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

RECEIVED
OCT 31 1955

224 New Customhouse
Denver 2, Colorado

October 25, 1955

Memorandum

To: Secretary to the Operating Committee, DMEA

From: DMEA Field Team, Region III

Subject: Docket No. DMEA-4027, (Uranium), Moab Mines, Inc., Big Indian Mining District, San Juan County, Utah

Enclosed are four copies of a joint memorandum by J. William Hasler, U. S. Geological Survey, and M. H. Salsbury, U. S. Bureau of Mines, recommending that the subject application be denied without a field examination.

In the event that the application is denied we suggest that it be a denial without prejudice, with the usual Operating Committee letter to the Operator. We do not believe that the Operator should be requested to do any preliminary work or that the DMEA has authority to make such a request.

W. M. Traver

W. M. Traver

E. N. Marshman

E. N. Marshman

Enclosures

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

RECEIVED
OCT 31 1955

DMEA
Date Rec'd
OCT 21 1955

BUREAU OF MINES
Denver, Colorado

October 20, 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: J. William Hasler and M. H. Salsbury

Subject: Appraisal of Moab Mines, Inc., San Juan County, Utah, application for DMEA assistance relative to necessity of a field examination.

The Moab Mines, Inc., have applied for a DMEA loan for exploration for uranium in sec. 36, T. 26 S., R. 22 E., and in sec. 2, T. 29 S., R. 22 E., San Juan County, Utah.

The applicant proposes to test the above-mentioned school sections with a grid of diamond-drill holes to discover ore at depth in the underlying Moss Back sandstone member of the Chinle formation of Triassic age.

The applicant postulates a trend of mineralized ground from the Lisbon Valley ore bodies into their school sections.

We have carefully reviewed the application with the Atomic Energy Commission and are of the opinion that the area under consideration lies considerably northwest of the actual trend of mineralization. The rocks in the area are comparatively flat-lying and are of considerable distance away from the anticlinal axis of the Lisbon Valley.

It is concluded that the chances of discovering uranium ore deposits, by the presently proposed method, are of a wildcat nature and would be essentially a prospecting venture. It is, therefore, recommended that the application be denied without a field examination, but that the applicant be requested to do some preliminary exploration work to test the area for possible trends of mineralized ground, favorableness of the host rock, and other structural and geologic information that may indicate presence of ore deposits. After such preliminary work has been completed, and if the results are favorable, then the applicant should be advised that he might reopen the application for assistance for Government aid.

Enclosed is the applicant's brochure.

J. William Hasler
J. William Hasler, Geologist, USGS

M. H. Salsbury
M. H. Salsbury, Engineer, USBM

JWH/mlr
cc: E. N. Harshman
Enclosure

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J. William Hasler, Geologist, USGS

M. H. Salsbury
M. H. Salsbury, Engineer, USBM

JWH/mlr
cc: E. H. Harsman
Enclosure

APPLICATION FOR DMEA AID

MOAB MINES, INC.

COPY

October 14, 1955.

Mr. Will M. Traver.
Defense Minerals Exploration Administration,
Bureau of Mines.
224 New Customhouse Building,
Denver 2, Colorado.

Dear Sir:

Moab Mines, Inc. is hereby submitting for your deliberation, an application for DMEA aid to be used in exploration for uranium minerals.

The property for which aid is being solicited is Section 36, Township 28 south, Range 22 East, and Section 2, Township 29 south, Range 22 east, San Juan County, Utah.

We have strived to comprehensively answer all questions as posed by the application form, and included you will find a geological report on the area in question.

We hope that you find this report satisfactory, and your careful consideration of same will be greatly appreciated.

Very truly yours,

William J. Owen, President
Moab Mines, Inc.

WJO:zf

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. 4027
Metal or Mineral uranium
Date Received 10-20-55
Estimated Cost $30,780.
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: Moab Mines, Inc.
P.O. Box 506,
Moab, Utah
(see report, page 1)

(*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. Utah corporation

(*c*) If a corporation, add to above statement, titles, names and addresses of officers. See report page 1

(*d*) If a partnership, add to the above statement the names and addresses of all partners. not applicable

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 report page 2 1 and 2

(*b*) State any mine name by which the property is known. see report page 2

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise
see report page 2

(*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 report page 2 - appendix, pages 1 - 7

(*e*) If you own the land, describe any liens or encumbrances on it not applicable

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. not applicable

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 report page 2 & 3

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. geology report page 2 not applicable

(*c*) Describe the geologic features of the property, including mineralization, type of deposit (vein, bedded, etc.), and your reasons for wishing to explore. Illustrate with maps or sketches. Send with your application (but not necessarily as a part of it) any geologic or engineering report, assay maps, or other technologic information you may have, indicating on each whether you require its return to you. see report pages 2 3 - 5, geology report page 1

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

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

see report page 5

16—66551-1

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

(*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 report pages 5-7, geology report pages 7 - 13

(*c*) The work will start within 7 days and be completed within 6 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 report pages 7-8

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

(*a*) *Independent contracts.*—(Note.—If the applicant does not intend to let any of the work to contractors, write "none" after this item. To the extent that the work is to be contracted, do not repeat the cost of the contract-work in subsequent items.) State the cost of any proposed independent contracts for the performance of all or any part of the work, expressed in terms of units of work (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved, etc.). see report page 8

(*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. see report page 8

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel. see report page 9

(*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. see report page 9

(*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. not applicable

(*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. not applicable

(*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. see report page 9

(*h*) *Contingencies.*—Give an estimate of any necessary allowances for contingencies not included in the costs stated above. see report page 9

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)? see report page 9

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

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

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated _____, 195__

Moab Mines Inc.
(Applicant)

By William J. Owen
President

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

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

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COPY

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REPORT ACCOMPANYING

APPLICATION FOR AID

TO DMEA *

1. Name of applicant:

   (a) This application is being made by Moab Mines, Inc., Box 586, Moab, Utah.

   (b) Moab Mines, Inc. is a Utah Corporation.

   (c) The following are the titles, names and addresses of the officers of Moab Mines, Inc.

   President & Director:

   William J. Owen
   Box 586,
   Moab, Utah

   Vice President & Director:

   Robert C. Gibson
   Box 685,
   Moab, Utah

   Secretary-Treasurer & Director:

   Robert J. Fellmeth
   Box 1674,
   Grand Junction, Colo.

   Robert R. Norman
   Box 682,
   Moab, Utah

   Robert D. Lemmons
   Canyon Motel
   Moab, Utah

2. GENERAL:

3. APPLICANTS PROPERTY RIGHTS:

   (a) Moab Mines, Inc. holds the uranium and vanadium leases

* The numbers and letters included in this report correspond to those used in the DMEA application to which this report is a supplement.

on two State of Utah School Sections; namely Section 36 of Township 28 South, Range 22 East and Section 2 of Township 29 South, Range 22 East S.L.M. It is upon these two sections that the application for D.M.E.A. aid is being made. No other property of the corporation will be benefited by the contemplated program.

(b) The property itself is not known by a mine name, but can be properly considered a part of the Big Indian Mining District.

(c) Moab Mines, Inc. is a lessee, the two School Sections are under the Utah mineral lease No. 5983, dated February 5, 1954, for uranium and vanadium and are subject to 3% - 17% royalty. The lease is for a primary term of ten (10) years and "as long thereafter as said minerals may be produced in commercial quantities ..."

(d) See Appendix, pages 1-7.

The location of the property under consideration is further set forth in the geological report and accompanying maps within this report. See geology report, pages 2, 19.

(e) Not applicable.

(f) Not applicable.

4. <u>PHYSICAL DESCRIPTION</u>:

(a) To date there have been no exploratory activities conducted by Moab Mines, Inc. on the School Section property. There has been some rim prospecting in Hatch Canyon to the north of said property and at the present writing two small drifts have been driven into the potential ore horizon at a point some 2 miles to the north. The results of these operations have not been ascertained. Drilling operations have been instigated on some property in Section 1, Township 28 South, Range 22 East, S.L.M. adjacent to the School Sections.

Neither the scope nor the result of this program is available for evaluative purposes at this time.

The School Sections are within the Big Indian Mining District, San Juan County, Utah. Big Indian has been synonymous with rich uraniferous deposits since the discovery and development by Charles Steen of the Mi Vida mine. Subsequently, the Homestake, Cal Uranium, Hecla and Standard deposits to mention a few have been delineated and developed, thereby making this the premier uranium mining district in the United States.

Developments in the past five years have emphasized the importance of Southeastern Utah in general and the Big Indian District in particular as a source of commercial concentrations o f uranium and vanadium minerals. A general statement that would appear valid is that the deposits discovered to date have been by reason of propitious outcropping due to erosional baring.

(b) Not applicable.

(c) Geologically, the Big Indian District is favored by the Lisbon Valley fault and the surface and subsurface occurrence of a proven ore horizon - the Chinle-Mossback interval. Much of the areal extent of Big Indian is so favored, yet has not been explored due to the considerable expense involved. The properties, the subject of this application, fall in this category.

Favorable geological circumstances are inherent in the property and for this reason DMEA aid is being solicited in the belief that this program was created to promulgate the exploration for minerals in favorable areas where the expense would be large.

The School Section area proper has predominantly Navajo sandstone surface outcrops. Underlying the Navajo are the Kayenta

sandstone, Wingate sandstone and the Chinle mudstones with associated basal Chinle-Mossback ore horizon. An average stratigraphic thickness of 850 feet to the potential ore horizon from the surface is indicated.

The School Sections lie 2 to 3 miles southwest of the Lisbon Valley fault. The La Sal Mountains are located about 10 miles to the east. The outcropping strata are essentially flat-lying and are exposed in vertical cliffs forming the rims of Hatch Wash. A segment of this rim is within school section 36 and outcrops of the Kayenta, Wingate and Chinle formations may be noted. The potential ore horizon is estimated to be 25 feet in the subsurface at this point in Hatch Wash. In the event ore is discovered in the proposed exploration program, Hatch Wash will afford a site for drifting into the deposits. The geology of the school sections is treated more fully in the geological report included herein.

The basic concepts vital to Moab Mines, Inc. reasons for wishing to explore these school sections are:

(1) Location within the very highly mineralized Big Indian Mining District.

(2) The belief that the deeper subsurface Chinle-Mossback occurrence in this district is as favorable to ore deposition as the shallower and more readily explored part exposed behind the Big Indian rim.
There is no evidence to refute this belief with penetration by drill bit the final arbiter.

(3) A geological comparison with the large ore deposits in the area indicates the school section vicinity would be favorable for ore occurrence. Certainly there is

nothing prevalent to condemn the property.

(4) Big Indian ore deposits are characteristically rich and as such warrant the expense of exploration. If a typically large deposit is detected, the exploratory and developmental costs should be a very sound economic investment.

(d) The school section vicinity could be made readily accessible by comparatively small expenditure for bulldozing work. The area is in close proximity to highway 160 as it traverses between Moab and Monticello, Utah. The area is approximately 15 miles south from Moab, and 40 miles north from Monticello. The terrain in the area permits of jeep travel over practically the entire extent of the two school sections.

(e) Manpower, materials, supplies, equipment, etc. are readily available from either Moab or Monticello, Utah.

5. THE EXPLORATION PROJECT:

(a) It is our objective to explore for uranium-vanadium minerals with any aid received from DMEA.

(b) Moab Mines, Inc. proposes to engage in exploration for uranium-vanadium minerals by means of a drilling program. Any program proposed at this time is necessarily tentative but a general plan based on sound geological reasoning has been formulated and we hereby submit it as a basis for further discussion.

At this time the corporation is thinking in terms of an initial exploratory drill program as opposed to a developmental program. The major expenditure will, therefore, be represented by the cost of drilling. The amount of drilling required to thoroughly prospect the area in question will determine the length of the project, and this

in turn will largely control the overall costs of the project. Therefore, it becomes necessary to tender an estimate of the drilling depths involved and contemplated overall footage so that a basis for negotiating with the DMEA may be established.

INITIAL PROGRAM - The area involved in the proposed program approximates 1300 acres. The statement has been made by Mr. Paul Henshaw, a noted geologist with the Homestake Mining Company, to the effect that 500 foot spacing of drill centers is the optimum for initial exploration of the Chinle-Mossback ore horizon. Moab Mines, Inc. intends to employ 500 foot spacing of centers in a square net configuration. To carry out the above recommended program, each section would require 25 holes or a total of 50 holes for the two sections. Depths of the holes will range from 800-900 feet of which 40-50 feet in the Chinle-Mossback interval will be cored.

On the basis of the above estimates, the following is a summary of the drilling requirements:

No. of Holes	Plugging	Coring	Total Footage
50	(50x800)=40,000	(50x50)=2500	42,500

Conservatism has been the rule in the compilation of estimated footage; consequently, the 42,500 feet may be considered a maximum figure.

A graphic illustration of drill hole placement and relation of same to the geology may be found on page 13 of the geology report.

An adjunct to the drilling program will be careful analysis of the cores obtained with particular attention devoted to the detection of mineralization, thickness of the ore horizon, lithologic description, presence of carbonaceous debris and other manifestations helpful in the preparation of favorability and isopach maps.

Once again it must be emphasized that the program outlined above will be purely exploratory and as such has been rather rigidly set forth. In the event ore deposits are detected, Moab Mines, Inc. would like to reserve the privilege of approaching the DMEA agency for further aid in any subsequent endeavors.

(c) The work set forth herein will start within 7 days and be completed within 6 months from the date of an exploration project contract.

(d) Tentative arrangements have been made to let the drilling contract to the Utah Drilling Company. Geological and other supervisory capacities will be in the hands of the personnel of William J. Owen Associates, Geologists and Mining Engineers. The following is a brief resume of the background and experience of the key personnel who will be involved in the project:

William J. Owen, Supervisor: Bachelor of Science in Geology, University of Texas; worked on oil rigs in Texas; has been a uranium exploration geologist on the Colorado Plateau fourteen months for Hunt Oil Company (included areas in New Mexico, Arizona, Colorado, Wyoming and Montana). Was a consultant geologist for ten months with offices in Moab, Utah.

William R. Ellis, Geologist: Bachelor of Science in Geology, University of Texas; consultant on the Colorado Plateau in the field of uranium geology; familiar with areas in Utah, Colorado, Wyoming, Arizona, New Mexico including eight counties. Formerly with Humble Oil Company and the Stone-Tex Oil Company.

Lee J. Sturgeon, tool pusher: 27 months on Sullivan rig in Venzuela for Socony Vacuum. Driller for five years for Livingston Wilson Exploration (Failing rigs).

William F. Jamieson, mining engineer: Bachelor of Science degree from Washington State University; also attended Colorado School of Mines. Formerly an engineer for Ventures Limited in Canada, Consolidated Copper in Nevada, U.S. Vanadium in California, Free Port Sulphur in Texas and First Uranium Corporation in Nevada.

Walter Wagner, driller: Two years and two months drilling experience for M. O'Connell Drilling Company in Casper, Wyoming.

Joseph Wagner, driller's helper: three months experience with present company as helper.

S. Constantino, Jr., administration: Master of Arts degree in Economics, Fordham University; supplies, program coordinator for present company.

Kline D. Strong, acting controller: Bachelor of Laws, University of Colorado. Title work, contract agreements, personnel.

Charles Aplanalp, miner and driller: five years wagon-drill experience.

Douglas Cathey, driller: ten years of drilling experience in Texas, Oklahoma, Utah, New Mexico, Arizona, Colorado and Wyoming. Equipment: Standard rig, Mayhew, Failing, Winter-Weiss and wagon drills.

Utah Drilling Company has completed fourteen uranium property drilling projects on the Colorado Plateau during the 1955 Spring-Summer season. Total footage as of August 31st was about 60,000 ft.

6. ESTIMATED COSTS:

The project cost has been estimated on the basis of a program of six months duration and a total drilling footage of 42,500 feet, as follows:

(a) Independent Contracts:

(1)	42,500 ft. drilling @$4.00 per ft.	$180,000.00
(2)	clearing, drill roadwork sites, bulldozing, etc. @$12.50 per hour, 240 hrs.	3,000.00
(3)	Assaying samples 100 @ $5.00 each	500.00
	Subtotal	$183,500.00

(b) Labor, Supervision and Consultants

(1)	Common labor 1 man @$350.00 per month (6x$350)	2,100.00
(2)	Geologist @$600.00 per month (6x$600)	3,600.00
(3)	Surveyor & draftsman @$500.00 per month (6x$500.00)	3,000.00
(4)	Superintendent @$800.00 per month (6 x $800.00)	4,800.00
(5)	Consultants-Mining, Engineering, Geology @ $100.00 per day (x10 days)	1,000.00
	Subtotal	14,500.00

(c)	Operating Materials & Supplies	2,000.00
(d)	Operating equipment	
	(1) Three jeeps @$300.00 each per month	5,400.00
	(2) Truck mounted kitchen @ $400.00 per mo. (6x$400.00)	2,400.00
	Subtotal	9,800.00
(e)	Rehabilitation & Repairs	
(f)	Buildings	
(g)	Miscellaneous (1) Repairs (2) Maintenance (3) Accounting (4) Workmen's Compensation (5) Employers liability insurance (6) Payroll taxes	2,000.00

SUMMARY OF COSTS:

(a)	Independent contracts	$183,500.00
(b)	Labor, Supervision, Consultants	14,500.00
(c)	Operating material and supplies	2,000.00
(d)	Operating equipment	7,800.00
(e)	Rehabilitation & Repairs	------
(f)	Buildings	------
(g)	Miscellaneous	2,000.00
(h)	Add 10% for contingencies	20,980.00
	Total Estimated Cost	$230,780.00

7. Corporation Participation:

(a) Moab Mines, Inc. is prepared to furnish its share of the costs of the proposed project in accordance with the regulations as set forth in Sec. 7, DMEA No. 1.

(b) Moab Mines, Inc. will provide its share of the costs in money.

THE STATE OF UTAH

STATE LAND BOARD

SALT LAKE CITY 1

RECEIVED

OCT 20 1955

P. H. MULCAHY
CHAIRMAN

T. S. CURTIS
SECRETARY

A. N. SMITH
EXECUTIVE SECRETARY

LEE E. YOUNG
MANAGER

June 2, 1955

RECEIVED
DATE 6/6/55

Re: Mineral Lease No. 5983

Moab Mines, Inc.
c/o Reynolds & Gibson
Moab, Utah

Gentlemen:

The Land Board, at its meeting May 20, 1955, approved assignment of the above numbered mineral lease to you; by William J. Owen.

Our records have been noted and we herewith enclose the original lease with assignment.

Yours very truly,

Lee E. Young

LEE E. YOUNG
EXECUTIVE SECRETARY

jg
encl.

UTAH OIL REPORT

ASSIGNMENT OF ~~OIL AND GAS~~ URANIUM AND VANADIUM LEASE

Mineral Lease No. 5983 UTAH STATE LAND OFFICE Application No. 4184

For and in consideration of the sum of Ten and no/100 Dollars

I (we) hereby sell, assign and transfer unto MOAB MINES INC., a Utah Corporation

of all my (our) right, title and interest in and to

ML# 5983; embracing the following described land:

All of Section Thirty Six (36), Township 28 South, Range 22 East, and all of

of Section 2 Township 29 South Range 22 East

Salt Lake Meridian, in the County of San Juan State of Utah.

Witness my (our) hand(s) this 1st day of March, 195 5

William J. Owen
William J. Owen

Two Witnesses:

Gertrude L. Glover
Leda Holyoak

STATE OF UTAH,
County of Grand } ss.

On the 1st day of March, A. D. 1955, personally appeared before me William J. Owen the signer(s) of the above instrument, who duly acknowledged to me that he executed the same.

Leda Holyoak
Notary Public.

My commission expires 4-26-58

Affidavit of Citizenship of Assignee

I, (we) on oath, do solemnly swear that I am (we are) at the present time (a)* Citizen(s) of the United States of America and over the age of twenty-one years.

Subscribed and sworn to before me this day of , 195

Notary Public.

My commission expires

NOTE—*Insert here whether native born or naturalized. If naturalized, it will be necessary to file with this office Proof of Citizenship or Declaration of Intention to become a citizen, in the form of a letter or certificate of verification from Court of Issuance, and registration fee of $1.00.

