DMA Form 1

DEFENSE MINERALS ADMINISTRATION
Control Slip

CONTROLLED DOCUMENT

DMA Docket No. 4518

DO NOT DETACH THIS SLIP

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

cy to USGS: CY B MINES: CY REGION III

This document has been recorded as

Exploration

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

Routing Slip

To:	700	Date	10/26/56
To:	Operating Com.	Date	11-13-56
To:	F.E. Johnson	Date	11-14-56
To:	Com	Date	11-14-56
To:	Code 130	Date	2-7-57
To:	110	Date	2-8-57
To:	100	Date	2-8-57
To:	225	Date	2-8-57
To:		Date	
To:		Date	
To:		Date	
To:		Date	
To:		Date	
To:		Date	
To:		Date	

DO NOT DETACH

CONTROLLED DOCUMENT

IMEA Form 9

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE

DMEA NO. 4518

Application (Denied ✓
(Withdrawn
(After disposition, delete items not applicable)

Contract (Terminated - not Certified
(Cancelled
(Terminated - Certified
(Royalty Agreement

This is the official contract file containing all official records of the project. The records contained in the files are checked and are arranged in this order:

Left Side

Interim Royalty Audits
Reports of Royalty Review
Certification of Discovery
Certificate of Audit (Final)
Interim Audit(s)
Report of Review
Termination Notice or Agreement
Recision Notice
Assignment of Contract
Contract Amendments (latest on top)
Contract with all exhibits and annexes
Owner's Consent to Lien
Subordination Agreement
✓ Leases and assignments of leases
✓ Application and attachments
(3) Envelope for maps

Right Side

Project summary
Work completed analysis
All other material is filed in chronological order with correspondence including the following reports as checked:

Final Field Team Report (Tab)
Operator's Final Report
(2R) Interim Reports
(2R) Operator's monthly reports and all attachments (latest on top)
✓ On-site Exam Report(s) (Tab)
(4) Settlement Sheets

When the volume of records is expected to warrant additional folders, or when convenience of reference warrants separate folders for certain records, they should be set up in this order:

Left Side

Folder No. 2: (In chron. order)
Interim Summary Reports by W. O. Engineers

Right Side

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

Folder No. 3: Maps (Use pocket folder or envelope. Fold maps with title block out and show reference to related document or correspondence.)

Folder No. 4: Settlement Sheets

Folder No. 5: Drill Logs

9775

The BALCONES Corp.
EXPLORATION AND DRILLING

RECEIVED
OCT 25 1956

403 EAST TRAVIS STREET
SAN ANTONIO 5, TEXAS
CApitol 4-1232
TWX SA-65

October 16, 1956

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

Gentlemen:

Under separate cover attached, we are submitting for your approval, four copies of "Application for Aid in Uranium Exploration Project," Golden West Properties, Grand County, Utah.

For your information these documents have been reviewed by your District Office in Salt Lake City, Utah, and, at their suggestion, are being mailed direct to you.

I will be glad to personally escort your Field Team to the property if you will give me at least 5 days notice at the above address and suggest that our meeting place be the Prospector Lodge in Moab, Utah.

Very truly yours,

Howard L. Grant

Howard L. Grant, Chief Engineer

cc: Mr. M. Howes
U. S. Bureau of Mines
University of Utah
Salt Lake City, Utah

APPLICATION

FOR

DMEA AID IN URANIUM

EXPLORATION PROJECT

RECEIVED
OCT 25 1956

GOLDEN WEST PROPERTIES

GRAND COUNTY, UTAH

BALCONES EXPLORATION & DRILLING CORPORATION

403 East Travis Street

San Antonio 5, Texas

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED OCT 25 1956

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. DMEA-4518
Metal or Mineral Uranium
Date Received 10-25-56
Estimated Cost $85,717.12
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: Balcones Exploration and Drilling Corporation
403 East Travis St.
San Antonio, Texas

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

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

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

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

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

See accompanying papers

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

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

See accompanying papers

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

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

There are none

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice.

