Kilpacker #2	9-N	184	1/2/53
Kilpacker #3	9-N	185	1/2/53
Kilpacker #4	9-N	186	1/2/53
Kilpacker #5	9-N	187	1/2/53
Kilpacker #6	9-N	188	1/2/53
Security #1	17	168	1/23/54
Security #2	17	169	1/23/54
Security #3	17	170	1/23/54
Security #4	17	171	1/23/54
Security #5	17	172	1/23/54
Security #6	17	173	1/23/54
Security #7	17	174	1/23/54
Security #8	17	175	1/23/54
Security #9	17	176	1/23/54
Security #10	17	177	1/23/54
Security #11	17	178	1/23/54
Security #12	17	179	1/23/54
Security #16	17	180	1/23/54
Security #17	17	181	1/23/54
Security #18	17	182	1/23/54
Security #19	17	183	1/23/54
Security #20	17	185	1/23/54
Security #21	17	186	1/23/54

Appendix "E"

4. Physical description.-(a):

Accessibility:

Access road begins 3 miles Northwest on Utah State Highway 160 from Moab and proceeds downstream along the Colorado River for 19 miles, thence 3 miles of side canyon road to the Chief Uranium, Ltd., camp.

From the camp, the mine road climbs through switchbacks some 500 feet in elevation to the outcropping Shinarump formation.

Existing Mine Workings:

Three-quarters of a mile at the base of the Shinarump (see Sketch Map) drift tunnels are being driven to explore indicated uranium ore. The usual air, water, rock handling and ventilation facilities are operating to carry on these drives.

Camp Facilities:

Installations include a 12-man mess hall, two sleeping cabins, and tentage.

Camp installations include butane and water facilities.

Interest in Operations:

The following participation arrangement is in effect:

10% of gross proceeds to claim owners (Less development and haulage payments).

10% of gross proceeds divided as follows:

Harry V. Hand	2-1/2%
Nate Stein	2-1/2%
Joy McCartney	2-1/2%
Santex Mining Camp (now performing operations for Chief Uranium, Ltd., under contract)	2-1/2%

80% Chief Uranium, Ltd.

4. (b): Past and current production - none.
Ore reserves - Prospective only.

4. (c): The property is located at about the top of the Cane Creek Anticline with the bedding, in general, plunging to the Southwest. The Shinarump and Chinle are exposed along the canyon escampment for 3-1/4 miles at around 500 feet below the Mesa.

Mineralization occurs along the base of the Chinle or in the Shinarump conglomerate. Ore minerals identified are carnotite and uraninite. Many outcropping exposures indicate ore by use of the geiger counter. Lime content of the ore is rather high.

The type of deposit is a flat dipping conglomerate bed.

The reasons for wanting to explore is to develop positive, mineable reserves of uranium ore for immediate marketing.

4. (d): Accessibility of Project:

Access Roads:

Moab via Highway 160 -- 3 miles
Dirt road downstream along Colorado -- 19 miles
Side canyon road to camp -- 3 miles
Camp to mine workings -- 1-1/2 miles

Distances to Shipping:

Mine - Moab Stockpiling --------- 23 miles
Mine - Thompsons, Utah ---------- 60 miles
Mine - Monticello ---------- 83 miles

Supply and Residence Points:

Mine - Moab ---------- 26 miles

4. (e): Availability of Following:

Manpower -- adequate
Materials -- sufficient
Supplies -- sufficient
Equipment -- good supply
Water -- Spring source: 1,000 gals. per day subject to further development; Colorado River is 3 miles distant
Power -- No installation to date and no R.E.A. in vicinity

Appendix "F"

5. (d): The applicant is a partnership, members of which have extensive background in business and administration, personnel management and finance.

The operations are conducted by the Santex Mining Corporation of Deming, New Mexico, and qualified for operations in Utah and Colorado besides New Mexico. Their engineer and superintendent of mining operations is Lawrence E. Smith, graduate of Colorado School of Mines, 1931, and with some 20 years of practical operation in the field, both domestic and foreigh. All personnel of position are well experienced in the phases of mining.

Appendix "G"

6. Estimate of costs.

(a) Hereunder are submitted approximate costs based on a figure of $30.00 per foot which includes all labor, supervision, supplies and materials, general overhead and contingencies.