NOTE—The original Mineral Lease must be produced. ASSIGNMENT FEE, $2.00.

Proof Read

142

MINERAL LEASE NO. 5983

UTAH STATE LEASE

FOR

APPLICATION NO. 4184 GRANT School

URANIUM AND VANADIUM

THIS INDENTURE OF LEASE AND AGREEMENT entered into in duplicate this 5th day of February 19 54 by and between the State Land Board, acting in behalf of the State of Utah, hereinafter called the Lessor, and

JOHN J. KNOP

party of the second part, hereinafter called the Lessee, under and pursuant to Title 65, Utah Code Annotated, 1953.

WITNESSETH: That the Lessor, in consideration of the rents and royalties to be paid and the covenants to be observed by the Lessee, as hereinafter set forth, does hereby grant and lease to the Lessee the exclusive right and privilege to mine, remove, and dispose of all of the said minerals in, upon, or under the following described tract of land situated in San Juan County, State of Utah, to-wit:

All of Section Thirty-Six (36), Township Twenty-Eight (28) South, Range Twenty-Two (22) East, and all of section Two (2), Township Twenty-Nine (29) South, Range Twenty-Two (22) East, Salt Lake Meridian,

containing a total of 1303.40 acres, more or less, together with the right to use and occupy so much of the surface of said land as may be required for all purposes reasonably incident to the mining, removal, and disposal of said minerals, according to the provisions of this lease, for a period of ten years, beginning January 2nd, first succeeding the date of issuance hereof, and as long thereafter as said minerals may be produced in commercial quantities from said lands, upon condition that at the end of each twenty (20) year period succeeding the first day of the year in which this lease is issued, such re-adjustment of terms and conditions may be made as the Lessor may determine to be necessary in the interest of the State.

ARTICLE I

It is expressly understood and agreed that this lease is granted subject in all respects to and under the conditions of the laws of the State of Utah and existing Rules and Regulations or Rules and Regulations as may be hereafter approved and adopted by the State Land Board.

ARTICLE II

It is further expressly understood and agreed that this lease covers only the mining, removal, and disposal of the minerals specified in this lease, but the Lessee shall promptly notify the Lessor of the discovery of any minerals excepting those enumerated herein.

ARTICLE III

The Lessee in consideration of the granting of the rights and privileges aforesaid, hereby covenants and agrees as follows:

FIRST: To pay to the Lessor as rental for the land covered by this lease the sum of Fifty (50) Cents per acre per annum. All such annual payments of rental to be made in advance on the 2nd day of January of each year, except the rental for the year in which this lease is issued, which is payable on the execution of this lease, such rental to be credited against the royalties as they accrue for the year.

SECOND: To pay a royalty of 12½% of the gross amount received for or the gross value of the leased substances, including the State's royalty share of any bonus received by the Lessee from the sale of the leased substances. The basis for computing the amount due to the Lessor shall be as follows:

(a) If the leased substance extracted are sold under a bonafide contract of sale the amount of money or its equivalent actually received by the owner, Lessee, or other person operating the leased premises from the sale of the leased substances less a reasonable cost, if any, of transporting the leased substances from the place where extracted to the place where under the contract of sale, the leased substances are to be delivered.

(b) If the leased substances extracted are treated at a mill, smelter, processing plant, or reduction works which receives the leased substances from independent sources and which is owned or controlled by the same interests owning or controlling the mine, such disposal shall be treated as a sale within the meaning of this section for the purpose of determining gross proceeds or otherwise, and in such determination a rate or charge for sampling, assaying, milling, smelting, or refining the leased substances therefrom shall be deducted which shall not exceed an amount to be determined by applying the same rates as are applied by such mill, smelter, or reduction works or competing works, and ores of substantially like character and in like quantities received from independent sources. In the event of controversy the Lessor shall have the power to determine such rates and charges. Transportation charges may also be deducted as provided in sub-division (a) hereof.

(c) If a mill or other reduction works is operated exclusively in connection with a mine such mill or reduction works shall be treated as a part of the mine and the cost of operating such mill or reduction works shall, for the purpose of fixing the royalty imposed by this lease, be regarded as part of the cost of mining, and the cost of assaying, sampling, smelting, refining, and transportation only shall be deducted as herein provided.

THIRD: Said royalties to be paid quarterly on or before the 15th day of the month next succeeding the quarter in which the material is produced.

FOURTH: To prepare and forward to the State Land Office, on or before the 15th day of the month next succeeding the quarter in which the material is produced, a certified statement as to the production, market, and price received on all of the leased substances disposed of from said lands, and such other additional information as the State Land Board may from time to time require.

FIFTH: That at the option of the Lessor it may require the payment of royalties in kind, F.O.B., at the lease-site; the amount being 12½% of the leased substances extracted.

SIXTH: To commence actual operations upon the land included herein on or before and there after to diligently operate the property in accordance with the provisions contained in this lease. Failure to so continue the operation of the land included herein for a period of more than six (6) months without prior written approval of the State Land Board shall be cause for forfeiture, and that upon the violation of this provision or any of the other terms of this lease the Lessor may at its option after thirty (30) days notice by registered mail cancel this lease. After the expiration of the said thirty (30) days and the cancellation of the lease no notice of such cancellation need be given the Lessee.

SEVENTH: To keep at the mine office clear, accurate and detailed maps on tracing cloth, on a scale not more than 50 feet to the inch, of the workings in each section of the leased lands and on the lands adjacent, and to be so arranged with reference to a public land corner that the maps can be readily and correctly superimposed, and to furnish to the Lessor annually, or upon demand, certified copies of such maps and such written statements of operations as may be called for. All surveys shall be made by a licensed engineer and all maps certified to by him.

EIGHTH: To not at any time fence any watering place upon the lands leased where the same is the only accessible and feasible source of water incident to the lands leased. Nor shall the Lessee or assigns at any time permit or contribute to the pollution of any surface or subsurface water available, naturally or otherwise, for domestic or irrigation use.

NINTH: To not sell, assign, mortgage, pledge, hypothicate, or otherwise transfer or incumber this lease or any interest therein, nor sublet any portion of the leased premises, or any of the rights and privileges herein granted, without the written consent of the Lessor being first had and obtained.

ARTICLE IV

The Lessor hereby excepts and reserves from the operation ofthis lease:

FIRST: The right to permit for joint or several use such easements or rights-of-way upon, through, or in the land hereby leased as may be necessary or appropriate to the working of these or other lands belonging to or administrated by the Lessor containing mineral deposits or for other use.

SECOND: The right to use, lease, sell, or otherwise dispose of the surface of said lands or any part thereof, under existing State Laws or Laws hereafter enacted, insofar as said surface is not necessary for the use of the Lessee in the mining, removal, or disposal of the leased substances therein, and to lease other mineral deposits, excepting those enumerated herein which may be contained in said lands.

ARTICLE V

Upon cancellation of this lease for any cause herein the Lessee shall be entitled to remove from the lease holdings only personal property prior to complete fulfillment of the provisions of this lease, and that improvements attached to the land such as buildings, timbering, or other construction or construction material in place, shall remain undisturbed upon the ground and the property surrendered in good usable condition.

ARTICLE VI

It is mutually understood and agreed that it shall be the responsibility of the Lessee to slope the sides of all operations of a surface nature to an angle of not less than 45° or to erect a barrier around such operation as the State Land Board may require. Such sloping or fencing shall become a normal part of the operation of the lease so as to keep pace with such operation to the extent that such operation shall not constitute a hazard.

ARTICLE VII

It is mutually understood and agreed by the parties hereto that all of the terms, covenants, conditions, and obligations in this lease contained, shall be binding upon the heirs, executors, administrators, and assigns of the Lessee.

ARTICLE VIII

It is mutually understood and agreed that the Lessee may terminate this lease at any time upon giving three (3) months notice in writing to the Lessor and upon payment of all rents and royalties and other sums due and payable to the Lessor, and upon complying with the terms of this lease with respect to the preservation of the workings in such order and condition as to permit of the continued operation of the leased premises.

ARTICLE IX

It is mutually understood and agreed by and between the parties hereto that the Lessor, its officers and agents, shall have the right at all times to go in and upon the leased lands and premises, during the term of said lease to inspect the work done and the progress thereof on said lands and the products obtained therefrom, and to post any notices on the said land that it may deem fit and proper; and also shall permit any authorized representatives of the Lessor to examine all books and records pertaining to operations under this lease, and to make copies of and extracts from the same, if desired.

ARTICLE X

It is mutually understood and agreed that this lease is issued only under such title as the State of Utah may now hold, the Lessor shall not be liable for any damages sustained by the Lessee, nor shall the Lessee be entitled to or claim any refund of rentals or royalties or other monies theretofore paid to the Lessor.

ARTICLE XI

LESSEE agrees to observe faithfully the provisions of Title 65, Chapter 1, Section 18, Utah Code Annotated 1953.

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

STATE OF UTAH STATE LAND BOARD

By A. N. Smith
EXECUTIVE SECRETARY LESSOR

APPROVED AS TO FORM:
E. R. CALLISTER
ATTORNEY GENERAL
By Robert H. Rugger

John J. Knop

LESSEE

STATE OF UTAH
COUNTY OF SALT LAKE } ss.

On the 13 day of April 19 54, personally appeared before me A. N. Smith who being by me duly sworn did say that he is the Executive Secretary of the State Land Board of the State of Utah and that said instrument was signed in behalf of said Board by resolution of the Board, and said A. N. Smith acknowledged to me that said Board executed the same in behalf of the State of Utah.

Given under my hand and seal this 13 day of April 19 54.

My commission Expires: October 13, 1956

Ruth Spring
Notary Public, residing at: Salt Lake City, Utah

STATE OF UTAH
COUNTY OF Grand } ss.

On the 7th day of April 1954, personally appeared before me John J. Knop, the signer of the above instrument, who duly acknowledged to me that he executed the same.

Given under my hand and seal this 7th day of April 1954.

My commission Expires: May 31, 1955

A. Lucil Lemmon
Notary Public, residing at: Moab, Utah

STATE OF UTAH
COUNTY OF } ss.

On the day of 19, personally appeared before me ,

who being by me duly sworn did say that he is an officer of and that said instrument was signed in behalf of said corporation by resolution of its Board of Directors, and said acknowledged to me that said corporation executed the same.

Given under my hand and seal this day of 19.

My commission Expires:

Notary Public, residing at:

NOTED 2-18-58

2-4 1955 ASSIGNED FOR $20

TO [illegible]

OF Moab, Utah

STATE LAND BOARD

By [illegible]

NOTED JUN 2 1959

5-20 1955 ASSIGNED FOR $ [illegible]

TO [illegible]

OF Moab, Utah

STATE LAND BOARD

By [illegible]

RECEIVED MAY 18 1955 STATE OF UTAH STATE LAND OFFICE

RECEIVED APR 9 1964 STATE OF UTAH STATE LAND BOARD

RECEIVED FEB 24 1955 STATE OF UTAH STATE LAND OFFICE

ACCEPTANCE OF ASSIGNMENT

Mineral Lease # 5983

Comes now MOAB MINES, INC. a corporation of the State of Utah, and hereby accepts the Assignment from William J. Owen of Moab, Utah assigning to Moab Mines, Inc. Utah State Mineral Lease No. 5983, which Assignment is dated March 1, 1958, subject to all of the covenants and obligations of said lease.

IN WITNESS WHEREOF, Moab Mines, Inc. has executed this Acceptance this 1st day of March, 1955

Moab Mines, Inc.

By William J. Owen Pres.

(SEAL)

By Robert C. Gibson V. P.

State of Utah)
: SS
County of Grand)

On this 1st day of March, A.D. 1955, personally appeared before me William J. Owen and Robert C. Gibson who being by me duly sworn did say, each for himself, that he, the said William J. Owen is the president (officer) and he, the said Robert C. Gibson is the vice president (officer) of Moab Mines, Inc. and that the within and foregoing instrument was signed in behalf of said corporation by authority of a resolution of its Board of Directors, and said William J. Owen and Robert C. Gibson each duly acknowledged to me that said corporation executed the same and that the seal affixed is the seal of said corporation.

Leola Holyoak
Notary Public
Residing Grand County, Utah

My Commission Expires

4-26-58

CLOTACY NI OKT

October 11, 1955.

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Moab Mines, Inc.
Box 586,
Moab, Utah.

Gentlemen:

Pursuant to your request I am herewith submitting a geological report on your school section property in the Big Indian District, San Juan County, Utah.

Map location of the property is Section 36, of Township 28 South, Range 22 East, and Section 2 of Township 29 South, Range 22 East S.L.M. Field investigation of the property was conducted at various times during the month of July 1955.

These state school leases have subsurface occurrence of the Chinle uraniferous ore horizon which is highly productive in the Big Indian area. In my opinion the school section acreage is a favorable prospect for a core drilling program.

It is my hope you find this report helpful, and if I can be of further assistance please call on me.

Respectfully submitted,

William R. Ellis

William R. Ellis

WRE:zf

GEOLOGICAL REPORT ON MOAB MINES, INC.
SCHOOL SECTIONS 2 & 36
SAN JUAN COUNTY, UTAH

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INTRODUCTION AND SUMMARY:

This report concerns two school sections in the Hatch Wash area in San Juan County, Utah. They represent 1,300 acres in areal extent and map location is section 36, of T28S, R22E and section 2 of T29S, R22E. They are situated in the Big Indian Mining District approximately 18 miles south of Moab, Utah. The basis of this report is field investigation of the properties at various times during the month of July, 1955.

It would appear worthwhile to briefly interject the favorable aspects of the property under consideration.

1. The school sections overlie subsurface occurrences of the Shinarump-Chinle horizon which has proved to be such a prolific source of uranium-vanadium ores further to the east in the Big Indian area.

2. Two miles to the north where the Shinarump-Chinle horizon outcrops in Hatch Wash, formational characteristics are manifest that experience has demonstrated to be attributes of an ore repository.

3. Fortuitous combination of geological circumstances, when viewed in the light of the widely accepted hydrothermal theory of ore genesis, indicate a highly favorable area for mineralization.

4. The proximity of nearby production would seem to sustain the above contention that the area was one conducive to mineralization.

5. In the event ore bodies are delineated, the property embraces a rim in which the Chinle is exposed, thereby permitting drifts from said rim.

Another factor of major importance is drilling depth to the Shinarump-Chinle horizon in any contemplated exploration program. The school sections will entail depth penetration of from 800 to 900 feet contingent upon hole placement. The predominant surface outcrop is eroded Navajo sandstone which would indicate an average drilling depth of 850 feet. The large area involved would permit of a comprehensive program

to explore for uranium-vanadium occurrences.

LOCATION AND ACCESS:

School sections 2 and 36 are approximately 18 airline miles south of Moab, Utah. From Moab they may be reached by jeep via highway 160 south for approximately 12 miles to Hole in the Rock thence turn west on a dirt road and traverse 3 miles to the confluence of Cane Springs Canyon and Hatch Wash. Approximately 7 miles south in Hatch Wash may be found the rim within the southwest quarter of school section 2.

The roads are in reasonably good condition up to a point 2 miles to the north of the included rim of section 2. If access is desired by way of Hatch Wash, approximately 2 miles of road construction will be required. A wise alternative in view of contemplated drill exploration would be construction of a road from highway 160 at its closest proximity to the leased area. This would involve very little additional construction as there are roads already in existence to the rim previously alluded to, which would be the fartherest extreme in relation to the highway.

The nearest ore purchasing station would be Moab with Monticello located some 36 miles to the south.

GENERAL MINING AND EXPLORATION ACTIVITIES:

The Big Indian area has become justly famous for its large known ore reserves. These reserves are accounted for in part by the Utex, Standard, Cal Uranium, Homestake and other deposits on the upthrown or southwest side of the Lisbon Valley fault. The above mines are from 7 to 10 miles to the southeast of the school sections whereas to the north some 4 to 10 miles, may be found the Climax, Cimota and American Energy Corporation workings. A regional look at these locations would suggest a northwest-southeast mineralized trend roughly paralleling the Lisbon fault. In the immediate lease area, 2 miles to the north in Hatch Wash is found the Old Texas Mining operation-

At this writing no particulars are known on this deposit; but nevertheless it would tend to substantiate the implied northwest-southeast trend. The school sections are situated approximately 2 1/2 miles to the southwest of the Lisbon fault which compares favorably with Standard and Utex location 3 miles to the southwest of same. Using these large deposits as the criteria, the school sections would be within an inferred mineralized zone extending from the Lisbon fault in a southwesterly direction and paralleling the NW-SE trend of the fault. Substantiation of the inferences so drawn are contingent upon exploratory drilling in the school section area due to the paucity of outcrops of the Shinarump-Chinle ore horizon in this vicinity. It is my contention that the inferences made are sound and as a result the school sections are deserving of an exploratory drilling program.

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GEOLOGY:

Structure:

The regional structural features predominating in the Big Indian District are the La Sal Mountains, Lisbon Valley anticline and fault, Cane Creek anticline and Kings Bottom syncline.

The La Sal Mountains, 8 miles to the east of the school sections, are an igneous, laccolithic complex that intruded overlying sedimentary strata thereby causing doming of the intruded strata. Subsequently this domal upwarp has been attacked by erosive agents resulting in the exposure of the crystalline core as we see it today. The La Sals are important to the formulation of a hydrothermal theory for ore genesis in the Big Indian area. The La Sals, as the theory is propounded, were the source of hydrothermal emissions that traveled along convenient avenues of facile movement to sites of deposition.

The Lisbon fault lies 1/4 to 3 miles northeast of the major ore deposits in Big Indian. The fault strikes northwest-southeast paralleling the axial trend of the Lisbon anticline and is upthrown to the southwest.

The Lisbon anticline is generally believed to be a salt structure. As the result of salt solution by ground waters, crestal collapse was brought about by undermining along the axis of the anticline. The Lisbon fault thus was originated in collapse of the domed strata. The Lisbon anticline is asymetric with the southwest flank, the more steeply dipping. It extends for approximately 16 miles in a NW-SE direction.

The Cane Creek anticline and Kings Bottom syncline are complimentary structural features that assume the predominant NW-SE attitude in this region. The Kings Bottom syncline intervenes between the Lisbon anticline and the Cane Creek anticline. These folded features are in all probability genetically related to flowage and accumulation of the subsurface Paradox evaporite sequence. The Kings bottom syncline plunges to the northwest whereas the Cane Creek anticline has a southeastward plunge.

It has been contended by some geologists that anticlinal control has played a big part in ore deposition in Big Indian. The basis of this thesis is the occurrence of large ore deposits flankally situated on the Lisbon anticline. Nevertheless, location of these deposits can be equally justified on the premise of adjacency to the Lisbon fault. Discovery of these deposits can be attributed in large part to baring of the ore horizon due to erosional attack on the topographic high created by doming. If faulting is a prime instrument in ore emplacement then subsurface, relatively flat lying horizons could logically be expected to contain ore deposits. Validation of this reasoning awaits thorough exploration by drill of the Chinle-Shinarump ore horizon in this vicinity.

The immediate school section area is structurally characterized by virtually flat-lying strata that have had canyons incised into them. Two miles to the northeast is a fault zone trending NW-SE that is subsidiary to the Lisbon fault - said faults reflecting very little displacement. The area is situated on the southeast extension of the Cane Creek anticlinal axis. There are indications of jointing which might be attributable to

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weathering or to stresses imposed in propogation of the previously mentioned structures.

STRATIGRAPHY:

Stratigraphic outcrops in the school section area are represented by the Carmel, Navajo, Kayenta, Wingate and Chinle formations. The major part of both school sections has Navajo occurrence on the surface with lesser outcrops of Carmel and Kayenta. The Wingate and Chinle outcrops are restricted to the rim encompassed by Section 2. In Stratigraphic sequence, litholigic descriptions of the formations alluded to are as follows:

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Carmel - is a red mudstone-sandstone intermixture, the sand fraction being fine grained quartz - the formation as a whole exhibits fairly well developed bedding - in the school section 36 it is represented by eroded remnants in the NW 1/4.

Navajo - is a white, massive medium grained sandstone with well developed cross-bedding - the constituent particles well rounded and well sorted - upon weathering the formation tends to slabs paralleling cross laminations or to rounded knobs.