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.

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

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

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

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

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

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

(*c*) The work will start within 30 days and be completed within 10 months from the date of an exploration project contract.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated Oct 13, 1956

Balcones Exploration & Drilling Corporation
(Applicant)

By James Duke Jr

Col. James E. Duke, Jr.

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

RECEIVED
OCT 25 1956

Balcones Exploration & Drilling Corp.
403 East Travis Street
San Antonio 5, Texas

APPLICATION FOR AID

D M E A EXPLORATION PROJECT

GOLDEN WEST PROPERTY, GRAND COUNTY, UTAH

INTRODUCTION

The following document, which is a collection of legal papers, data, reports, maps etc., is prepared in accordance with DMEA Form No. MP 103 (revised April 1952) and is intended to take the place of said form as said form does not contain sufficient space to properly present the required information. The letters and numbers used herein refer to the corresponding letters and numbers on said form and all reports, maps and other substantiating papers accompanying this document and referred to as exhibits are considered as a part thereof.

1. NAME OF APPLICANT

(a) Balcones Exploration and Drilling Corporation
403 East Travis Street
San Antonio 5, Texas

(b) The Balcones Exploration and Drilling Corporation is incorporated in the State of Texas.

(c) The titles, names and addresses of the company officers are as follows:

President	Col. James E. Duke, Jr.
Vice-President	Howard L. Grant, Chief Engineer
Vice-President	Collins B. Cook, Chief, Land Dept.
Vice-President	Claude F. Spang, General Counsel
Secretary-Treasurer	Thomas J. Manion

All addresses are as shown in (a) above.

Balcones Exploration & Drilling Corp.
403 East Travis Street
San Antonio 5, Texas

(d) The Balcones Exploration and Drilling Corporation is not a partnership.

2. GENERAL

This instruction has been adhered to in every way and we believe this document will comply in all respects to the criteria set forth in DMEA Order as ammended through March 21, 1955.

3. APPLICANTS PROPERTY RIGHTS

(a) & (b) The property covered by this application is known as the Golden West and consists of fifty nine unpatented lode mining claims located in Sections 17,20 & 21, Township 26 South, Range 20 East of the Salt Lake Meridian and one lease from the State of Utah on School Section 16 Township 26 South, Range 20 East of the Salt Lake Meridian, all in Grand County, Utah.

(c) The Golden West property is owned by Golden West Oil and Uranium, Inc. The Balcones Exploration and Drilling Corporation has control of the presmises in accordance with the terms set out in a mining agreement dated July 11, 1956, a copy of which is included herewith and marked Exhibit "A".

(d) See Exhibit "A".

(e) There are no liens or encumbrances against the Golden West property.

(f) Following are shown the book and page numbers of the Grand County, Utah, claim records where the location notices are filed for the claims covered by this application:

Balcones Exploration & Drilling Corp.
403 East Travis Street
San Antonio 5, Texas

NAME OF CLAIM	RECORDED IN BOOK	PAGES
D. W. 1-15 inclusive	36	232-237
	44	165-169
Pilot 2-7 inclusive	45	487-492
Pilot 31-42 inclusive	20	240-245
	45	516-527
Pilot 48-59 inclusive	20	245-253
	45	528-543
Lion 1,3,5,7,9,11,13, 15,17, & 19	49	21,23,25,27,29, 31,33,35,37,39.
Wava 1 & 2	15	435,436
Grey Fault 1 & 2	9k	69

4. PHYSICAL DESCRIPTION

(a) Prior to our acquisition of interest in this property a considerable amount of mining was accomplished by drifting into pockets from surface outcrops in the Mossback Member of the Chinle Formation. Four tunnels were excavated, two of which (No 1 & 2, Exhibit "B") were about 50 feet above the Moenkopi Contact and two (No 3 & 4 Exhibit "B") about 150 and 200 feet respectively. Numbers 1 & 2 were quite productive and still contain shippable ore, but 3 & 4 have been temporarily abandoned as the outcropping ore pocket has been exhausted in both cases. During these operations several hundred tons of ore grading from 0.18 to 0.35% U_3O_8 have been shipped to the mill at Monticello, Utah. Work is now being carried on in Tunnels 1 & 2 and the location of the ore is being determined with the aid of an interior drill and a horizontal counter probe 150 feet in length. Drifts and stopes are now under construction to reach promising ore bodies.