Cost of Road Improvements:

Access road to Camp on contract		$ 6,000
Camp to mine workings (both improvement & extension)		$ 10,000

Camp Additions & Improvements:

Buildings	$ 2,500	
Services (water, etc.)	500	$ 3,000

Exploratory Projects:

Section A:		
Drift Tunnel - 1 Northeast		
400 ft. x $30	$12,000	
Drift Tunnel - 2 Northeast		
300 ft. x $30	9,000	
Drift Tunnel - 1 Southeast		
400 ft. x $30	12,000	
Exploratory Raises & Crosscuts	10,000	
		43,000
Section B:		
Preparation (Trails, pipelines, etc.)	$10,000	
Drift Tunnel - 1 West	12,000	
Drift Tunnel - 2 West	9,000	
Exploratory Raises & Crosscuts	7,000	
		$ 38,000
Total		$100,000

6. (b): Labor, supervision, consultants.

Schedule of Pay Rates:

2 - Foreman	$ 2.25	per hour
4 - Miner	2.00	per hour
4 - Unskilled	1.50	per hour
1 - Supervision Engineer	1,000.00	per month
1 - Contract Bulldozing	10.00	per hour
1 - Cook	250.00	per month
1 - Bookkeeper-Accountant	300.00	per month

6. (c): Schedule of Operating Materials & Supplies:

Fuel	$ 400.00	per	month
Explosives	400.00	"	"
Messhouse Food	600.00	"	"
Miscellaneous Mine Supplies	500.00	"	"
Underground Support Timber & Bolts	500.00	"	"
Miscellaneous Spare Parts	200.00	"	"

6. (d): Schedule of Operating Equipment:

Bulldozer	$10.00	per	hour	(Rental Contract)
105 cu. ft. Compressor	3.00	"	"	(Owned)
250 cu. ft. Compressor	4.00	"	"	
D-2 Cat, Mucker	3.00	"	"	
Air Drill Equipment	1.00	"	"	
Fordson Mucker	2.00	"	"	
4 Vehicles	0.00			

6. (e): Rehabilitation & Repairs:

To existing installations.....$ 500.00

6. (f): Buildings, improvements, installations:

See 6 (a) - Cost Estimates).....$3,000.00

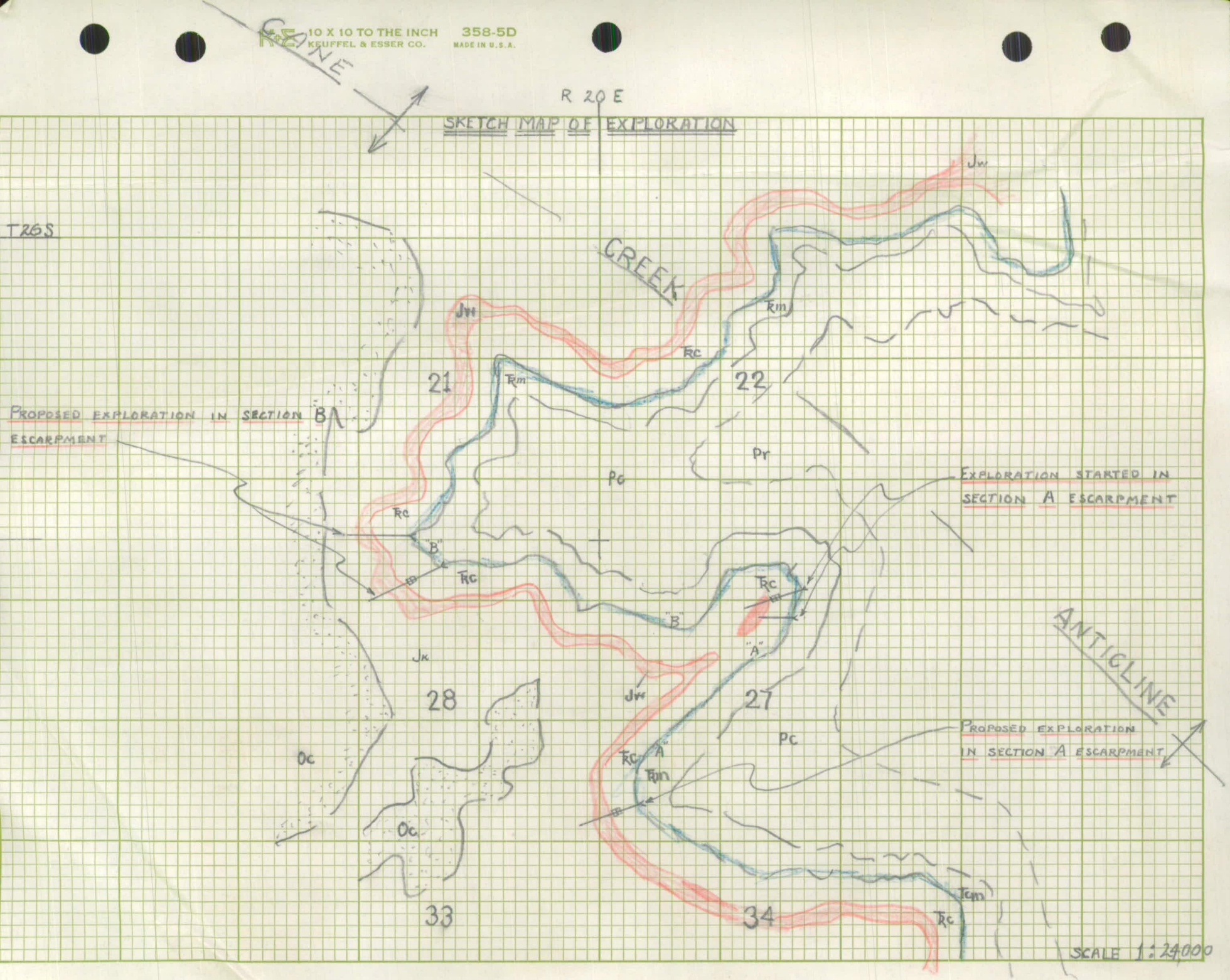
6. (g): Miscellaneous:

Workmen's Compensation & Liability Insurance. This will vary with the number of men employed and the rest of the information is contained above.

6. (h): Contingencies:

Included in 6 (a) Total.

K&E 10 X 10 TO THE INCH 358-5D
KEUFFEL & ESSER CO. MADE IN U.S.A.



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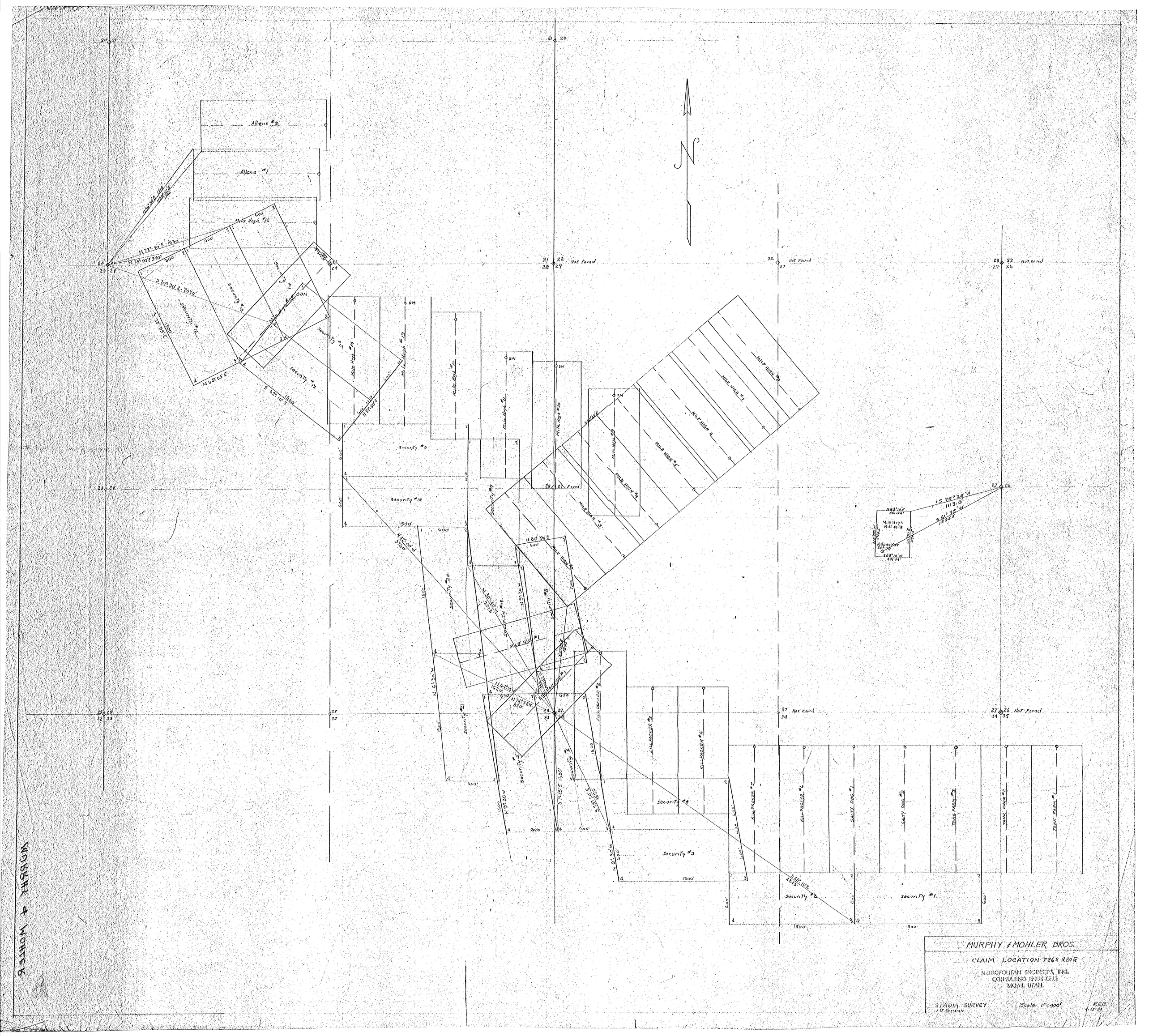
MURPHY & MOHLER BROS.
CLAIM LOCATION T26S R20E
METROPOLITAN ENGINEERS, INC.
CONSULTING ENGINEERS
MOAB, UTAH
STADIA SURVEY
1st Division
Scale: 1"=400'
Allens #2
Allens #1
Mile High #14
Security #12
Security #13
Security #14
Security #15
Security #16
Security #17
Security #18
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Security #21
Mile High #1
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Mile High #9
Mile High #10
Mile High #11
Mile High #12
Mile High #13
Mile High #14
Mile High Mill site
Killpacker #1
Killpacker #2
Killpacker #3
Killpacker #4
Killpacker #5
Killpacker #6
Salty Dock #1
Salty Dock #2
Tailing Pond #2
Tank Farm #2
Tank Farm #1
Not Found
Found