Kayenta - is a reddish pink medium grained sandstone containing some silty interstitial material - as opposed to the underlying Wingate. It is characterized by horizontal bedding and upon exposure to weathering develops horizontal slabs bounded by vertical jointing.

Wingate - is a buff to reddish, medium grained, massive quartz, sandstone - well rounded and well sorted - on outcropping generally forms vertical cliffs marked by vertical columnar jointing and streaks of manganese staining.

Chinle - varies from a red sandy mudstone at the top to a grayish green mudstone in the lower part of the section - usually forms slopes underlain by a sandstone rim that is generally the ore horizon in this part of the section.

Shinarump - in diverse regions the mineralized zone associated with the Chinle formation has been variously called the Shinarump, Mossback or simply Chinle ore horizon. In the school section area this interval is typically a gray to tan, medium grained to conglomeratic quartz, sandstone and siltstone. The rim encompassed by school section 2 does not include an outcrop of the potential ore horizon which is estimated to be 25 feet subsurface. However, this interval does outcrop approximately 1/2 mile to the north in Hatch Wash. At this point it is about 40 feet thick, is composed of predominantly silt size particles and has tan coloration. In the vicinity of the Old Texas operations there is evidence of channel development and associated basal carbonaceous deposits. At various places in the vicinity altered and leached Chinle can be noted.

The Navajo, which covers most of the surface of the acreage under consideration, has been extensively eroded. In evidence are many rounded knobs of Navajo providing the major relief in the area. There appears to be approximately 100 feet of residual Navajo which in addition to 100 feet of Kayenta, 300 feet of Wingate and 350 feet of Chinle including the ore horizon indicate an average drilling depth of 850 feet through the Chinle-Shinarump interval. Depth penetration of this order would entail drilling costs in the neighborhood of $4.00 per foot or $3,400.00 per hole.

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ORE DEPOSITION:

Frequent reference has been made to the favorable geology intrinsic in the school section area. The favorability accorded the vicinity is founded on the precept of hydrothermal genesis of ore deposits. This theory, as understood in most quarters, advocates a proximal igneous source for hydrothermal solutions, paths amenable to movement of solutions, and a stratigraphic horizon suitable to the precipitation of uranium minerals from solution.

Relation of these basic tenets to the school section area affords an insight into the merit of the property.

1. The adjacent La Sal Mountains suffice as the igneous source for the hydrothermal solutions. It is thought the entire Big Indian uraniferous province is within the sphere of influence of the La Sals.

2. The Lisbon and contiguous faults served as avenues of facile movement of mineralized solutions to sites of deposition. This is borne out by the mineralized trend paralleling the Lisbon fault.

3. The Shinarump-Chinle interval has been demonstrated to be an ore horizon by virtue of the large uranium deposits already found therein. This has been attributed to well developed porosity-permeability permitting impregnation by mineralized solutions and contained carbonaceous debris which is considered the catalytic agent in precipitation of uranium minerals.

The school sections qualify as a prospect for uranium occurrence if the above stipulations are considered and are valid.

EXPLORATION RECOMMENDATIONS:

It is my considered opinion school sections 2 and 36 are deserving of a thorough exploratory drilling program. The initial program should be predicated on approximately 500 foot spacing of centers in a square configuration. A fence of this type would necessitate 25 holes per section.

The information gained from analyzing the cuttings and cores derived from such a program should be utilized in the construction of favorability maps. Favorability maps in turn can form the basis for additional drilling on more closely spaced centers. In analyzing the cuttings, particular attention should be paid to the following:

1. The amount and distribution of carbonaceous material in the presumed ore horizon.
2. The presence of leached or altered mudstones indicating percolating solutions.
3. Limonite staining.
4. Sand grain size, sorting, type of cementation, angularity of particles. This type study will give indications as to porosity-permeability development and sedimentational environment of the suspected ore horizon.
5. Lithology of drilled stratigraphic section with especial attention to the presumed ore horizon.

A comprehensive program such as outlined above and covering both school sections could be accomplished for an estimated $200,000.00. This expenditure should provide for 50 drill holes to the Shinarump-Moenkopi contact. Access road construction will be negligible if necessary at all. The school section topography and vegetation is such that jeep travel is possible over practically the full extent of the sections.

In the event of ore delineation, the aforementioned rim in school section 2 affords a site where drifting into the ore horizon at a slight incline can be effected thus eliminating the need for expensive shafting.

It is my contention the geography and geology of the school section area justifies

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a drilling program as advanced above.

CONSIDERATIONS:

In conclusion I believe it would be profitable to reiterate some of the salient features of the property treated in this report.

1. The leases have been properly obtained from the appropriate authorities.

2. The property is situated in the Big Indian District which is pre-eminent with respect to uranium ore production and reserves on the Colorado Plateau.

3. Exploratory drilling depths will be reasonable in view of the geological attributes inherent in the area.

4. The potential ore horizon may be reached by drifting in from the rim thereby obviating the need for expensive shafting.

5. Proximity to highway 160 and Moab, Utah insures facility of year-round operations with a minimum of effort.

6. Access roads to the property are already in existence and additional road expenditure on the property will be negligible.

7. Shipping distance to the nearest ore buying station at Moab is well within the maximum haulage allowance radius.

8. The area has subsurface occurrence of the Chinle-Shinarump interval which has proven itself a prolific ore horizon in such celebrated mines as Mi Vida, Homestake and Standard.

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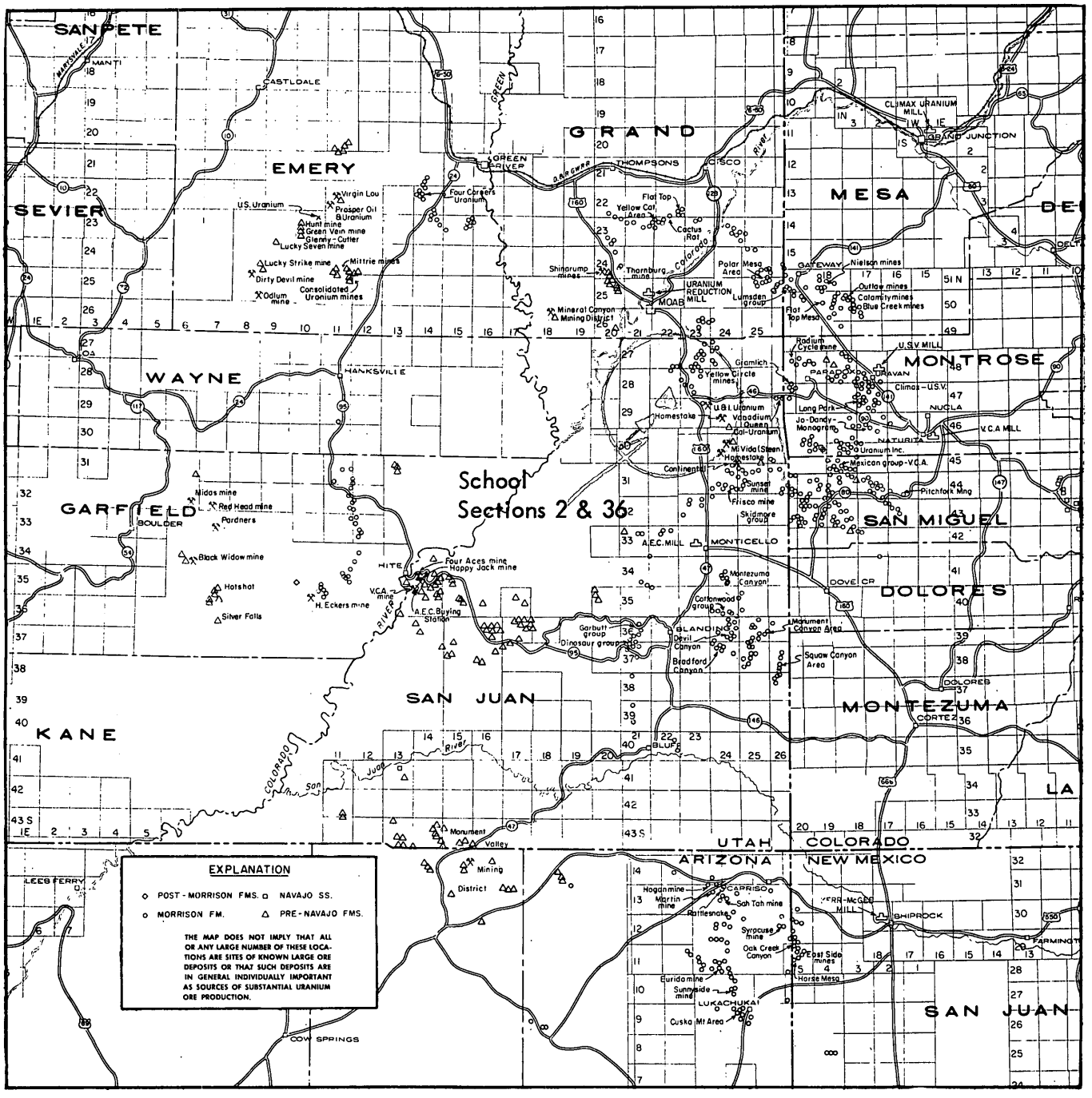
The school section properties have much to recommend them as prospects for potential subsurface uranium ore occurrence and I strongly advocate the instigation of a drilling program to prove or disprove the validity of my contentions.

It is my sincere hope you find this report satisfactory and if I may be of further assistance, please feel free to call on me.

Respectfully submitted,

William R. Ellis

William R. Ellis



INDEX MAP OF PROPERTIES
School Sections 2 & 36
Moab Mines, Inc.

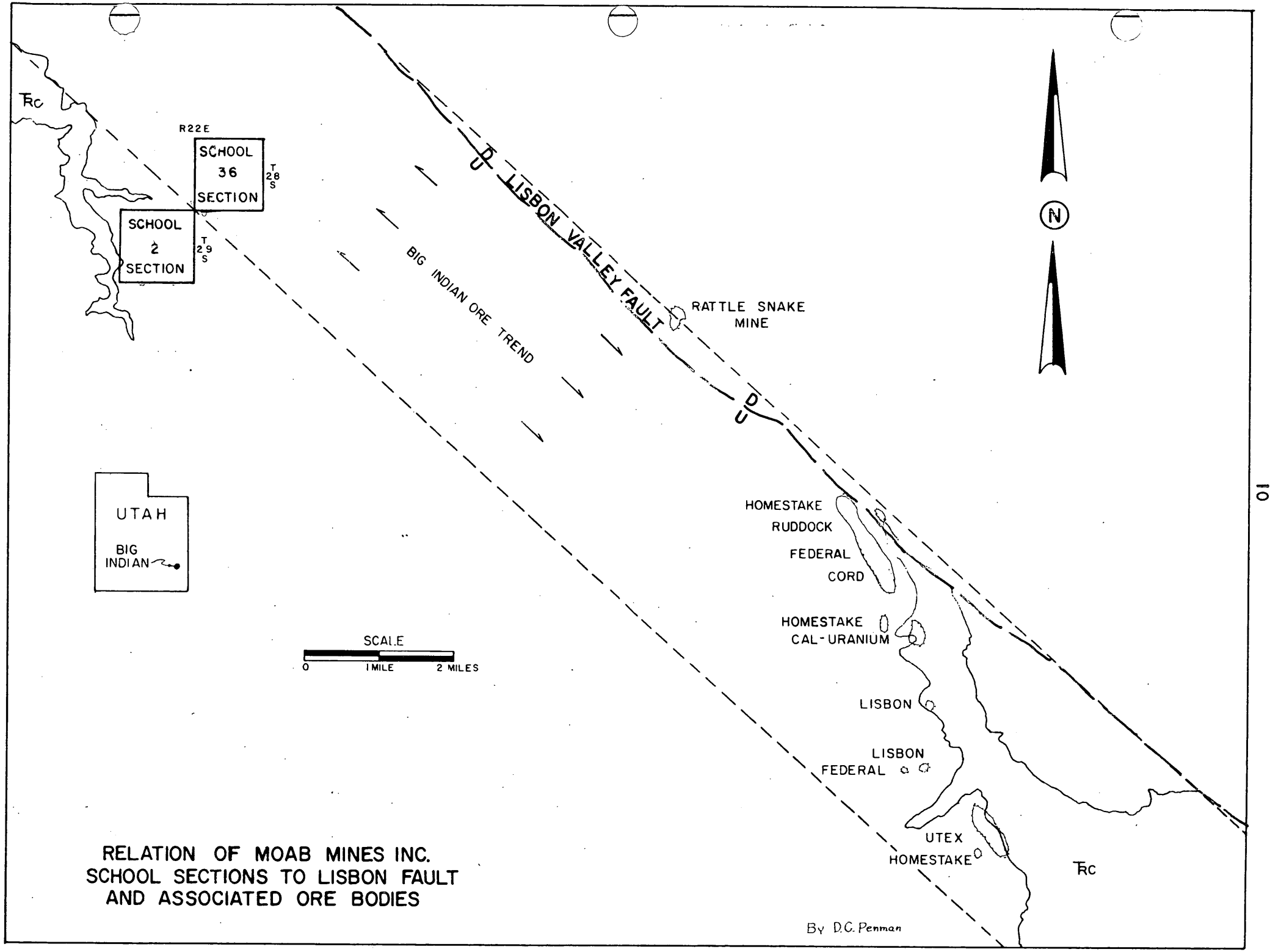
IN THE
URANIUM REGION

UTAH-COLORADO-ARIZONA-NEW MEXICO.
SHOWING BEDDED URANIUM DEPOSITS-MINES
PROCESSING MILLS AND PRINCIPAL HIGHWAYS

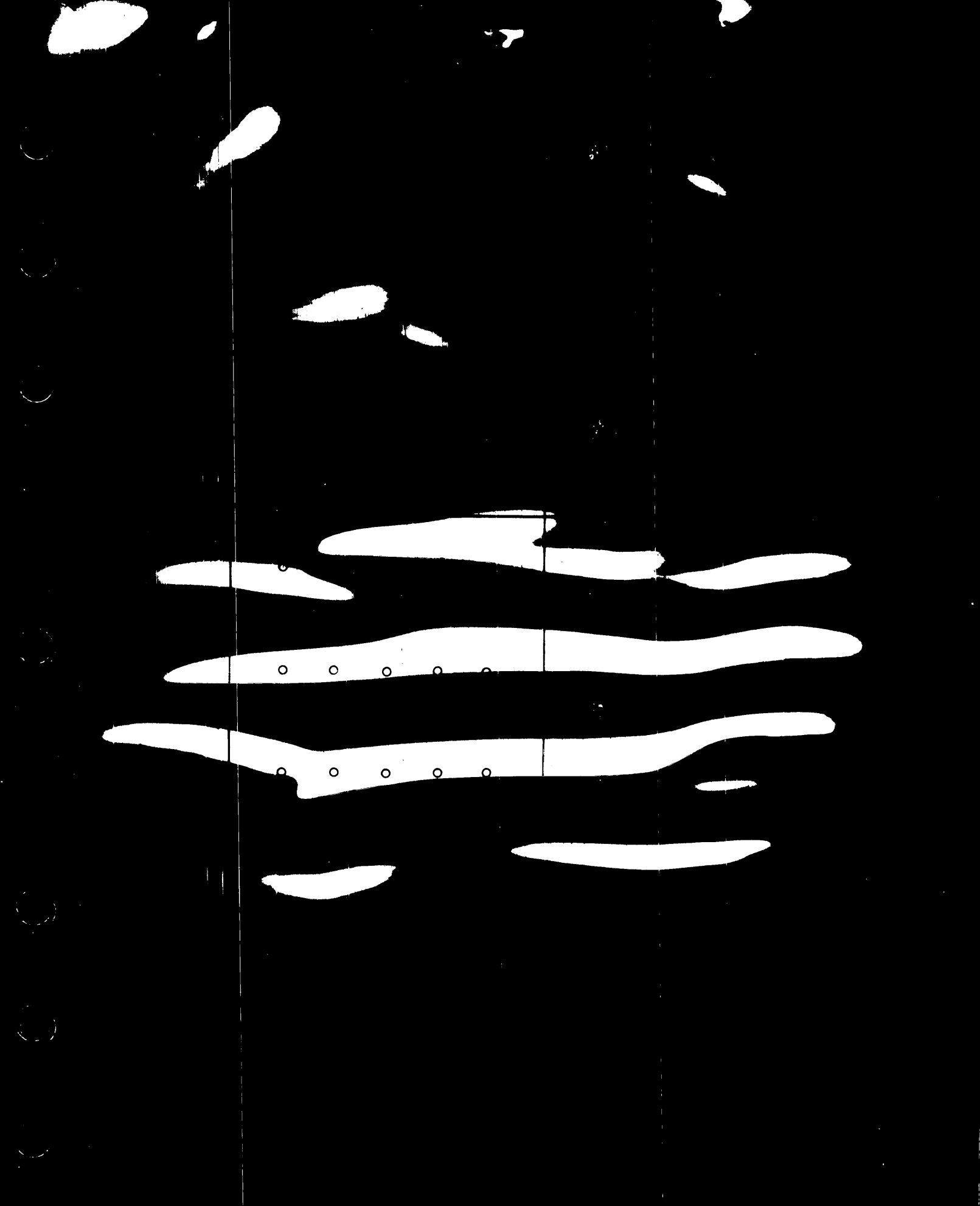
0 24 48 Mi

WILLIAM J. OWEN
ASSOCIATES
GEOLOGISTS AND MINING ENGINEERS
P.O. BOX 586 - URANIUM BUILDING
MOAB - UTAH

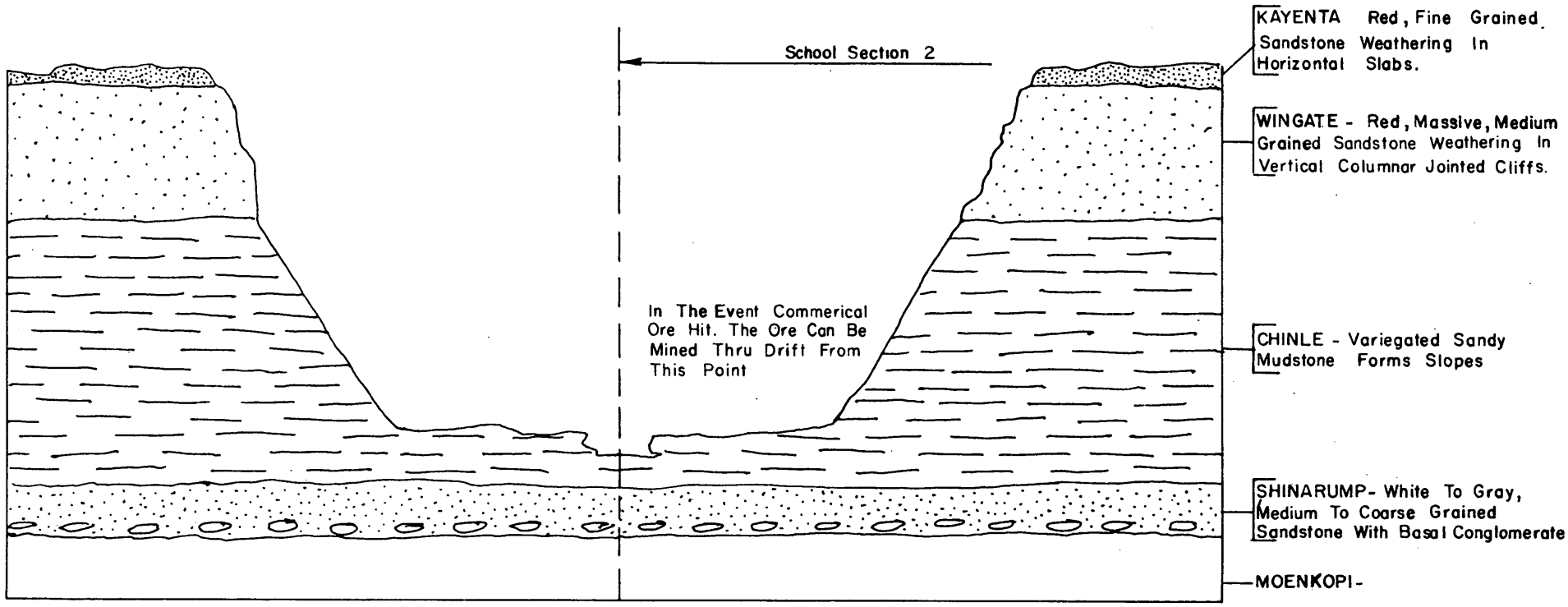
WESTERN STATES MAP CO.