Balcones Exploration & Drilling Corp.
403 East Travis Street
San Antonio 5, Texas

In addition to the mining activities we are now engaged in constructing a road from tunnel No.2 to the southernmost outcrop shown on Exhibit "B". This outcrop contains ore on the surface grading from 0.5 to 1.0% U_3O_8 chemically and mining operations will start as soon as facilities are made available.

Jeep roads have been constructed from the camp site to all of the tunnels and low grade roads from the camp site down to the main road along the Colorado River. Ore is transported from the mining area by a four wheel drive truck to an ore bin on about the 4800 foot level from which it can be collected by standard ore trucks and transported without difficulty to mill sites.

(b) Nearly 400 tons of ore have been mined and sold prior to our acquisition of the property. Since then proceedures have been completely reorganized and systematic methods of exploration and development have been adapted. The ore bin now contains several tons of ore gathered in developing processes and soon we hope to start making periodic shipments again.

No work has been done as yet to determine the ore reserve as this work is necessarily dependent on the results of an extensive drilling program which, we trust, we will be able to carry out with your assistance.

(c) The general geology of the area is similar to that found locally from which considerable U_3O_8 is being produced. Faults, anticlines and synclines are so located throughout the area as to indicate the possibility of a large ore body in close proximity to the various radioactive outcrops on the property. The only way this possibility can be determined is by drilling and it is suggested that the drilling conform to the pattern

Balcones Exploration & Drilling Corp.
403 East Travis Street
San Antonio 5, Texas

shown on Exhibit "B" and Plate No. 1 of the included geological report marked Exhibit "C". The report is to be referred to primarily in answer to the requirements of this section, 4 - (c), but a personal inspection by your field team will reveal many more reasons to justify this application than can be adequately described on paper.

(d) The Golden West properties are located on the North side of the Colorado River about 23 miles from moab, Utah and 80 miles from the Uranium Mill at Monticello, Utah. Approximately 20 miles of this road is somewhat better than normal desert type dirt road and the balance is pavement. The dirt road is all weather but is succeptable to the flash floods which normally occur in the late summer and early fall months. It was built by the MGM oil company for access to their wells located in the vicinity of the Golden West property and is now used and maintained by them and all of the Uranium mining enterprises it serves.

Workers at the mine could easily commute from Moab but so far they have all elected to stay at the camp. This camp is located on a bench at about the 4600 foot level and is accessable by a road easily traversed by present day passenger cars.

(e) Since acquiring the property we have had no trouble in finding qualified miners, drillers and other types of labor in the immediate neighborhood. We are now operating other mines in Nevada and Arizona and we feel that with the three available sources we should never have difficulties in acquiring needed labor.

Supplies and equipment are readily obtainable in Moab, Grand Junction or Salt Lake City and in most cases delivery can be made within 24 hours from the time of the order.

Balcones Exploration & Drilling Corp.
403 East Travis Street
San Antonio 5, Texas

Industrial water for drilling and other mining requirements is available at the Colorado River about 5 miles from the mine site. Domestic water can be obtained at a spring about 2 miles from the camp site. Arrangements are on hand for hauling both types of water.

The mine and camp equipment now on hand consists of the following major items: Scootcrete, jack leg drills, bulldozer, compressor, water pressure tank, water and air lines, light plant, mine ventillating system with blower, ore bins, ore chutes, two pickup trucks (3/4T), flat bed truck, Jeep, Dodge Power Wagon, gasoline, Diesel and water tanks, welding outfit, bunk house, cookhouse and dining room, tool house and machine shop and two small living trailers.