U. S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH THE
ATOMIC ENERGY COMMISSION

COMPILATION OF PHOTOGEOLOGY AND SURFACE GEOLOGY
COLORADO PLATEAU AREA, UNITED STATES

TRACE ELEMENTS MEMORANDUM REPORT 598

PLANIMETRIC BASE MAP TAKEN FROM U. S. GEOLOGICAL SURVEY TOPOGRAPHIC MAP MOAB 4, S. W., (UNPUBLISHED)

This map is preliminary and has not been edited or reviewed for conformity with U.S. Geological Survey standards and nomenclature.

4	3	2	1
5	6	7	8
12	11	10	9
13	14	15	16

MOAB QUADRANGLE

TRUE NORTH
MAGNETIC NORTH
15°30'

PHOTOGEOLOGIC MAP
MOAB-15
GRAND COUNTY, UTAH

PHOTOGEOLOGY BY V.M.HOSLEY
PHOTOGEOLOGY UNIT, ALASKAN GEOLOGY BRANCH
SCALE 1:24,000
0 — 1 MILE
MARCH 1953

Roads as classified in this map series are as follows: Primary roads are maintained and graded, traversable by two wheel-drive vehicles; secondary roads are traversable possibly by two wheel-drive vehicles; trails are not traversable by four-wheel-drive vehicles except locally. When other information is lacking, roads are classified by their appearance on aerial photographs.

Stratigraphic column for this area modified from U. S. Geol. Survey Bull. 908, 1940.

EXPLANATION

QUATERNARY

Qal, Qt, Qc — Alluvium, Qal; terrace deposits, Qt; covering deposits, undifferentiated, Qc

JURASSIC

Upper
- Jms — Salt Wash sandstone member of the Morrison formation
- Js — Summerville formation
- Jem — Moab tongue of the Entrada sandstone

JURASSIC (?)
- Jn — Navajo sandstone
- Jk — Kayenta formation
- Jw — Wingate sandstone

TRIASSIC

Upper
- Trc — Chinle formation
- Trs — Shinarump conglomerate

Lower
- Trm — Moenkopi formation

PERMIAN
- Pc — Cutler formation
- Pcr — Cutler and Rico formations, undifferentiated
- Pr — Rico formation

CARBONIFEROUS

Pennsylvanian
- Ch — Hermosa formation

Contact
(Can be accurately located within 30 feet horizontally)

Contact
(Can be approximately located within 30 to 200 feet horizontally)

Contact
(Cannot be located accurately; probable error greater than 200 feet)

Probable or doubtful contact

Fault
(U, upthrown side, D, downthrown side Dashed where approximately located)

Probable or doubtful fault

Anticline
Showing trace of axial plane
(Dashed where approximately located)

Syncline
Showing trace of axial plane and direction of plunge

Strike and dip of beds
(Based on field measurement)

Strike and dip of beds
(Based on photo-interpretation)

Inferred strike and dip of beds
(Based on photo-interpretation)

Horizontal beds

Conspicuous resistant bed within a formation
(May be traceable only locally)

Strike of approximately vertical joints
(Based on photo-interpretation)

Abandoned oil well

Primary road

Secondary road

Trail

National Monument boundary

County boundary

BM 6115
Bench mark

U 246 SW

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