RELATION OF MOAB MINES INC.
SCHOOL SECTIONS TO LISBON FAULT
AND ASSOCIATED ORE BODIES

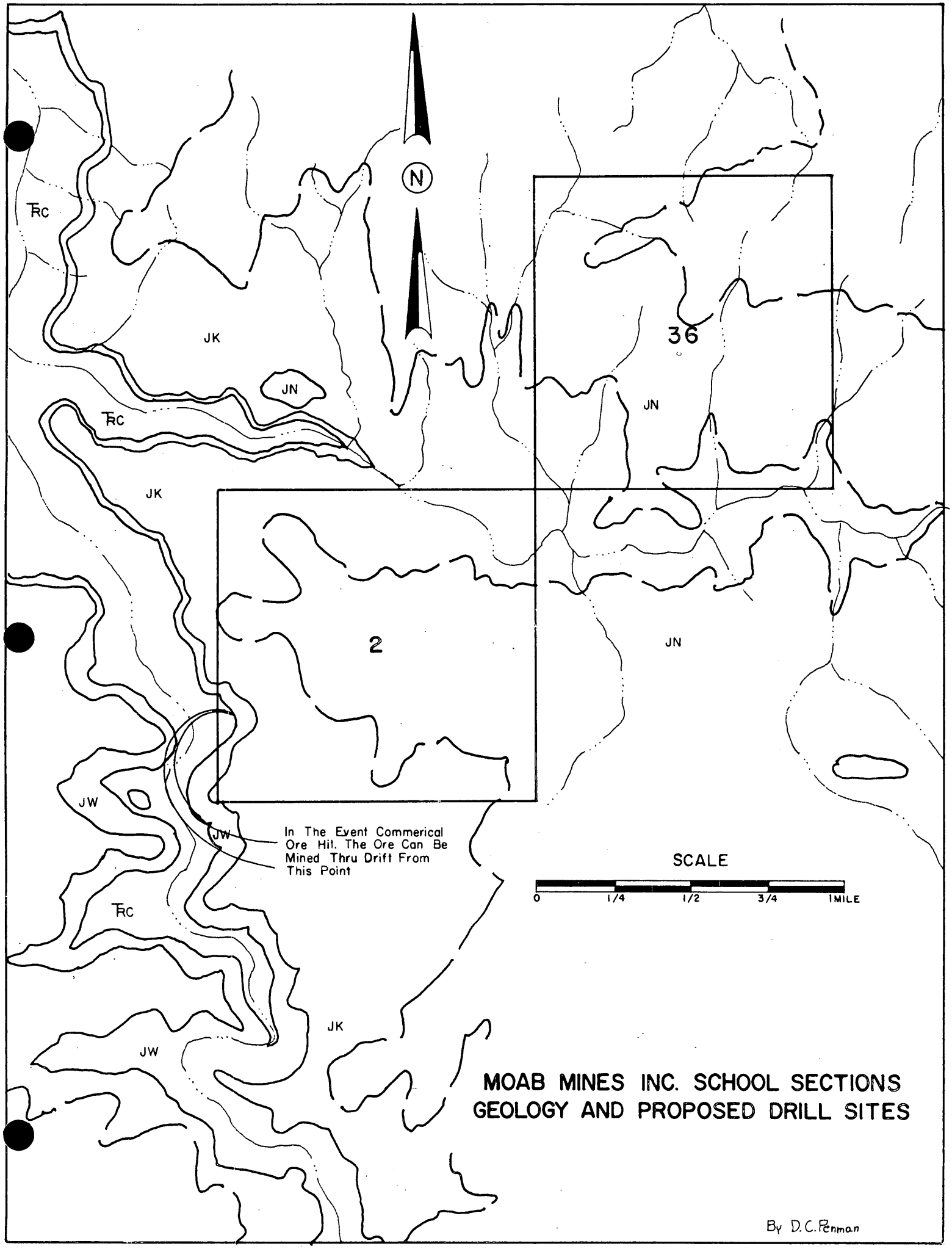


SCHOOL SECTION No. 2
BIG INDIAN DISTRICT
SAN JUAN COUNTY, UTAH



CROSS SECTION HATCH WASH

By D. C. Lemmon



MOAB MINES INC. SCHOOL SECTIONS
GEOLOGY AND PROPOSED DRILL SITES

APPENDIX

WILLIAM J. OWEN
President and Geologist
ROBERT C. GIBSON
Vice President and Director
S. A. CONSTANTINO, Jr.
Secretary and Public Relations
ROBERT J. FELLMETH
Treasurer
ROBERT R. NORMAN
Director and Geologist
ROBERT D. LEMMONS
Director and Engineer

MOAB MINES, INC.

12-5-55 [illegible]

P. O. Box 586
Phone: ALpine 3-4356
Phone: ALpine 3-4367

URANIUM EXPLORATION & MINING

URANIUM BUILDING
MOAB, UTAH

November 28, 1955.

RECEIVED
DEC - 5 1955

Mr. Frank E. Johnson,
Acting Administrator,
U.S. Department of the Interior,
Defense Minerals Exploration Administration,
Washington 25, D. C.

4027

Dear Mr. Johnson:

We of Moab Mines wish to thank you for your interest and consideration of our application for Defense Minerals Exploration Administration loan for the purpose of exploring two school sections in San Juan County, Utah. We also wish to thank you for your advice as to our procedure from this point. Along these lines we have contracted for two drill holes on the school sections and the drill rig is moving on to the property today, Monday, November 28, 1955.

In the event we encounter mineralization, or ore, we will have the holes well logged and the geology presented in a professional fashion.

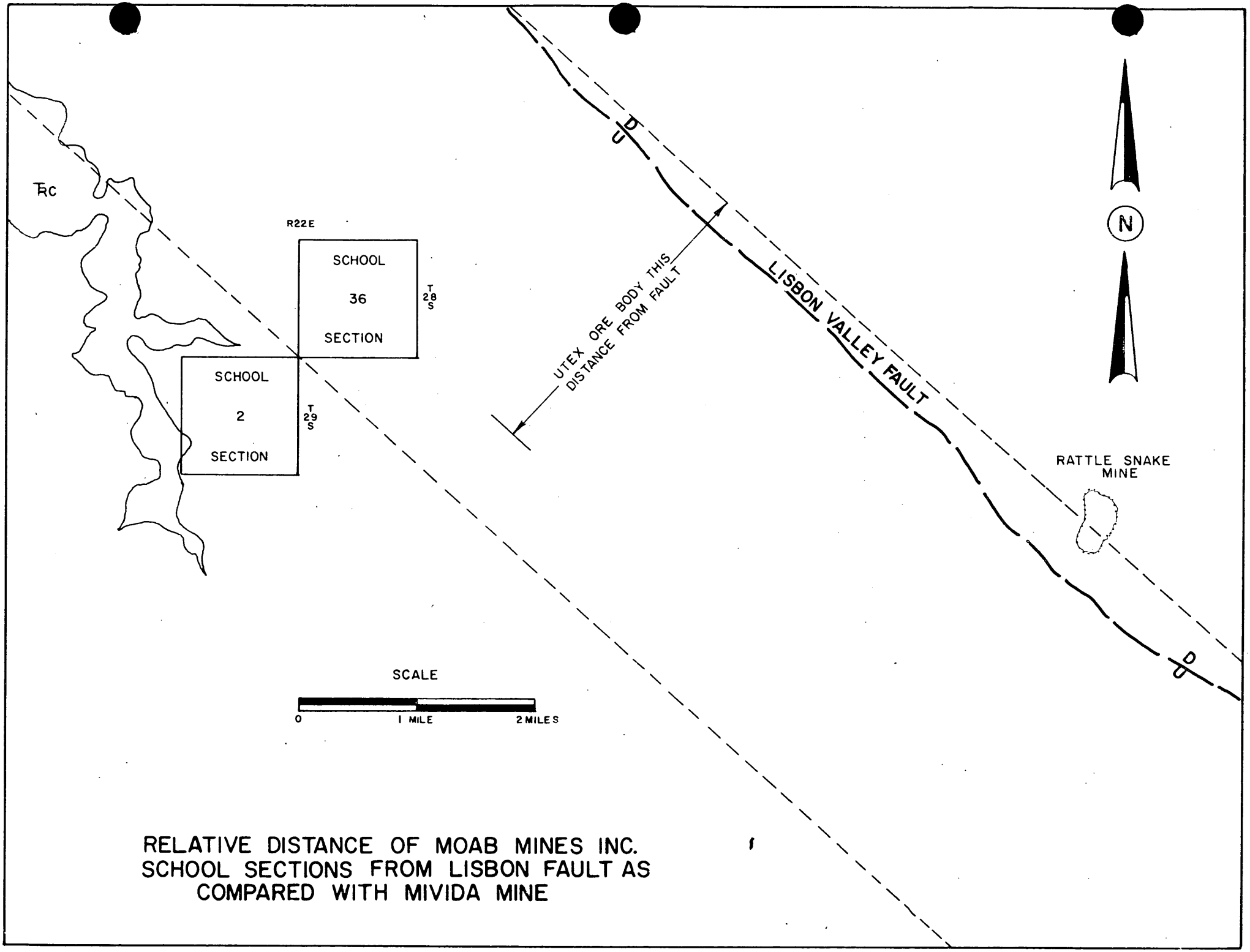
Thank you again for your consideration.

Very truly yours,

William J. Owen

William J. Owen, President
Moab Mines, Inc.

WJO:zf



RELATIVE DISTANCE OF MOAB MINES INC.
SCHOOL SECTIONS FROM LISBON FAULT AS
COMPARED WITH MIVIDA MINE

Surname Copy

700

F L Knouse
Ellis
Nelson
noted - Gechon
Selfridge

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

NOV 21 1955

Mr. William J. Owen
President, Moab Mines, Inc.
Post Office Box 586
Moab, Utah

Re: Docket No. DMEA-1027 (Uranium)
Sec. 26, T. 28 S., R. 22 E., and
Sec. 2, T. 29 S., R. 22 E.
San Juan County, Utah

Dear Mr. Owen:

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

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

Careful study of all our information indicates to us that the probability of disclosing minable ore reserves by your proposed program is not sufficiently promising to justify Government participation. We regret to advise you that, under these circumstances, your application for exploration assistance is denied. Such denial, however, is made without prejudice. If future work at your property reveals evidence which could materially alter this opinion, be assured we will be pleased to consider a new application. Information necessary to determine the merits of the proposed project could be obtained by your Company drilling two or more holes through the Moesback horizon and furnishing complete geological logs of the holes.

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

Sincerely yours,

Frank E. Johnson

ACTING Administrator

FLKnouse/izm 11-17-55

cc to: Admr.'s Reading File
Operating Committee
Docket
Code 700
Mr. Knouse
DMEA Field Team, Region III (2)
Messrs. JECrawford, Rm. 3461
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA

R.C.H.

DOCKET COPY

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

F. L. Kroome
Ellis

November 17, 1955

Summary of Proposed Project

Object: Denial of application for an exploration project.

Docket No. DMEA-4027

Commodity: Uranium

Applicant: Moab Mines, Inc.,
P. O. Box 586
Moab, Utah

Property: State of Utah School Sections, Lease No. 5983, Sec. 36, T. 28 S., R. 22 E., and Sec. 2, T. 29 S., R. 22 E., S.L.B.M., San Juan County, Utah. Applicant is the Lessee.

Date of Application: Undated; received in Washington on October 20, 1955.

Amount of Application: $230,780.00

Work Proposed: 42,500 feet of combined plug and core drilling of about 1300 acres of land to test the Chinle-Mossback horizon. A total of 50 holes are proposed on 500-foot centers, each hole to be 800-900 feet deep, and with 40-50 feet to be cored in the Chinle-Mossback.

Field Team Report: The application was not referred to the Field Team because of the obvious lack of merit in the proposal. However, under the date of October 20, 1955, Messrs. J. William Hasler, USGS, and M. H. Salsbury, USBM, Grand Junction Office, wrote as follows:

"It is concluded that the chances of discovering uranium ore deposits, by the presently proposed method, are of a wildcat nature and would be essentially a prospecting venture. It is, therefore, recommended that the application be denied without a field examination, but that the applicant be requested to do some preliminary exploration work to test the area for possible trends of mineralized ground, favorableness of the host rock, and other structural and geologic information that may indicate presence of ore deposits. After such preliminary work has been completed, and if the results are favorable, then the applicant should be advised that he might reopen the application for assistance for Government aid."

Comments of Commodity Specialists:

U. S. Bureau of Mines - John E. Crawford, November 3, 1955.

"I suggest that the application be denied inasmuch as (1) no evidence exists of favorable uranium mineralization on the two school sections; (2) the company has obviously made no attempt to conduct an independent prospecting program; (3) the Chinle formation in this area is deeply buried, requiring large expenditures for drilling, with little indication that results may be encouraging; and (4) the fact that the property is located in the Big Indian Mining district does not necessarily imply its favorability as a source of uranium."

U. S. Geological Survey - Thor H. Kiilsgaard - November 8, 1955.

"I do not concur with the field examiners. True, the applicant proposes a prospecting program; however, it has presented a well prepared and carefully documented application, suggesting that considerable thought has been given to the proposed work. The fact that we do not agree with the applicant's geologic interpretation does not, in my opinion, give DMEA grounds to deny the application without a field examination. From a public relations standpoint, I believe it would be to the interests of DMEA to have field examiners visit this property and discuss the proposed work with the applicant. No doubt field examiners will recommend denial of the application, but such a recommendation, backed by a field report, will give DMEA a better basis for denying the application."

Rare and Miscellaneous Metals Division - F. L. Knouse, November 16, 1955.

This proposed project is designed to explore the ore-bearing horizon in this general area (Mossback member of the Chinle formation, underlying the property concerned) by means of drilling 50 holes on 500-foot centers from the surface through this horizon. It is estimated these holes will be 800-900 feet deep. From general information, it is estimated that an ore body in the subject area, to be of economic value, would have to contain about 125,000 tons about 6 feet

11-9-55 rgmt

IN REPLY REFER TO:

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

November 8, 1955

Memorandum

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

From: Thor H. Kiilsgaard, U. S. Geological Survey

Subject: Review of application, DMEA Docket 4027, Moab Mines, Inc., San Juan County, Utah.

The applicant proposes to drill two school sections in the Hatch Wash area south of Moab, Utah. Drilling is to be on 500-foot centers with a total of 25 holes on each section. Average depth of the holes is estimated at 850 feet, the total footage aggregating 42,500 feet and the total cost of the program estimated at $230,780.00.

The application presents a program that must be considered essentially as prospecting. No ore crops out on the property nor does there appear to be any known ore in nearby areas. The applicant has based the proposed program on the fact that favorable beds of the Chinle formation underlie the claims, and that the Lisbon Valley and associated faults may have served as a plumbing system, thereby providing access for uranium mineralization to reach the Chinle beds. The Lisbon Valley fault and its associated structures pass by the school sections 2 or 3 miles to the northeast.

Grand Junction field examiners recommend denial of the application without a field examination, their recommendation based on the belief that proposed work is prospecting in an unproven area. They suggest the applicant do preliminary work on the property and that if this work proves favorable, DMEA might consider participating in further work.

I do not concur with the field examiners. True, the applicant proposes a prospecting program; however, it has presented a well prepared and carefully documented application, suggesting that considerable thought has been given to the proposed work. The fact that we do not agree with the applicant's geologic interpretation does not, in my opinion, give DMEA grounds to deny the application without a field examination. From a public relations standpoint, I believe it would be to the interests of DMEA to have field

examiners visit this property and discuss the proposed work with the applicant. No doubt field examiners will recommend denial of the application, but such a recommendation, backed by a field report, will give DMEA a better basis for denying the application. ?

Like the Field Team, I agree that the applicant should not be requested to do preliminary work before favorable consideration is given the application by DMEA. The applicant instead might be informed that if work done on company account proves the property to be better than we now anticipate, we will be glad to reconsider the application.

Thor H. Kiilsgaard

Thor H. Kiilsgaard

IN REPLY REFER TO:

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

November 8, 1955

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examiners visit this property and discuss the proposed work with the applicant. No doubt field examiners will recommend denial of the application, but such a recommendation, backed by a field report, will give DMEA a better basis for denying the application.

Like the Field Team, I agree that the applicant should not be requested to do preliminary work before favorable consideration is given the application by DMEA. The applicant instead might be informed that if work done on company account proves the property to be better than we now anticipate, we will be glad to reconsider the application.

Thor K. Kiilsgaard

TKKiilsgaard:iml
G-11/8/55

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

IN REPLY REFER TO:

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

November 8, 1955

Memorandum:

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

From: Thor N. Kiilsgaard, U. S. Geological Survey

Subject: Review of application, DMEA Docket 4027, Moab Mines, Inc., San Juan County, Utah.

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The application presents a program that must be considered essentially as prospecting. No ore drops out on the property nor does there appear to be any known ore in nearby areas. The applicant has based the proposed program on the fact that favorable beds of the Chinle formation underlie the claims, and that the Lisbon Valley and associated faults may have served as a plumbing system, thereby providing access for uranium mineralization to reach the Chinle beds. The Lisbon Valley fault and its associated structures pass by the school sections 2 or 3 miles to the northeast.

Grand Junction field examiners recommend denial of the application without a field examination, their recommendation based on the belief that proposed work is prospecting in an unproven area. They suggest the applicant do preliminary work on the property and that if this work proves favorable, DMEA might consider participating in further work.

I do not concur with the field examiners. True, the applicant proposes a prospecting program; however, it has presented a well prepared and carefully documented application, suggesting that considerable thought has been given to the proposed work. The fact that we do not agree with the applicant's geologic interpretation does not, in my opinion, give DMEA grounds to deny the application without a field examination. From a public relations standpoint, I believe it would be to the interests of DMEA to have field

examiners visit this property and discuss the proposed work with the applicant. No doubt field examiners will recommend denial of the application, but such a recommendation, backed by a field report, will give HHFA a better basis for denying the application.

Like the Field Team, I agree that the applicant should not be requested to do preliminary work before favorable consideration is given the application by HHFA. The applicant instead might be informed that if work done on company account proves the property to be better than we now anticipate, we will be glad to reconsider the application.

Thor K. Kiilsgaard

TKKiilsgaard:iml
G-11/8/55

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

IN REPLY REFER TO:

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

November 8, 1955

Memorandum

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

From: Thor N. Killingsord, U. S. Geological Survey

Subject: Review of application, DMEA Docket 4027, Moab Mines, Inc., San Juan County, Utah.

The applicant proposes to drill two school sections in the Match Wash area south of Moab, Utah. Drilling is to be on 500-foot centers with a total of 25 holes on each section. Average depth of the holes is estimated at 850 feet, the total footage aggregating 42,500 feet and the total cost of the program estimated at $230,750.00.

The application presents a program that must be considered essentially as prospecting. No ore crops out on the property nor does there appear to be any known ore in nearby areas. The applicant has based the proposed program on the fact that favorable beds of the Chinle formation underlie the claims, and that the Lisbon Valley and associated faults may have served as a plumbing system, thereby providing access for uranium mineralization to reach the Chinle beds. The Lisbon Valley fault and its associated structures pass by the school sections 2 or 3 miles to the northeast.

Grand Junction field examiners recommend denial of the application without a field examination, their recommendation based on the belief that proposed work is prospecting in an unproven area. They suggest the applicant do preliminary work on the property and that if this work proves favorable, DMEA might consider participating in further work.

I do not concur with the field examiners. True, the applicant proposes a prospecting program; however, it has presented a well prepared and carefully documented application, suggesting that considerable thought has been given to the proposed work. The fact that we do not agree with the applicant's geologic interpretation does not, in my opinion, give DMEA grounds to deny the application without a field examination. From a public relations standpoint, I believe it would be to the interests of DMEA to have field

examiners visit this property and discuss the proposed work with the applicant. No doubt field examiners will recommend denial of the application, but such a recommendation, backed by a field report, will give ESSA a better basis for denying the application.