5. THE EXPLORATION PROJECT

(a) The mineral for which we wish to explore is uranium

(b) The first step on the proposed exploration project should be to extend the mine road from tunnel No. 4 eastward and upwards to the base of the Wingate formation along the east side of D. W. claim No. 6 and thence westerly and southerly along the base of the Wingate formation to the southwest edge of Grey Fault claim No. 1, a distance of approximately 6000 feet.

Next, starting at a point 100 feet westerly from the east end of this road, holes should be drilled vertically on 300 foot centers to the Moenkopi contact collecting cores in the lower 100 feet of each hole. Half way between each of these holes additional holes should be drilled on an approximate 30 degree angle with similar core recovery. According

Balcones Exploration & Drilling Corp.
403 East Travis Street
San Antonio 5, Texas

to survey measurements these holes should be approximately 350 feet deep and not 190 feet as shown on the stratigraphic column Plate No. 1, Exhibit "C".

After the above work has been completed and the results analyzed deep holes (700' - 800') should be drilled from the top of the mesa to the Moenkopi contact with core recovery from the last 100 feet. Unless analysis of the lower level drilling indicates that a different pattern should be used, we request that the drilling follow the route indicated on Exhibit "B". No road building will be required.

It is probable that drilling will be accomplished by contract, but road building will be carried out by mine laborers and equipment. Records will be kept strictly in accordance with DMEA requirements. Samples will be assayed by our laboratory, Southwest Assay Corporation of San Antonio, Texas and, if necessary, some other laboratory as selected by DMEA.

(c) The work will start within 30 days and be completed within 10 months from the date of the signing of an exploration project contract.

(d) The Balcones Exploration and Drilling Corporation now operates a tungsten mine (Georgia Mine) near Ely, Nevada and a lead, silver, copper mine (Dogtown Mine) in the Pima District south of Tucson, Arizona. They are well equipped to properly handle the operation of any type mining venture and also realize the advantage and sometimes the necessity of obtaining the services of experts in certain lines when needed.

Their Chief Engineer, Howard L. Grant, is a Registered Professional Engineer with a B. S. in Civil Engineering (Mining Major) from Union College. He has had about 30 years of experience of which nearly half

Balcones Exploration & Drilling Corp.
403 East Travis Street
San Antonio 5, Texas

has been directly connected to the field of ore production. In addition to private consulting work which he has carried on for the last few years, he has been attached to such firms as Stearns-Roger Mfs. Co., V. L. Beaven, Shenandoah Dives, Mayflower Mining Co., and the Garrett Engineering Co. If special consultation work is required at anytime there are many experts in the area whose services are available at short notice.

6. ESTIMATE OF COSTS

If this application is approved it is our desire that the work be carried out on a unit cost basis and the following cost estimates are prepared accordingly. Where possible prices quoted herewith are as contained in A.E.C. or other Federal bulletins recently published covering work in this area.

(a) Independent Contracts:

The following unit prices are the average of prices obtained in a canvass of six active drilling concerns in the Moab, Grand Junction area:

DEEP HOLES

13 Holes From 750' to 800' deep

Depth	Footage	Cost/Foot	Total Cost
0' to 100'	1300'	$ 1.50	$ 1,950.00
100' to 200'	1300'	2.00	2,600.00
200' to 400'	2600'	2.50	6,500.00
400' to 700'	2900'	4.00	15,600.00
700' to 800'	1300'	7.00*	9,100.00
TOTALS	10,400	$ 3.83 (average)	$35,750.00

*Includes cost of core recovery from lower 100 feet of hole.

Total Cost of Independent Contracts $69,512.50

Balcones Exploration & Drilling Corp.
403 East Travis Street
San Antonio 5, Texas

(b) Labor, Supervision, Consultants:

Included, herewith, is the labor required for the construction of the road around the base of the Wingate Formation and the drill sites for the deep drilling, the general and detailed supervision for this work, a project engineer for road and drill site layout who will also act as sampler and furnish assistance in the preparation of reports, a draftsman to prepare required maps and plot underground contours, a typist who will type reports, letters and incidental papers and a consulting geologist whose services may or may not be required.