Like the Field Team, I agree that the applicant should not be requested to do preliminary work before favorable consideration is given the application by ESSA. The applicant instead might be informed that if work done on company account proves the property to be better than we now anticipate, we will be glad to reconsider the application.

Thor H. Hillegaard

THHillegaard:iml
G-11/8/55

cc: Director's reading, 4212
Branch reading, 4212
ESSA (3)✓
Docket file
J. R. Crawford, 3641
J. O. Nested, 3210

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

RECEIVED
NOV - 4 1955

November 3, 1955

Memorandum

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

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

Subject: Application for assistance, DMEA Docket 4027, Moab Mines, Inc., Big Indian Mining district, San Juan County, Utah

I have reviewed the attached application, DMEA Docket 4027, Moab Mines, Inc., dated October 20, 1955, and received in this office November 1. I have discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

The Moab Mines company is desirous of exploring for uranium on two State of Utah school sections in the Big Indian Mining district. The project would involve 42,500 feet of combined plug and core drilling of some 1,300 acres of land. A total of 50 holes are proposed on 500-foot centers, each hole being from 800 to 900 feet deep. The cost of the exploration work is estimated by the applicant at $230,780.

I suggest that the application be denied inasmuch as (1) no evidence exists of favorable uranium mineralization on the two school sections; (2) the company has obviously made no attempt to conduct an independent prospecting program; (3) the Chinle formation in this area is deeply buried, requiring large expenditures for drilling, with little indication that results may be encouraging; and (4) the fact that the property is located in the Big Indian Mining district does not necessarily imply its favorability as a source of uranium.

Mr. Hosted has expressed the opinion that the application should be denied without prejudice, because it represents a

prospecting project rather than an exploration project. He has also pointed out that the favorable geologic features of the property have not been adequately described.

John E. Crawford

John E. Crawford

Attachment

prospecting project rather than an exploration project. He has also pointed out that the favorable geologic features of the property have not been adequately described.

John E. Crawford

Attachment

MOAB MINES, INC.

WILLIAM J. OWEN
President and Geologist
ROBERT C. GIBSON
Vice President and Director
S. A. CONSTANTINO, Jr.
Secretary and Public Relations
ROBERT J. FELLMETH
Treasurer
ROBERT R. NORMAN
Director and Geologist
ROBERT D. LEMMONS
Director and Engineer

P. O. Box 586
Phone: ALpine 3-4356
Phone: ALpine 3-4367

URANIUM EXPLORATION & MINING

URANIUM BUILDING
MOAB, UTAH

October 26, 1955.

Mr. Robert E. Adams, Chief
Operations Control and
Statistics Division.
U.S. Dept. of the Interior,
Defense Minerals Exploration Adm.,
Washington 25, D. C.

Dear Sir:

We are in receipt of your letter of October 20, 1955, concerning DMEA-4027 application.

I just wanted to take this opportunity to thank you in advance for all consideration you give this application, and to offer any help in its regard which we may beable to provide.

Sincerely,

W. R. Ellis

W. R. Ellis

WRE:zf

10/31/55 gle

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

RECEIVED
OCT 31 1955

224 New Customhouse
Denver 2, Colorado

October 25, 1955

Memorandum

To: Secretary to the Operating Committee, DMEA

From: DMEA Field Team, Region III

Subject: Docket No. DMEA-4027, (Uranium), Moab Mines, Inc., Big Indian Mining District, San Juan County, Utah

Enclosed are four copies of a joint memorandum by J. William Hasler, U. S. Geological Survey, and M. H. Salsbury, U. S. Bureau of Mines, recommending that the subject application be denied without a field examination.

In the event that the application is denied we suggest that it be a denial without prejudice, with the usual Operating Committee letter to the Operator. We do not believe that the Operator should be requested to do any preliminary work or that the DMEA has authority to make such a request.

We don't request ?

W. M. Traver

W. M. Traver

E. N. Harshman

E. N. Harshman

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

IN REPLY REFER TO:
DMEA
Date Rec'd.
OCT 21 1955
BUREAU OF MINES
Denver, Colorado

October 20, 1955

Memorandum

RECEIVED
OCT 31 1955

To: Executive Officer, DMEA Field Team, Region III

From: J. William Hasler and M. H. Salsbury

Subject: Appraisal of Moab Mines, Inc., San Juan County, Utah, application for DMEA assistance relative to necessity of a field examination.

The Moab Mines, Inc., have applied for a DMEA loan for exploration for uranium in sec. 36, T. 28 S., R. 22 E., and in sec. 2, T. 29 S., R. 22 E., San Juan County, Utah.

The applicant proposes to test the above-mentioned school sections with a grid of diamond-drill holes to discover ore at depth in the underlying Moss Back sandstone member of the Chinle formation of Triassic age.

The applicant postulates a trend of mineralized ground from the Lisbon Valley ore bodies into their school sections.

We have carefully reviewed the application with the Atomic Energy Commission and are of the opinion that the area under consideration lies considerably northwest of the actual trend of mineralization. The rocks in the area are comparatively flat-lying and are of considerable distance away from the anticlinal axis of the Lisbon Valley.

It is concluded that the chances of discovering uranium ore deposits, by the presently proposed method, are of a wildcat nature and would be essentially a prospecting venture. It is, therefore, recommended that the application be denied without a field examination, but that the applicant be requested to do some preliminary exploration work to test the area for possible trends of mineralized ground, favorableness of the host rock, and other structural and geologic information that may indicate presence of ore deposits. After such preliminary work has been completed, and if the results are favorable, then the applicant should be advised that he might reopen the application for assistance for Government aid.

Enclosed is the applicant's brochure.

J. William Hasler

J. William Hasler, Geologist, USGS

M. H. Salsbury

M. H. Salsbury, Engineer, USBM

JWH/mlr
cc: E. N. Harshman
Enclosure

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

RECEIVED
OCT 31 1955

224 New Customhouse
Denver 2, Colorado

October 25, 1955

Memorandum

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From: DMEA Field Team, Region III

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W. M. Traver
W. M. Traver

E. N. Harshman
E. N. Harshman

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

IN REPLY REFER TO:
DMEA
Date Rec'd.
OCT 21 1955
BUREAU OF MINES
Denver, Colorado

October 20, 1955

RECEIVED
OCT 31 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region III

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J. William Hasler
J. William Hasler, Geologist, USGS

M. H. Salsbury
M. H. Salsbury, Engineer, USBM

JWH/mlr
cc: E. N. Harshman
Enclosure

October 20, 1955

Subject: DMEA-4027
Re:

Moab Mines Inc.,
P.O. Box 586
Moab, Utah

Gentlemen:

The receipt of your application dated (undated) for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-4027 and referred to the Rare & Miscellaneous Metals Division.

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

Sincerely yours,

Robert E. Adams, Chief
Operations Control and
Statistics Division

60932

October 20, 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: Chief, Operation's Control and Statistics Division

Subject: Assignment of Docket Number

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

DMEA-4027 Moab Mines Inc.

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

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

224 New Customhouse
Denver 2, Colorado

October 18, 1955

4022

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA assistance (Uranium), Moab Mines, Inc., San Juan County, Utah

Enclosed are two copies of the subject application in the amount of $230,780.00.

One copy of the application has been forwarded to the Grand Junction office for their study and recommendations and one copy has been retained in our files.

W. M. Traver

Enclosures

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

224 New Customhouse
Denver 2, Colorado

October 18, 1955

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA assistance (Uranium), Moab Mines, Inc., San Juan County, Utah

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Enclosures

W. M. Traver

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

224 New Customhouse
Denver 2, Colorado

October 18, 1955

Memorandum

To: J. W. Hasler

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA assistance (Uranium), Moab Mines, Inc., San Juan County, Utah

Enclosed is a copy of the subject application in the amount of $230,780.00.

Please study this application and discuss it with the AEC and Bureau of Mines representatives in Grand Junction and forward this office eight copies of your recommendations regarding a field examination of the property.

W. M. Traver

W. M. Traver

Enclosures

HMC:pw

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

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

224 New Customhouse
Denver 2, Colorado

October 18, 1955

Memorandum

To: J. W. Hasler

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Subject: Application for DMEA assistance (Uranium), Moab Mines, Inc., San Juan County, Utah

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W. M. Traver

W. M. Traver

Enclosures

HMC:pw

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

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

224 New Customhouse
Denver 2, Colorado

October 18, 1955

William J. Owen, President
Moab Mines, Inc.
P. O. Box 586
Uranium Building
Moab, Utah

Dear Mr. Owen:

This will acknowledge receipt of your application for DMEA assistance on your property in San Juan County, Utah.

The application has been forwarded to our Washington DMEA office for further processing.

Very truly yours,

W. M. Traver

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

HMC:pw

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

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

224 New Customhouse
Denver 2, Colorado

October 18, 1955

William J. Owen, President
Moab Mines, Inc.
P. O. Box 586
Uranium Building
Moab, Utah

Dear Mr. Owen:

This will acknowledge receipt of your application for DMEA assistance on your property in San Juan County, Utah.

The application has been forwarded to our Washington DMEA office for further processing.

Very truly yours,

W. M. Traver

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

HMC:pw

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

APPLICATION FOR DMEA AID

MOAB MINES, INC.

C O P Y

October 14, 1955.

Mr. Will M. Traver.
Defense Minerals Exploration Administration,
Bureau of Mines.
224 New Customhouse Building,
Denver 2, Colorado.

Dear Sir:

Moab Mines, Inc. is hereby submitting for your deliberation, an application for DMEA aid to be used in exploration for uranium minerals.

The property for which aid is being solicited is Section 36, Township 28 south, Range 22 East, and Section 2, Township 29 south, Range 22 east, San Juan County, Utah.

We have strived to comprehensively answer all questions as posed by the application form, and included you will find a geological report on the area in question.

We hope that you find this report satisfactory, and your careful consideration of same will be greatly appreciated.

Very truly yours,

William J. Owen

William J. Owen, President
Moab Mines, Inc.

WJO:zf

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. 4027.
Metal or Mineral Uranium
Date Received 10-20-55
Estimated Cost 230,780.
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: Moab Mines, Inc.
P.O. Box 506,
Moab, Utah
(see report, page 1)

(*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. Utah corporation

(*c*) If a corporation, add to above statement, titles, names and addresses of officers. See report page 1

(*d*) If a partnership, add to the above statement the names and addresses of all partners. not applicable

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 report page 2 1 and 2

(*b*) State any mine name by which the property is known. see report page 2

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise see report page 2

(*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 report page 2 - appendix, pages 1 - 7

(*e*) If you own the land, describe any liens or encumbrances on it not applicable

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. not applicable

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 report page 2 & 3

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. geology report page 2 not applicable

(*c*) Describe the geologic features of the property, including mineralization, type of deposit (vein, bedded, etc.), and your reasons for wishing to explore. Illustrate with maps or sketches. Send with your application (but not necessarily as a part of it) any geologic or engineering report, assay maps, or other technologic information you may have, indicating on each whether you require its return to you. see report pages 2 3 - 5, geology report page 1

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

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

see report page 5

16—66551-1

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

(*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 report pages 5-7, geology report pages 7 - 13

(*c*) The work will start within 7 days and be completed within 6 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 report pages 7-8

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

(*a*) *Independent contracts.*—(Note.—If the applicant does not intend to let any of the work to contractors, write "none" after this item. To the extent that the work is to be contracted, do not repeat the cost of the contract-work in subsequent items.) State the cost of any proposed independent contracts for the performance of all or any part of the work, expressed in terms of units of work (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved, etc.). see report page 9

(*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. see report page 9

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel. see report page 9

(*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. see report page 9

(*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. not applicable

(*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. not applicable

(*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. see report page 9

(*h*) *Contingencies.*—Give an estimate of any necessary allowances for contingencies not included in the costs stated above. see report page 9

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)? see report page 9

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

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

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated _____, 195__

Moab Mines Inc.
(Applicant)

By William J. Owen
President

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

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

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COPY

REPORT ACCOMPANYING

APPLICATION FOR AID

TO DMEA *

1. Name of applicant:

   (a) This application is being made by Moab Mines, Inc., Box 586, Moab, Utah.

   (b) Moab Mines, Inc. is a Utah Corporation.

   (c) The following are the titles, names and addresses of the officers of Moab Mines, Inc.

   President & Director:

   William J. Owen
   Box 586,
   Moab, Utah

   Vice President & Director:

   Robert C. Gibson
   Box 685,
   Moab, Utah

   Secretary-Treasurer & Director:

   Robert J. Fellmeth
   Box 1674,
   Grand Junction, Colo.

   Robert R. Norman
   Box 682,
   Moab, Utah

   Robert D. Lemmons
   Canyon Motel
   Moab, Utah

2. GENERAL:

3. APPLICANTS PROPERTY RIGHTS:

   (a) Moab Mines, Inc. holds the uranium and vanadium leases

* The numbers and letters included in this report correspond to those used in the DMEA application to which this report is a supplement.

on two State of Utah School Sections; namely Section 36 of Township 28 South, Range 22 East and Section 2 of Township 29 South, Range 22 East S.L.M. It is upon these two sections that the application for D.M.E.A. aid is being made. No other property of the corporation will be benefited by the contemplated program.

(b) The property itself is not known by a mine name, but can be properly considered a part of the Big Indian Mining District.

(c) Moab Mines, Inc. is a lessee, the two School Sections are under the Utah mineral lease No. 5983, dated February 5, 1954, for uranium and vanadium and are subject to 3% - 17% royalty. The lease is for a primary term of ten (10) years and "as long thereafter as said minerals may be produced in commercial quantities ..."

(d) See Appendix, pages 1-7.

The location of the property under consideration is further set forth in the gological report and accompanying maps within this report. See geology report, pages 2, 9.

(e) Not applicable.

(f) Not applicable.

4. PHYSICAL DESCRIPTION:

(a) To date there have been no exploratory activities conducted by Moab Mines, Inc. on the School Section property. There has been some rim prospecting in Hatch Canyon to the north of said property and at the present writing two small drifts have been driven into the potential ore horizon at a point some 2 miles to the north. The results of these operations have not been ascertained. Drilling operations have been instigated on some property in Section 1, Township 28 South, Range 22 East, S.L.M. adjacent to the School Sections.

Neither the scope nor the result of this program is available for evaluative purposes at this time.

The School Sections are within the Big Indian Mining District, San Juan County, Utah. Big Indian has been synonymous with rich uraniferous deposits since the discovery and development by Charles Steen of the Mi Vida mine. Subsequently, the Homestake, Cal Uranium, Hecla and Standard deposits to mention a few have been delineated and developed, thereby making this the premier uranium mining district in the United States.

Developments in the past five years have emphasized the importance of Southeastern Utah in general and the Big Indian District in particular as a source of commercial concentrations o f uranium and vanadium minerals. A general statement that would appear valid is that the deposits discovered to date have been by reason of propitious outcropping due to erosional baring.

(b) Not applicable.

(c) Geologically, the Big Indian District is favored by the Lisbon Valley fault and the surface and subsurface occurrence of a proven ore horizon - the Chinle-Mossback interval. Much of the areal extent of Big Indian is so favored, yet has not been explored due to the considerable expense involved. The properties, the subject of this application, fall in this category.

Favorable geological circumstances are inherent in the property and for this reason DMEA aid is being solicited in the belief that this program was created to promulgate the exploration for minerals in favorable areas where the expense would be large.

The School Section area proper has predominantly Navajo sandstone surface outcrops. Underlying the Navajo are the Kayenta

sandstone, Wingate sandstone and the Chinle mudstones with associated basal Chinle-Mossback ore horizon. An average stratigraphic thickness of 850 feet to the potential ore horizon from the surface is indicated.

The School Sections lie 2 to 3 miles southwest of the Lisbon Valley fault. The La Sal Mountains are located about 10 miles to the east. The outcropping strata are essentially flat-lying and are exposed in vertical cliffs forming the rims of Hatch Wash. A segment of this rim is within school section 36 and outcrops of the Kayenta, Wingate and Chinle formations may be noted. The potential ore horizon is estimated to be 25 feet in the subsurface at this point in Hatch Wash. In the event ore is discovered in the proposed exploration program, Hatch Wash will afford a site for drifting into the deposits. The geology of the school sections is treated more fully in the geological report included herein.

The basic concepts vital to Moab Mines, Inc. reasons for wishing to explore these school sections are:

(1) Location within the very highly mineralized Big Indian Mining District.

(2) The belief that the deeper subsurface Chinle-Mossback occurrence in this district is as favorable to ore deposition as the shallower and more readily explored part exposed behind the Big Indian rim.
There is no evidence to refute this belief with penetration by drill bit the final arbiter.

(3) A geological comparison with the large ore deposits in the area indicates the school section vicinity would be favorable for ore occurrence. Certainly there is

thick and average 0.35 percent U_3O_8. Mr. W. P. Williams advises that the Hatch Wash, which exposes a section of the Chinle formation on the southwest corner of the property, has been gone over by the AEC and only small ore deposits (lenses in the football-size category) have been found.

Since this program is purely prospecting and without geological justification for an exploration program, the project should be denied without prejudice. Therefore, a letter has been written to the Operator advising the decision, also indicating that if two or more holes are drilled through the Chinle-Mossback and complete geological logs are furnished, we will be pleased to consider a new application.

Ernest Wm. Ellis

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

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

November 3, 1955

RECEIVED
NOV - 4 1955

Memorandum

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

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

Subject: Application for assistance, DMEA Docket 4027, Moab Mines, Inc., Big Indian Mining district, San Juan County, Utah

I have reviewed the attached application, DMEA Docket 4027, Moab Mines, Inc., dated October 20, 1955, and received in this office November 1. I have discussed it with Joseph O. Hested, Washington representative of the Atomic Energy Commission.

The Moab Mines company is desirous of exploring for uranium on two State of Utah school sections in the Big Indian Mining district. The project would involve 42,500 feet of combined plug and core drilling of some 1,300 acres of land. A total of 50 holes are proposed on 500-foot centers, each hole being from 800 to 900 feet deep. The cost of the exploration work is estimated by the applicant at $230,780.

I suggest that the application be denied inasmuch as (1) no evidence exists of favorable uranium mineralization on the two school sections; (2) the company has obviously made no attempt to conduct an independent prospecting program; (3) the Chinle formation in this area is deeply buried, requiring large expenditures for drilling with little indication that results may be encouraging; and (4) the fact that the property is located in the Big Indian Mining district does not necessarily imply its favorability as a source of uranium.

Mr. Hested has expressed the opinion that the application should be denied without prejudice, because it represents a

prospecting project rather than an exploration project. He has also pointed out that the favorable geologic features of the property have not been adequately described.

John E. Crawford

Attachment

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

November 3, 1955

RECEIVED
NOV - 4 1955

Memorandum

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

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

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Mr. Hosted has expressed the opinion that the application should be denied without prejudice, because it represents a

nothing prevalent to condemn the property.

(4) Big Indian ore deposits are characteristically rich and as such warrant the expense of exploration. If a typically large deposit is detected, the exploratory and developmental costs should be a very sound economic investment.

(d) The school section vicinity could be made readily accessible by comparatively small expenditure for bulldozing work. The area is in close proximity to highway 160 as it traverses between Moab and Monticello, Utah. The area is approximately 15 miles south from Moab, and 40 miles north from Monticello. The terrain in the area permits of jeep travel over practically the entire extent of the two school sections.

(e) Manpower, materials, supplies, equipment, etc. are readily available from either Moab or Monticello, Utah.

5. THE EXPLORATION PROJECT:

(a) It is our objective to explore for uranium-vanadium minerals with any aid received from DMEA.

(b) Moab Mines, Inc. proposes to engage in exploration for uranium-vanadium minerals by means of a drilling program. Any program proposed at this time is necessarily tentative but a general plan based on sound geological reasoning has been formulated and we hereby submit it as a basis for further discussion.

At this time the corporation is thinking in terms of an initial exploratory drill program as opposed to a developmental program. The major expenditure will, therefore, be represented by the cost of drilling. The amount of drilling required to thoroughly prospect the area in question will determine the length of the project, and this

in turn will largely control the overall costs of the project. Therefore, it becomes necessary to tender an estimate of the drilling depths involved and contemplated overall footage so that a basis for negotiating with the DMEA may be established.

INITIAL PROGRAM - The area involved in the proposed program approximates 1300 acres. The statement has been made by Mr. Paul Henshaw, a noted geologist with the Homestake Mining Company, to the effect that 500 foot spacing of drill centers is the optimum for initial exploration of the Chinle-Mossback ore horizon. Moab Mines, Inc. intends to employ 500 foot spacing of centers in a square net configuration. To carry out the above recommended program, each section would require 25 holes or a total of 50 holes for the two sections. Depths of the holes will range from 800-900 feet of which 40-50 feet in the Chinle-Mossback interval will be cored.

On the basis of the above estimates, the following is a summary of the drilling requirements:

No. of Holes	Plugging	Coring	Total Footage
50	(50x800)=40,000	(50x50)=2500	42,500

Conservatism has been the rule in the compilation of estimated footage; consequently, the 42,500 feet may be considered a maximum figure.

A graphic illustration of drill hole placement and relation of same to the geology may be found on page 13 of the geology report.

An adjunct to the drilling program will be careful analysis of the cores obtained with particular attention devoted to the detection of mineralization, thickness of the ore horizon, lithologic description, presence of carbonaceous debris and other manifestations helpful in the preparation of favorability and isopach maps.

Once again it must be emphasized that the program outlined above will be purely exploratory and as such has been rather rigidly set forth. In the event ore deposits are detected, Moab Mines, Inc. would like to reserve the privilege of approaching the DMEA agency for further aid in any subsequent endeavors.

(c) The work set forth herein will start within 7 days and be completed within 6 months from the date of an exploration project contract.

(d) Tentative arrangements have been made to let the drilling contract to the Utah Drilling Company. Geological and other supervisory capacities will be in the hands of the personnel of William J. Owen Associates, Geologists and Mining Engineers. The following is a brief resume of the background and experience of the key personnel who will be involved in the project:

William J. Owen, Supervisor: Bachelor of Science in Geology, University of Texas; worked on oil rigs in Texas; has been a uranium exploration geologist on the Colorado Plateau fourteen months for Hunt Oil Company (included areas in New Mexico, Arizona, Colorado, Wyoming and Montana). Was a consultant geologist for ten months with offices in Moab, Utah.

William R. Ellis, Geologist: Bachelor of Science in Geology, University of Texas; consultant on the Colorado Plateau in the field of uranium geology; familiar with areas in Utah, Colorado, Wyoming, Arizona, New Mexico including eight counties. Formerly with Humble Oil Company and the Stone-Tex Oil Company.

Lee J. Sturgeon, tool pusher: 27 months on Sullivan rig in Venzuela for Socony Vacuum. Driller for five years for Livingston Wilson Exploration (Failing rigs).

William F. Jamieson, mining engineer: Bachelor of Science degree from Washington State University; also attended Colorado School of Mines. Formerly an engineer for Ventures Limited in Canada, Consolidated Copper in Nevada, U.S. Vanadium in California, Free Port Sulphur in Texas and First Uranium Corporation in Nevada.

Walter Wagner, driller: Two years and two months drilling experience for M. O'Connell Drilling Company in Casper, Wyoming.

Joseph Wagner, driller's helper: three months experience with present company as helper.

S. Constantino, Jr., administration: Master of Arts degree in Economics, Fordham University; supplies, program coordinator for present company.

Kline D. Strong, acting controller: Bachelor of Laws, University of Colorado. Title work, contract agreements, personnel.

Charles Aplanalp, miner and driller: five years wagon-drill experience.

Douglas Cathey, driller: ten years of drilling experience in Texas, Oklahoma, Utah, New Mexico, Arizona, Colorado and Wyoming. Equipment: Standard rig, Mayhew, Failing, Winter-Weiss and wagon drills.

Utah Drilling Company has completed fourteen uranium property drilling projects on the Colorado Plateau during the 1955 Spring-Summer season. Total footage as of August 31st was about 60,000 ft.

6. ESTIMATED COSTS:

The project cost has been estimated on the basis of a program of six mo nths duration and a total drilling footage of 42,500 feet, as follows:

(a) Independent Contracts:

(1)	42,500 ft. drilling @$4.00 per ft.	$180,000.00
(2)	clearing, drill roadwork sites, bulldozing, etc. @$12.50 per hour, 240 hrs.	3,000.00
(3)	Assaying samples 100 @ $5.00 each	500.00
	Subtotal	$183,500.00

(b) Labor, Supervision and Consultants

(1)	Common labor 1 man @$350.00 per month (6x$350)	2,100.00
(2)	Geologist @$600.00 per month (6x$600)	3,600.00
(3)	Surveyor & draftsman @$500.00 per month (6x$500.00)	3,000.00
(4)	Superintendent @$800.00 per month (6 x $800.00)	4,800.00
(5)	Consultants-Mining, Engineering, Geology @ $100.00 per day (x10 days)	1,000.00
	Subtotal	14,500.00

(c)	Operating Materials & Supplies	2,000.00
(d)	Operating equipment	
	(1) Three jeeps @$300.00 each per month	5,400.00
	(2) Truck mounted kitchen @ $400.00 per mo. (6x$400.00)	2,400.00
	Subtotal	9,800.00
(e)	Rehabilitation & Repairs	
(f)	Buildings	
(g)	Miscellaneous (1) Repairs (2) Maintenance (3) Accounting (4) Workmen's Compensation (5) Employers liability insurance (6) Payroll taxes	2,000.00

SUMMARY OF COSTS:

(a)	Independent contracts	$183,500.00
(b)	Labor, Supervision, Consultants	14,500.00
(c)	Operating material and supplies	2,000.00
(d)	Operating equipment	7,800.00
(e)	Rehabilitation & Repairs	------
(f)	Buildings	------
(g)	Miscellaneous	2,000.00
(h)	Add 10% for contingencies	20,980.00
	Total Estimated Cost	$230,780.00

7. Corporation Participation:

(a) Moab Mines, Inc. is prepared to furnish its share of the costs of the proposed project in accordance with the regulations as set forth in Sec. 7, DMEA No. 1.

(b) Moab Mines, Inc. will provide its share of the costs in money.

GEOLOGY REPORT

October 11, 1955.

COPY

Moab Mines, Inc.
Box 586,
Moab, Utah.

Gentlemen:

Pursuant to your request I am herewith submitting a geological report on your school section property in the Big Indian District, San Juan County, Utah.

Map location of the property is Section 36, of Township 28 South, Range 22 East, and Section 2 of Township 29 South, Range 22 East S.L.M. Field investigation of the property was conducted at various times during the month of July 1955.

These stateschool leases have subsurface occurrence of theChinle uraniferous ore horizon which is highly productive in the Big Indian area. In my opinion the school section acreage is a favorable prospect for a core drilling program.

It is my hope you find this report helpful, and if I can be of further assistance please call on me.

Respectfully submitted,

William R. Ellis

William R. Ellis

WRE:zf

GEOLOGICAL REPORT ON MOAB MINES, INC.
SCHOOL SECTIONS 2 & 36
SAN JUAN COUNTY, UTAH

COPY

INTRODUCTION AND SUMMARY:

This report concerns two school sections in the Hatch Wash area in San Juan County, Utah. They represent 1,300 acres in areal extent and map location is section 36, of T28S, R22E and section 2 of T29S, R22E. They are situated in the Big Indian Mining District approximately 18 miles south of Moab, Utah. The basis of this report is field investigation of the properties at various times during the mohth of July, 1955.

It would appear worthwhile to briefly interject the favorable aspects of the property under consideration.

1. The school sections overlie subsurface occurrences of the Shinarump-Chinle horizon which has proved to be such a prolific source of uranium-vanadium ores further to the east in the Big Indian area.

2. Two miles to the north where the Shinarump-Chinle horizon outcrops in Hatch Wash, formational characteristics are manifest that experience has demonstrated to be attributes of an ore repository.

3. Fortuitous combination of geological circumstances, when viewed in the light of the widely accepted hydrothermal theory of ore genesis, indicate a highly favorable area for mineralization.

4. The proximity of nearby production would seem to sustain tha above contention that the area was one conducive to mineralization.

5. In the event ore bodies are delineated, the property embraces a rim in which the Chinle is exposed, thereby permitting drifts from said rim.

Another factor of major importance is drilling depth to the Shinarump-Chinle horizon in any contemplated exploration program. The school sections will entail depth penetration of from 800 to 900 feet contingent upon hole placement. The predominant surface outcrop is eroded Navajo sandstone which would indicate an average drilling depth of 850 feet. The large area involved would permit of a comprehensive program

to explore for uranium-vanadium occurrences.

LOCATION AND ACCESS:

School sections 2 and 36 are approximately 18 airline miles south of Moab, Utah. From Moab they may be reached by jeep via highway 160 south for approximately 12 miles to Hole in the Rock thence turn west on a dirt road and traverse 3 miles to the confluence of Cane Springs Canyon and Hatch Wash. Approximately 7 miles south in Hatch Wash may be found the rim within the southwest quarter of school section 2.

The roads are in reasonably good condition up to a point 2 miles to the north of the included rim of section 2. If access is desired by way of Hatch Wash, approximately 2 miles of road construction will be required. A wise alternative in view of contemplated drill exploration would be construction of a road from highway 160 at its closest proximity to the leased area. This would involve very little additional construction as there are roads already in existence to the rim previously alluded to, which would be the fartherest extreme in relation to the highway.

The nearest ore purchasing station would be Moab with Monticello located some 36 miles to the south.

GENERAL MINING AND EXPLORATION ACTIVITIES:

The Big Indian area has become justly famous for its large known ore reserves. These reserves are accounted for in part by the Utex, Standard, Cal Uranium, Homestake and other deposits on the upthrown or southwest side of the Lisbon Valley fault. The above mines are from 7 to 10 miles to the southeast of the school sections whereas to the north some 4 to 10 miles, may be found the Climax, Cimota and American Energy Corporation workings. A regional look at these locations would suggest a northwest-southeast mineralized trend roughly paralleling the Lisbon fault . In the immediate lease area, 2 miles to the north in Hatch Wash is found the Old Texas Mining operation.

COPY

At this writing no particulars are known on this deposit; but nevertheless it would tend to substantiate the implied northwest-southeast trend. The school sections are situated approximately 2 1/2 miles to the southwest of the Lisbon fault which compares favorably with Standard and Utex location 3 miles to the southwest of same. Using these large deposits as the criteria, the school sections would be within an inferred mineralized zone extending from the Lisbon fault in a southwesterly direction and paralleling the NW-SE trend of the fault. Substantiation of the inferences so drawn are contingent upon exploratory drilling in the school section area due to the paucity of outcrops of the Shinarump-Chinle ore horizon in this vicinity. It is my contention that the inferences made are sound and as a result the school sections are deserving of an exploratory drilling program.

COPY

GEOLOGY:

Structure:

The regional structural features predominating in the Big Indian District are the La Sal Mountains, Lisbon Valley anticline and fault, Cane Creek anticline and Kings Bottom syncline.

The La Sal Mountains, 8 miles to the east of the school sections, are an igneous, laccolithic complex that intruded overlying sedimentary strata thereby causing doming of the intruded strata. Subsequently this domal upwarp has been attacked by erosive agents resulting in the exposure of the crystalline core as we see it today. The La Sals are important to the formulation of a hydrothermal theory for ore genesis in the Big Indian area. The La Sals, as the theory is propounded, were the source of hydrothermal emissions that traveled along convenient avenues of facile movement to sites of deposition.

The Lisbon fault lies 1/4 to 3 miles northeast of the major ore deposits in Big Indian. The fault strikes northwest-southeast paralleling the axial trend of the Lisbon anticline and is upthrown to the southwest.

The Lisbon anticline is generally believed to be a salt structure. As the result of salt solution by ground waters, crestal collapse was brought about by undermining along the axis of the anticline. The Lisbon fault thus was originated in collapse of the domed strata. The Lisbon anticline is asymetric with the southwest flank, the more steeply dipping. It extends for approximately 16 miles in a NW-SE direction.

The Cane Creek anticline and Kings Bottom syncline are complimentary structural features that assume the predominant NW-SE attitude in this region. The Kings Bottom syncline intervenes between the Lisbon anticline and the Cane Creek anticline. These folded features are in all probability genetically related to flowage and accumulation of the subsurface Paradox evaporite sequence. The Kings bottom syncline plunges to the northwest whereas the Cane Creek anticline has a southeastward plunge.

It has been contended by some geologists that anticlinal control has played a big part in ore deposition in Big Indian. The basis of this thesis is the occurrence of large ore deposits flankally situated on the Lisbon anticline. Nevertheless, location of these deposits can be equally justified on the premise of adjacency to the Lisbon fault. Discovery of these deposits can be attributed in large part to baring of the ore horizon due to erosional attack on the topographic high created by doming. If faulting is a prime instrument in ore emplacement then subsurface, relatively flat lying horizons could logically be expected to contain ore deposits. Validation of this reasoning awaits thorough exploration by drill of the Chinle-Shinarump ore horizon in this vicinity.

The immediate school section area is structurally characterized by virtually flat-lying strata that have had canyons incised into them. Two miles to the northeast is a fault zone trending NW-SE that is subsidiary to the Lisbon fault - said faults reflecting very little displacement. The area is situated on the southeast extension of the Cane Creek anticlinal axis. There are indications of jointing which might be attributable to

COPY

weathering or to stresses imposed in propogation of the previously mentioned structures.

STRATIGRAPHY:

Stratigraphic outcrops in the school section area are represented by the Carmel, Navajo, Kayenta, Wingate and Chinle formations. The major part of both school sections has Navajo occurrence on the surface with lesser outcrops of Carmel and Kayenta. The Wingate and Chinle outcrops are restricted to the rim encompassed by Section 2.

In Stratigraphic sequence, litholigic descriptions of the formations alluded to are as follows:

Carmel - is a red mudstone-sandstone intermixture, the sand fraction being fine grained quartz - the formation as a whole exhibits fairly well developed bedding - in the school section 36 it is represented by eroded remnants in the NW-1/4.

Navajo - is a white, massive medium grained sandstone with well developed cross-bedding - the constituent particles well rounded and well sorted - upon weathering the formation tends to slabs paralleling cross laminations or to rounded knobs.

Kayenta - is a reddish pink medium grained sandstone containing some silty interstitial material - as opposed to the underlying Wingate. It is characterized by horizontal bedding and upon exposure to weathering develops horizontal slabs bounded by vertical jointing.

Wingate - is a buff to reddish, medium grained, massive quartz, sandstone - well rounded and well sorted - on outcropping generally forms vertical cliffs marked by vertical columnar jointing and streaks of manganese staining.

Chinle - varies from a red sandy mudstone at the top to a grayish green mudstone in the lower part of the section - usually forms slopes underlain by a sandstone rim that is generally the ore horizon in this part of the section.

Shinarump - in diverse regions the mineralized zone associated with the Chinle formation has been variously called the Shinarump, Mossback or simply Chinle ore horizon. In the school section area this interval is typically a gray to tan, medium grained to conglomeratic quartz, sandstone and siltstone. The rim encompassed by school section 2 does not include an outcrop of the potential ore horizon which is estimated to be 25 feet subsurface. However, this interval does outcrop approximately 1/2 mile to the north in Hatch Wash. At this point it is about 40 feet thick, is composed of predominantly silt size particles and has tan coloration. In the vicinity of the Old Texas operations there is evidence of channel development and associated basal carbonaceous deposits. At various places in the vicinity altered and leached Chinle can be noted.

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The Navajo, which covers most of the surface of the acreage under consideration, has been extensively eroded. In evidence are many rounded knobs of Navajo providing the major relief in the area. There appears to be approximately 100 feet of residual Navajo which in addition to 100 feet of Kayenta, 300 feet of Wingate and 350 feet of Chinle including the ore horizon indicate an average drilling depth of 850 feet through the Chinle-Shinarump interval. Depth penetration of this order would entail drilling costs in the neighborhood of $4.00 per foot or $3,400.00 per hole. 1 hole — $63,000 [illegible]

COPY

ORE DEPOSITION:

Frequent reference has been made to the favorable geology intrinsic in the school section area. The favorability accorded the vicinity is founded on the precept of hydrothermal genesis of ore deposits. This theory, as understood in most quarters, advocates a proximal igneous source for hydrothermal solutions, paths amenable to movement of solutions, and a stratigraphic horizon suitable to the precipitation of uranium minerals from solution.

Relation of these basic tenets to the school section area affords an insight into the merit of the property.

1. The adjacent La Sal Mountains suffice as the igneous source for the hydrothermal solutions. It is thought the entire Big Indian uraniferous province is within the sphere of influence of the La Sals.

2. The Lisbon and contiguous faults served as avenues of facile movement of mineralized solutions to sites of deposition. This is borne out by the mineralized trend paralleling the Lisbon fault.

3. The Shinarump-Chinle interval has been demonstrated to be an ore horizon by virtue of the large uranium deposits already found therein. This has been attributed to well developed porosity-permeability permitting impregnation by mineralized solutions and contained carbonaceous debris which is considered the catalytic agent in precipitation of uranium minerals.

The school sections qualify as a prospect for uranium occurrence if the above stipulations are considered and are valid.

EXPLORATION RECOMMENDATIONS:

It is my considered opinion school sections 2 and 36 are deserving of a thorough exploratory drilling program. The initial program should be predicated on approximately 500 foot spacing of centers in a square configuration. A fence of this type would necessitate 25 holes per section.

The information gained from analyzing the cuttings and cores derived from such a program should be utilized in the construction of favorability maps. Favorability maps in turn can form the basis for additional drilling on more closely spaced centers. In analyzing the cuttings, particular attention should be paid to the following:

1. The amount and distribution of carbonaceous material in the presumed ore horizon.
2. The presence of leached or altered mudstones indicating percolating solutions.
3. Limonite staining.
4. Sand grain size, sorting, type of cementation, angularity of particles. This type study will give indications as to porosity-permeability development and sedimentational environment of the suspected ore horizon.
5. Lithology of drilled stratigraphic section with especial attention to the presumed ore horizon.

A comprehensive program such as outlined above and covering both school sections could be accomplished for an estimated $200,000.00. This expenditure should provide for 50 drill holes to the Shinarump-Moenkopi contact. Access road construction will be negligible if necessary at all. The school section topography and vegetation is such that jeep travel is possible over practically the full extent of the sections.

In the event of ore delineation, the aforementioned rim in school section 2 affords a site where drifting into the ore horizon at a slight incline can be effected thus eliminating the need for expensive shafting.

It is my contention the geography and geology of the school section area justifies

COPY

a drilling program as advanced above.

CONSIDERATIONS:

In conclusion I believe it would be profitable to reiterate some of the salient features of the property treated in this report.

1. The leases have been properly obtained from the appropriate authorities.

2. The property is situated in the Big Indian District which is pre-eminent with respect to uranium ore production and reserves on the Colorado Plateau.

3. Exploratory drilling depths will be reasonable in view of the geological attributes inherent in the area.

4. The potential ore horizon may be reached by drifting in from the rim thereby obviating the need for expensive shafting.

5. Proximity to highway 160 and Moab, Utah insures facility of year-round operations with a minimum of effort.

6. Access roads to the property are already in existence and additional road expenditure on the property will be negligible.

7. Shipping distance to the nearest ore buying station at Moab is well within the maximum haulage allowance radius.

8. The area has subsurface occurrence of the Chinle-Shinarump interval which has proven itself a prolific ore horizon in such celebrated mines as Mi Vida, Homestake and Standard.

COPY

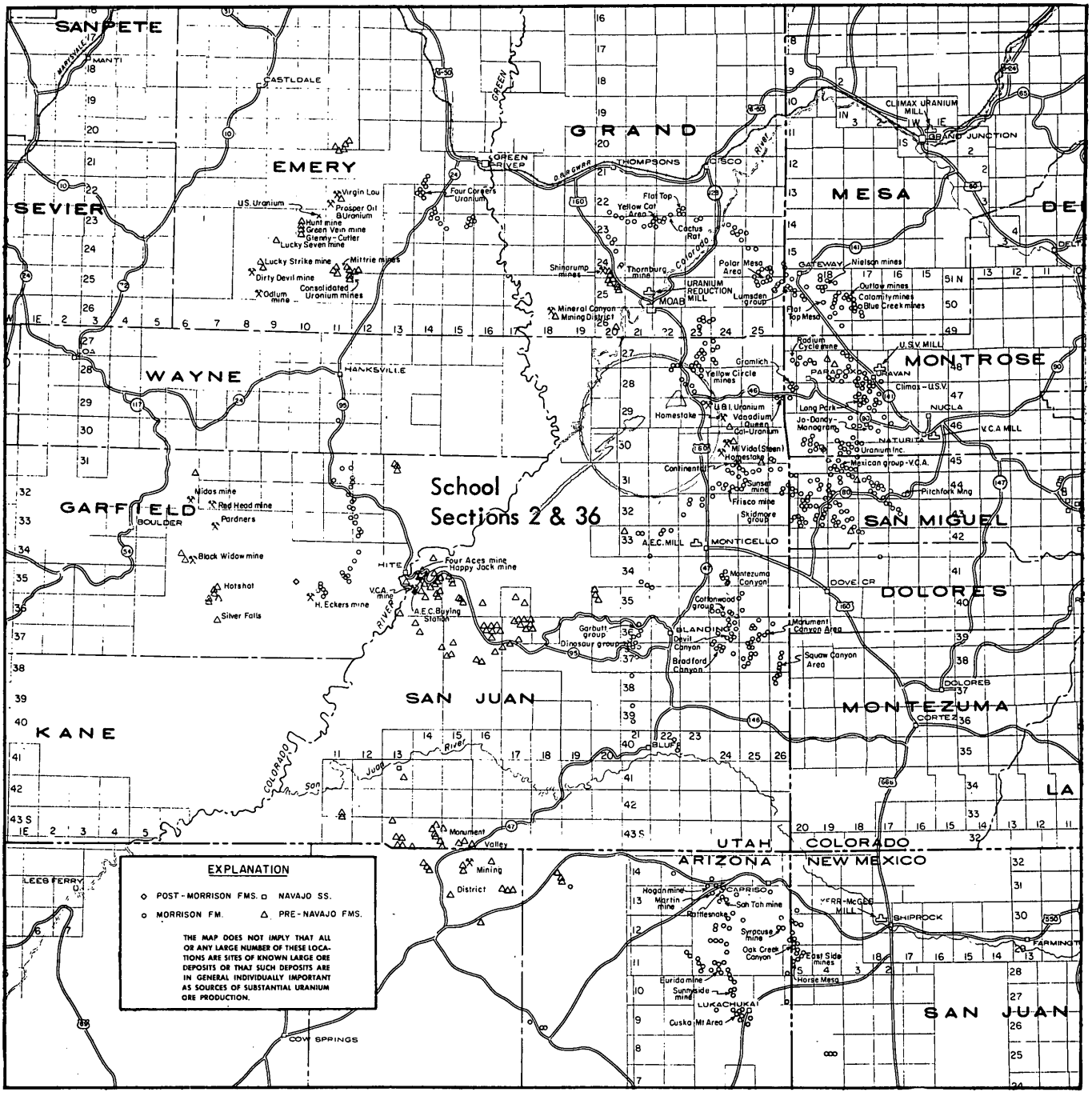
The school section properties have much to recommend them as prospects for potential subsurface uranium ore occurrence and I strongly advocate the instigation of a drilling program to prove or disprove the validity of my contentions.

It is my sincere hope you find this report satisfactory and if I may be of further assistance, please feel free to call on me.

Respectfully submitted,

William R. Ellis

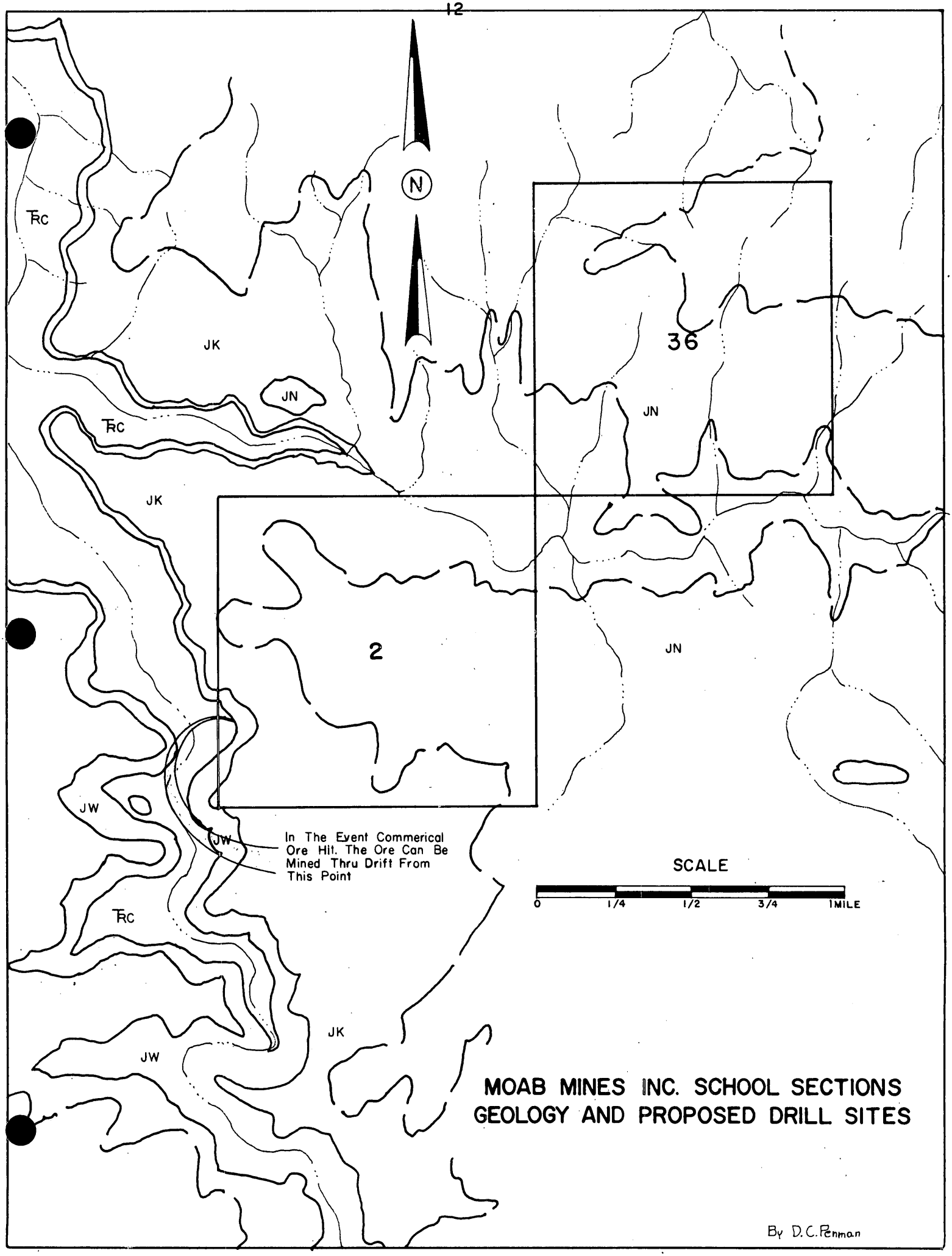
William R. Ellis



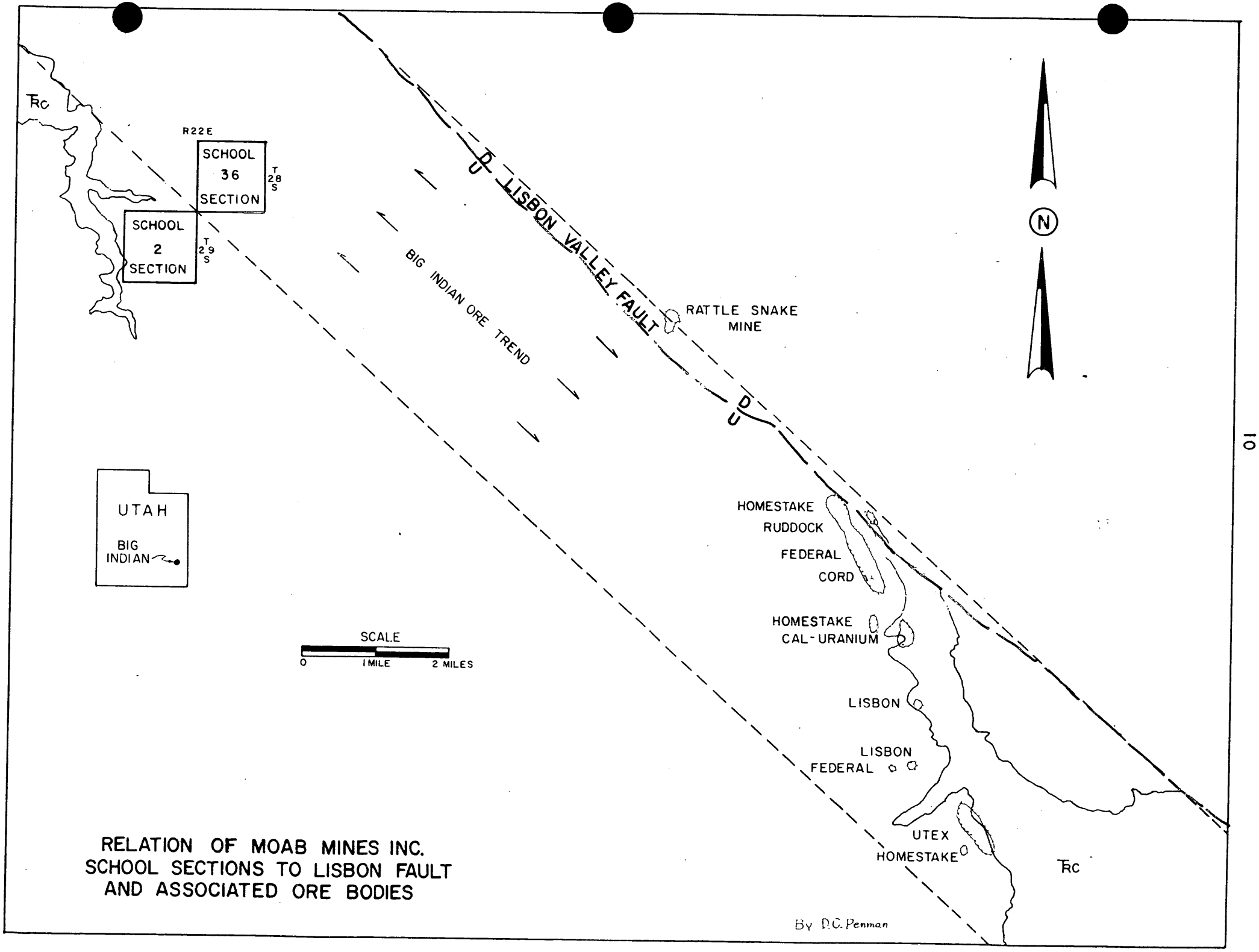
INDEX MAP OF PROPERTIES
School Sections 2 & 36
Moab Mines, Inc.
IN THE
URANIUM REGION
UTAH - COLORADO - ARIZONA - NEW MEXICO.
SHOWING BEDDED URANIUM DEPOSITS - MINES
PROCESSING MILLS AND PRINCIPAL HIGHWAYS
0 24 48 Mi

WILLIAM J. OWEN
ASSOCIATES
GEOLOGISTS AND MINING ENGINEERS
P.O. BOX 586 - URANIUM BUILDING
MOAB - UTAH

WESTERN STATES MAP CO.



MOAB MINES INC. SCHOOL SECTIONS
GEOLOGY AND PROPOSED DRILL SITES



RELATION OF MOAB MINES INC.
SCHOOL SECTIONS TO LISBON FAULT
AND ASSOCIATED ORE BODIES

ACCEPTANCE OF ASSIGNMENT

Mineral Lease # 5983

Comes now MOAB MINES, INC. a corporation of the State of Utah, and hereby accepts the Assignment from William J. Owen of Moab, Utah assigning to Moab Mines, Inc. Utah State Mineral Lease No. 5983, which Assignment is dated March 1, 1955, subject to all of the covenants and obligations of said lease.

IN WITNESS WHEREOF, Moab Mines, Inc. has executed this Acceptance this 1st day of March, 1955

Moab Mines, Inc.

By William J. Owen, Pres.

(SEAL)

By Robert C. Gibson, V. P.

State of Utah)
: SS
County of Grand)

On this 1st day of March, A.D. 1955, personally appeared before me William J. Owen and Robert C. Gibson who being by me duly sworn did say, each for himself, that he, the said William J. Owen is the president (officer) and he, the said Robert C. Gibson is the vice president (officer) of Moab Mines, Inc. and that the within and foregoing instrument was signed in behalf of said corporation by authority of a resolution of its Board of Directors, and said William J. Owen and Robert C. Gibson each duly acknowledged to me that said corporation executed the same and that the seal affixed is the seal of said corporation.

Leola Holyoak
Notary Public
Residing Grand County, Utah

My Commission Expires:

4-26-58

THE STATE OF UTAH

STATE LAND BOARD

SALT LAKE CITY 1

June 2, 1955

RECEIVED
OCT 20 1955

H. MULCAHY
CHAIRMAN
S. CURTIS
SECRETARY
A. N. SMITH
EXECUTIVE SECRETARY
LEE E. YOUNG
MANAGER

RECEIVED
DATE 6/6/55

Re: Mineral Lease No. 5983

Moab Mines, Inc.
c/o Reynolds & Gibson
Moab, Utah

Gentlemen:

The Land Board, at its meeting May 20, 1955, approved assignment of the above numbered mineral lease to you; by William J. Owen.

Our records have been noted and we herewith enclose the original lease with assignment.

Yours very truly,

Lee E. Young

LEE E. YOUNG
EXECUTIVE SECRETARY

jg
encl.

Proof Read

142

MINERAL LEASE NO. 5983

UTAH STATE LEASE

FOR

APPLICATION NO. 4184

GRANT: School

URANIUM AND VANADIUM

THIS INDENTURE OF LEASE AND AGREEMENT entered into in duplicate this 5th day of February 19 54 by and between the State Land Board, acting in behalf of the State of Utah, hereinafter called the Lessor, and

JOHN J. KNOP

party of the second part, hereinafter called the Lessee, under and pursuant to Title 65, Utah Code Annotated, 1953.

WITNESSETH: That the Lessor, in consideration of the rents and royalties to be paid and the covenants to be observed by the Lessee, as hereinafter set forth, does hereby grant and lease to the Lessee the exclusive right and privilege to mine, remove, and dispose of all of the said minerals in, upon, or under the following described tract of land situated in San Juan County, State of Utah, to-wit:

All of Section Thirty-Six (36), Township Twenty-Eight (28) South, Range Twenty-Two (22) East, and all of section Two (2), Township Twenty-Nine (29) South, Range Twenty-Two (22) East, Salt Lake Meridian,

containing a total of 1303.40 acres, more or less, together with the right to use and occupy so much of the surface of said land as may be required for all purposes reasonably incident to the mining, removal, and disposal of said minerals, according to the provisions of this lease, for a period of ten years, beginning January 2nd, first succeeding the date of issuance hereof, and as long thereafter as said minerals may be produced in commercial quantities from said lands, upon condition that at the end of each twenty (20) year period succeeding the first day of the year in which this lease is issued, such re-adjustment of terms and conditions may be made as the Lessor may determine to be necessary in the interest of the State.

ARTICLE I

It is expressly understood and agreed that this lease is granted subject in all respects to and under the conditions of the laws of the State of Utah and existing Rules and Regulations or Rules and Regulations as may be hereafter approved and adopted by the State Land Board.

ARTICLE II

It is further expressly understood and agreed that this lease covers only the mining, removal, and disposal of the minerals specified in this lease, but the Lessee shall promptly notify the Lessor of the discovery of any minerals excepting those enumerated herein.

ARTICLE III

The Lessee in consideration of the granting of the rights and privileges aforesaid, hereby covenants and agrees as follows:

FIRST: To pay to the Lessor as rental for the land covered by this lease the sum of Fifty (50) Cents per acre per annum. All such annual payments of rental to be made in advance on the 2nd day of January of each year, except the rental for the year in which this lease is issued, which is payable on the execution of this lease, such rental to be credited against the royalties as they accrue for the year.

SECOND: To pay a royalty of 12½% of the gross amount received for or the gross value of the leased substances, including the State's royalty share of any bonus received by the Lessee from the sale of the leased substances. The basis for computing the amount due to the Lessor shall be as follows:

(a) If the leased substance extracted are sold under a bonafide contract of sale the amount of money or its equivalent actually received by the owner, Lessee, or other person operating the leased premises from the sale of the leased substances less a reasonable cost, if any, of transporting the leased substances from the place where extracted to the place where under the contract of sale, the leased substances are to be delivered.

(b) If the leased substances extracted are treated at a mill, smelter, processing plant, or reduction works which receives the leased substances from independent sources and which is owned or controlled by the same interests owning or controlling the mine, such disposal shall be treated as a sale within the meaning of this section for the purpose of determining gross proceeds or otherwise, and in such determination a rate or charge for sampling, assaying, milling, smelting, or refining the leased substances therefrom shall be deducted which shall not exceed an amount to be determined by applying the same rates as are applied by such mill, smelter, or reduction works or competing works, and ores of substantially like character and in like quantities received from independent sources. In the event of controversy the Lessor shall have the power to determine such rates and charges. Transportation charges may also be deducted as provided in sub-division (a) hereof.

(c) If a mill or other reduction works is operated exclusively in connection with a mine such mill or reduction works shall be treated as a part of the mine and the cost of operating such mill or reduction works shall, for the purpose of fixing the royalty imposed by this lease, be regarded as part of the cost of mining, and the cost of assaying, sampling, smelting, refining, and transportation only shall be deducted as herein provided.

THIRD: Said royalties to be paid quarterly on or before the 15th day of the month next succeeding the quarter in which the material is produced.

FOURTH: To prepare and forward to the State Land Office, on or before the 15th day of the month next succeeding the quarter in which the material is produced, a certified statement as to the production, market, and price received on all of the leased substances disposed of from said lands, and such other additional information as the State Land Board may from time to time require.

FIFTH: That at the option of the Lessor it may require the payment of royalties in kind, F.O.B., at the lease-site; the amount being 12½% of the leased substances extracted.

SIXTH: To commence actual operations upon the land included herein on or before and there after to diligently operate the property in accordance with the provisions contained in this lease. Failure to so continue the operation of the land included herein for a period of more than six (6) months without prior written approval of the State Land Board shall be cause for forfeiture, and that upon the violation of this provision or any of the other terms of this lease the Lessor may at its option after thirty (30) days notice by registered mail cancel this lease. After the expiration of the said thirty (30) days and the cancellation of the lease no notice of such cancellation need be given the Lessee.

SEVENTH: To keep at the mine office clear, accurate and detailed maps on tracing cloth, on a scale not more than 50 feet to the inch, of the workings in each section of the leased lands and on the lands adjacent, and to be so arranged with reference to a public land corner that the maps can be readily and correctly superimposed, and to furnish to the Lessor annually, or upon demand, certified copies of such maps and such written statements of operations as may be called for. All surveys shall be made by a licensed engineer and all maps certified to by him.

EIGHTH: To not at any time fence any watering place upon the lands leased where the same is the only accessible and feasible source of water incident to the lands leased. Nor shall the Lessee or assigns at any time permit or contribute to the pollution of any surface or subsurface water available, naturally or otherwise, for domestic or irrigation use.

NINTH: To not sell, assign, mortgage, pledge, hypothicate, or otherwise transfer or incumber this lease or any interest therein, nor sublet any portion of the leased premises, or any of the rights and privileges herein granted, without the written consent of the Lessor being first had and obtained.

ARTICLE IV

The Lessor hereby excepts and reserves from the operation ofthis lease:

FIRST: The right to permit for joint or several use such easements or rights-of-way upon, through, or in the land hereby leased as may be necessary or appropriate to the working of these or other lands belonging to or administrated by the Lessor containing mineral deposits or for other use.

SECOND: The right to use, lease, sell, or otherwise dispose of the surface of said lands or any part thereof, under existing State Laws or Laws hereafter enacted, insofar as said surface is not necessary for the use of the Lessee in the mining, removal, or disposal of the leased substances therein, and to lease other mineral deposits, excepting those enumerated herein which may be contained in said lands.

ARTICLE V

Upon cancellation of this lease for any cause herein the Lessee shall be entitled to remove from the lease holdings only personal property prior to complete fulfillment of the provisions of this lease, and that improvements attached to the land such as buildings, timbering, or other construction or construction material in place, shall remain undisturbed upon the ground and the property surrendered in good usable condition.

ARTICLE VI

It is mutually understood and agreed that it shall be the responsibility of the Lessee to slope the sides of all operations of a surface nature to an angle of not less than 45° or to erect a barrier around such operation as the State Land Board may require. Such sloping or fencing shall become a normal part of the operation of the lease so as to keep pace with such operation to the extent that such operation shall not constitute a hazard.

ARTICLE VII

It is mutually understood and agreed by the parties hereto that all of the terms, covenants, conditions, and obligations in this lease contained, shall be binding upon the heirs, executors, administrators, and assigns of the Lessee.

ARTICLE VIII

It is mutually understood and agreed that the Lessee may terminate this lease at any time upon giving three (3) months notice in writing to the Lessor and upon payment of all rents and royalties and other sums due and payable to the Lessor, and upon complying with the terms of this lease with respect to the preservation of the workings in such order and condition as to permit of the continued operation of the leased premises.

ARTICLE IX

It is mutually understood and agreed by and between the parties hereto that the Lessor, its officers and agents, shall have the right at all times to go in and upon the leased lands and premises, during the term of said lease to inspect the work done and the progress thereof on said lands and the products obtained therefrom, and to post any notices on the said land that it may deem fit and proper; and also shall permit any authorized representatives of the Lessor to examine all books and records pertaining to operations under this lease, and to make copies of and extracts from the same, if desired.

ARTICLE X

It is mutually understood and agreed that this lease is issued only under such title as the State of Utah may now hold, the Lessor shall not be liable for any damages sustained by the Lessee, nor shall the Lessee be entitled to or claim any refund of rentals or royalties or other monies theretofore paid to the Lessor.

ARTICLE XI

LESSEE agrees to observe faithfully the provisions of Title 65, Chapter 1, Section 18, Utah Code Annotated 1953.

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

STATE OF UTAH STATE LAND BOARD

By A. N. Smith
EXECUTIVE SECRETARY LESSOR

APPROVED AS TO FORM:
E. R. CALLISTER
ATTORNEY GENERAL
By Robert H. Rugger

John J. Knop

LESSEE

STATE OF UTAH
COUNTY OF SALT LAKE } ss.

On the 13 day of April 19 54, personally appeared before me A. N. Smith who being by me duly sworn did say that he is the Executive Secretary of the State Land Board of the State of Utah and that said instrument was signed in behalf of said Board by resolution of the Board, and said A. N. Smith acknowledged to me that said Board executed the same in behalf of the State of Utah.

Given under my hand and seal this 13 day of April 19 54.

My commission Expires: October 13, 1956

Ruth Sperry
Notary Public, residing at: Salt Lake City, Utah

STATE OF UTAH
COUNTY OF Grand } ss.

On the 7th day of April 1954, personally appeared before me John J. Knop, the signer of the above instrument, who duly acknowledged to me that he executed the same.

Given under my hand and seal this 7th day of April 1954.

My commission Expires: May 31, 1955

A. Lee Lemmon
Notary Public, residing at: Moab, Utah

STATE OF UTAH
COUNTY OF } ss.

On the day of 19, personally appeared before me

who being by me duly sworn did say that he is an officer of and that said instrument was signed in behalf of said corporation by resolution of its Board of Directors, and said acknowledged to me that said corporation executed the same.

Given under my hand and seal this day of 19.

My commission Expires:

Notary Public, residing at:

UTAH OIL REPORT

ASSIGNMENT OF ~~OIL AND GAS~~ URANIUM AND VANADIUM LEASE

Mineral Lease No. 5983 UTAH STATE LAND OFFICE Application No. 4184

For and in consideration of the sum of Ten and no/100 Dollars

I (we) hereby sell, assign and transfer unto MOAB MINES INC., a Utah Corporation

of all my (our) right, title and interest in and to

ML# 5983; embracing the following described land:

All of Section Thirty Six (36), Township 28 South, Range 22 East, and all of

of Section 2 Township 29 South Range 22 East

Salt Lake Meridian, in the County of San Juan State of Utah.

Witness my (our) hand(s) this 1st day of March, 195 5

William J. Owen

Two Witnesses:

Gertrude L. Calever

Leola Holyoak

STATE OF UTAH,
County of Grand } ss.

On the 1st day of March, A. D. 1955, personally appeared before me William J. Owen the signer(s) of the above instrument, who duly acknowledged to me that he executed the same.

Leola Holyoak
Notary Public.

My commission expires 4-26-58

Affidavit of Citizenship of Assignee

I, (we) on oath, do solemnly swear that I am (we are) at the present time (a)* Citizen(s) of the United States of America and over the age of twenty-one years.

Subscribed and sworn to before me this day of , 195

Notary Public.

My commission expires

NOTE—*Insert here whether native born or naturalized. If naturalized, it will be necessary to file with this office Proof of Citizenship or Declaration of Intention to become a citizen, in the form of a letter or certificate of verification from Court of Issuance, and registration fee of $1.00.

NOTE—The original Mineral Lease must be produced. ASSIGNMENT FEE, $2.00.

NOTED 2-18-55

2-4 1955 ASSIGNED FOR $20

TO [illegible]

OF Moab, Utah

STATE LAND BOARD

By [illegible]

NOTED JUN 2 1955

5-20 1955 ASSIGNED FOR $ [illegible]

TO [illegible] Inc.

OF Moab, Utah

STATE LAND BOARD

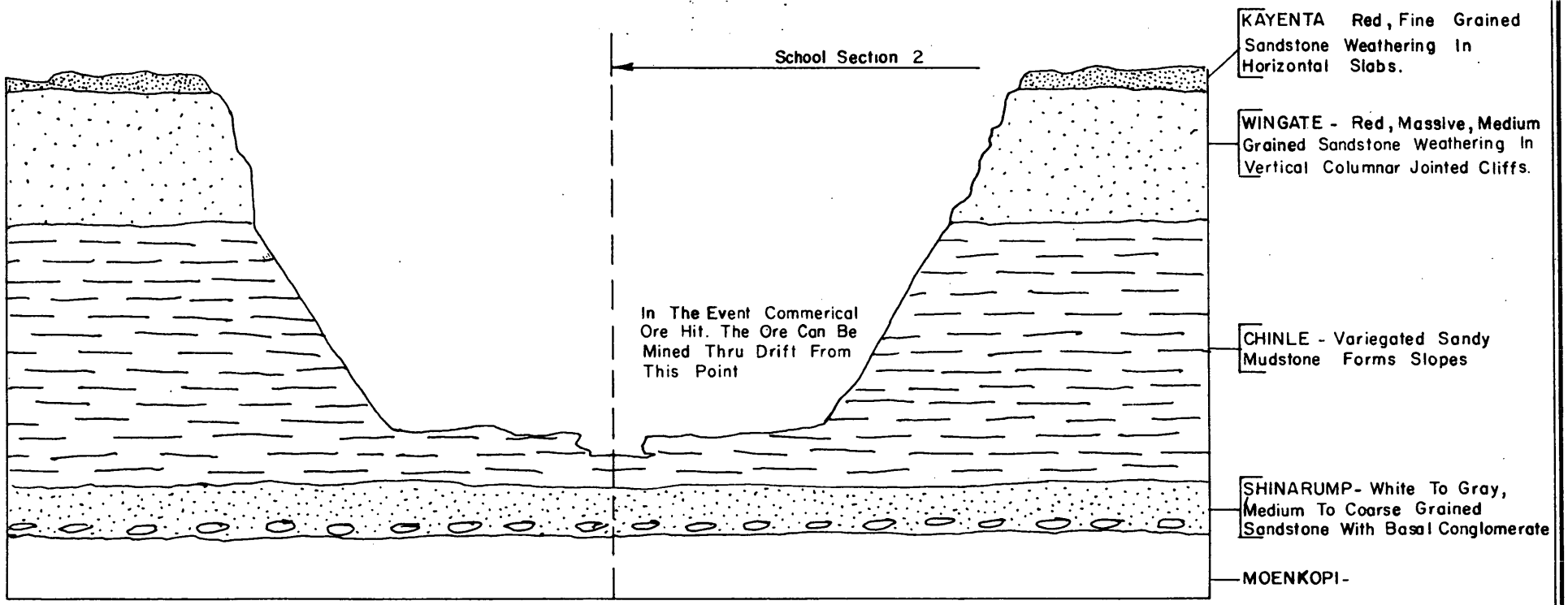
By [illegible]

RECEIVED MAY 18 1955 STATE OF UTAH STATE LAND OFFICE

RECEIVED APR 9 1954 STATE OF UTAH STATE LAND BOARD

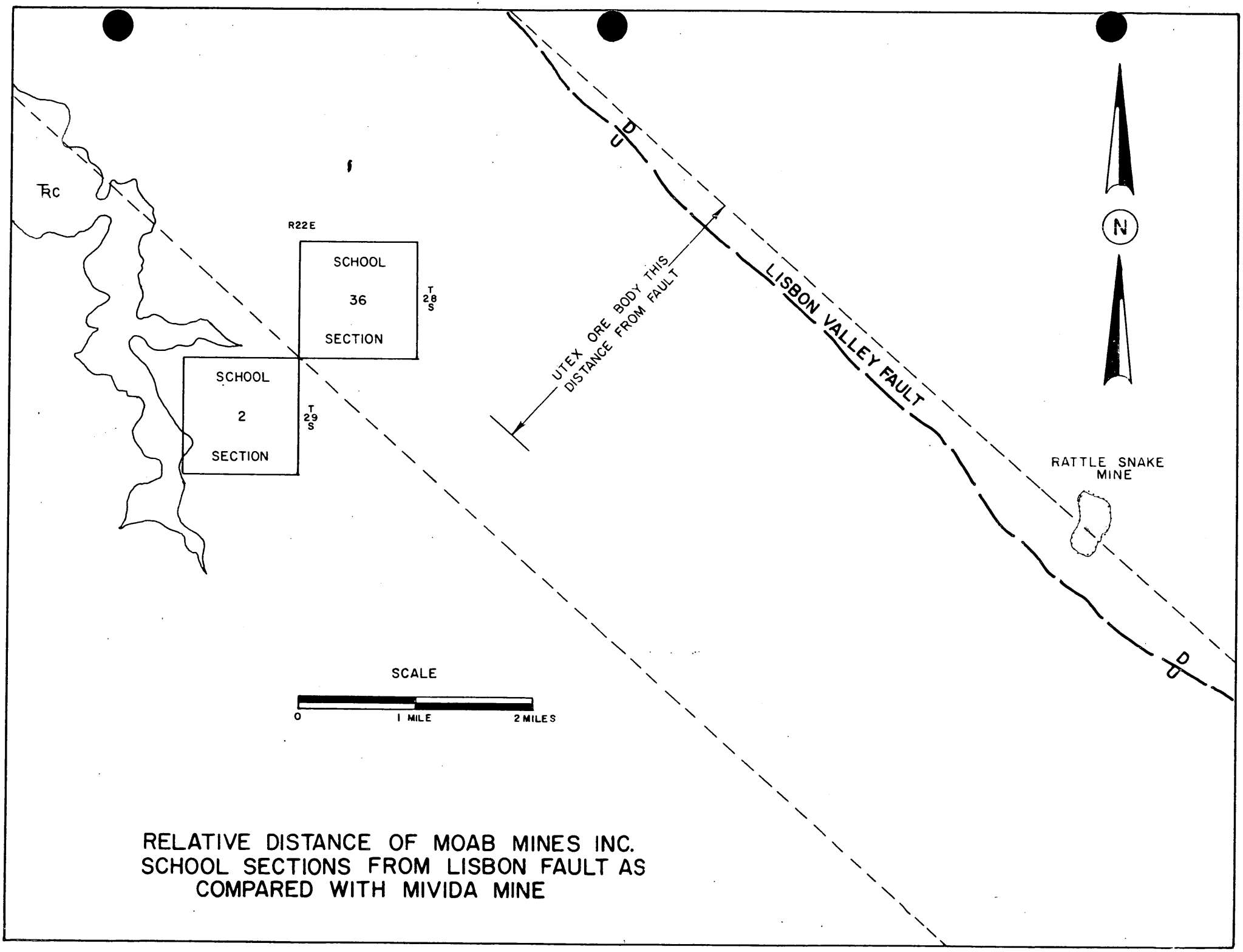
RECEIVED FEB 24 1955 STATE OF UTAH STATE LAND OFFICE

SCHOOL SECTION No. 2
BIG INDIAN DISTRICT
SAN JUAN COUNTY, UTAH



CROSS SECTION HATCH WASH

By D. C. Denman



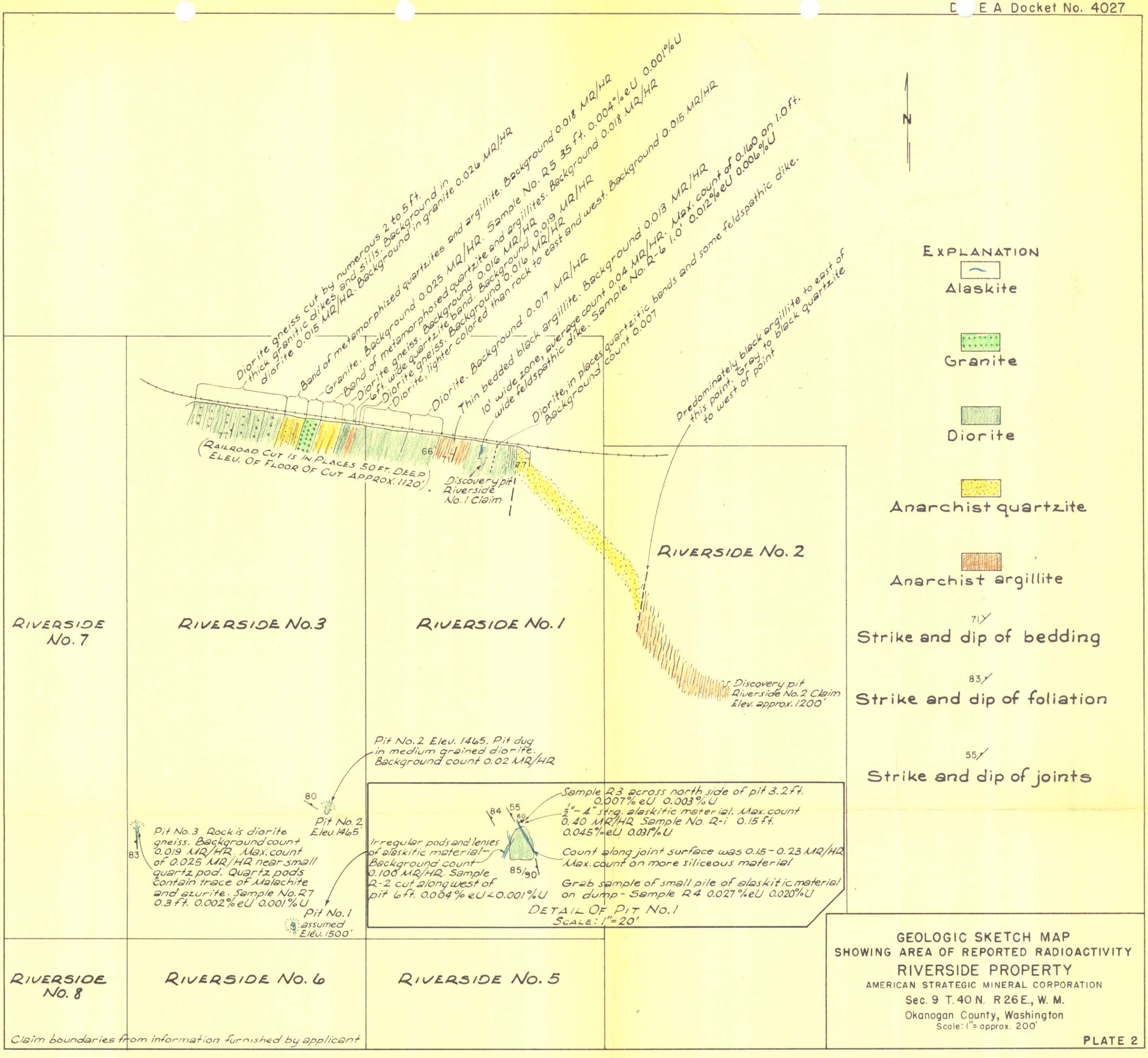
RELATIVE DISTANCE OF MOAB MINES INC.
SCHOOL SECTIONS FROM LISBON FAULT AS
COMPARED WITH MIVIDA MINE

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

OFFICIAL BUSINESS

ROOM / POST OFFICE BLDG.
KNOXVILLE 2, TENN.

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


N
Diorite gneiss cut by numerous 2 to 5 ft. thick granitic dikes and sills. Background in diorite 0.015 MR/HR. Background in granite 0.026 MR/HR
Band of metamorphized quartzites and argillite. Background 0.018 MR/HR
Granite. Background 0.025 MR/HR. Sample No. R5 35 ft. 0.004% eU 0.001% U
Band of metamorphosed quartzite and argillites. Background 0.018 MR/HR
Diorite gneiss. Background 0.016 MR/HR
6 ft. wide quartzite band. Background 0.019 MR/HR
Diorite, lighter colored than rock to east and west. Background 0.015 MR/HR
Diorite. Background 0.017 MR/HR
Thin bedded black argillite. Background 0.013 MR/HR
10' wide zone, average count 0.04 MR/HR. Max. count of 0.160 on 1.0 ft. wide feldspathic dike. Sample No. R-6 1.0' 0.012% eU 0.006% U
Diorite, in places quartzitic bands and some feldspathic dike. Background count 0.007
Predominately black argillite to east of this point. Gray to black quartzite to west of point
(Railroad cut is in places 50 ft. deep. Eleu. of floor of cut approx. 1120')
77
66
77
Discovery pit Riverside No. 1 Claim
Riverside No. 2
Discovery pit Riverside No. 2 Claim Elev. approx. 1200'
Riverside No. 7
Riverside No. 3
Riverside No. 1
Pit No. 2 Eleu. 1465. Pit dug in medium grained diorite. Background count 0.02 MR/HR
80
Pit No. 2 Eleu. 1465'
83
Pit No. 3 Rock is diorite gneiss. Background count 0.019 MR/HR. Max. count of 0.025 MR/HR near small quartz pod. Quartz pods contain trace of Malachite and azurite. Sample No. R7 0.3 ft. 0.002% eU 0.001% U
Pit No. 1 assumed Eleu. 1500'
84
55
60
85/90
Irregular pods and lenses of alaskitic material - Background count - 0.100 MR/HR. Sample R-2 cut along west of pit 6 ft. 0.004% eU <0.001% U
Sample R3 across north side of pit 3.2 ft. 0.007% eU 0.003% U
1/2" - 4" strg. alaskitic material. Max. count 0.40 MR/HR Sample No. R-1 0.15 ft. 0.045% eU 0.031% U
Count along joint surface was 0.15 - 0.23 MR/HR Max. count on more siliceous material
Grab sample of small pile of alaskitic material on dump - Sample R4 0.027% eU 0.020% U
Detail Of Pit No. 1
Scale: 1" = 20'
Riverside No. 8
Riverside No. 6
Riverside No. 5
Claim boundaries from information furnished by applicant
Explanation
Alaskite
Granite
Diorite
Anarchist quartzite
Anarchist argillite
71
Strike and dip of bedding
83
Strike and dip of foliation
55
Strike and dip of joints
GEOLOGIC SKETCH MAP
SHOWING AREA OF REPORTED RADIOACTIVITY
RIVERSIDE PROPERTY
AMERICAN STRATEGIC MINERAL CORPORATION
Sec. 9 T. 40 N. R 26 E., W. M.
Okanogan County, Washington
Scale: 1" = approx. 200'
PLATE 2