Item	Hours	Cost/Hour	Total Cost
2 Miners	1760	$ 2.25	$ 3,960.00
1 Bulldozer Operator	600	3.00	1,800.00
1 Foreman	1000	2.75	2,750.00
1 Engineer	6 months	500.00/mo.	3,000.00
1 Draftsman	100	2.00	200.00
1 Typist	100	1.50	150.00
1 Geological Consultant	10 days	100.00/day	1,000.00
General Supervision		Lump Sum	3,000.00
TOTAL LABOR COST			$15,860.00

(c) Operating Materials & Supplies:

Item	No. Units	Unit	cost/Unit	Total Cost
Dynamite Caps & Fuses	40	Case	$15.00	$ 600.00
Gasolene	1200	Gal.	.27	324.00
Lubricants	--	L.S.	--	60.00
Drill Bit Sharpening	--	L.S.	--	75.00
Air & Water Hose, Pipe & Fittings				500.00
Stakes, Sample Sacks, Etc.		L.S.	--	150.00
Office Supplies	--	L.S.	--	100.00
TOTAL COST OF MATERIALS & SUPPLIES				$ 1,809.00

(d) Operating Epuipment:

Item	Rent/Month	No. Months	Total Cost
Bulldozer	$800.00	5	$ 4,000.00
Drill with Leg	150.00	5	750.00
Compressor	250.00	5	1,250.00
Service Truck	--	10	* 1,000.00
TOTAL COST OF OPERATING EQUIPMENT			$ 7,000.00

* Represents use-allowance for Company owned truck.

Balcones Exploration & Drilling Corp.
403 East Travis Street
San Antonio 5, Texas

(e) Rehabilitation and Repairs:

It is not anticipated that any of the equipment, buildings or other items will need any rehabilitation or repairs prior to the start of the proposed project.

(f) New Buildings, Improvements, Installations:

No new buildings, improvements or installations will be required.

(g) Miscellaneous:

Machinery Maintenance & Repairs - $100.00/Month for 10 Months $1000.00.

Sample Analysis - U_3O_8

Shallow Hole -	10 dust	samples	per	hole	= 370
	10 core	"	"	"	= 370
Deep Hole -	10 dust	"	"	"	= 140
	10 core	"	"	"	= 140
TOTAL SAMPLES					1020

1020 Chemical Assays at $4.00* =	$3,080.00
Accounting Expense - 10 Months at $50.00/month	500.00
Workmans Comp. & Employers Liability Insurance	948.00
Payroll Taxes 10% of $15,800.	1,580.00
	$8,108.00

* This will be the charge made by our laboratory in San Antonio, Texas.

(h) Contingencies:

10% of items (a), (b), (c), (d) & (g) $12,000.00

SUMMARY OF COSTS

(a)	Independent Contracts	$ 69,512.50
(b)	Labor, Supervision & Consultants	15,860.00
(c)	Operating Materials & Supplies	1,809.00
(d)	Operating Equipment	7,000.00
(g)	Miscellaneous	8,108.00
(h)	Contingencies	12,000.00
	ESTIMATED TOTAL COST OF PROJECT	$114,289.50

Balcones Exploration & Drilling Corp.
403 East Travis Street
San Antonio 5, Texas

Project Cost	$114,289.50
Less 25%	28,572.38
Amount of Loan Requested	$ 85,717.12

7.

(a) We are prepared, with cash on hand, to furnish our share of the total cost of this project.

(b) Our share of the costs will be paid in cash and in the use of Company owned equipment as shown in (d) and (g) above.

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: Oct 13, 1956

BALCONES EXPLORATION & DRILLING CORPORATION
(Applicant)

BY James Rilukas

EXHIBIT "A"

RECEIVED
OCT 25 1956

Balcones Exploration & Drilling Corp.
403 East Travis Street
San Antonio 5, Texas

AGREEMENT

THIS AGREEMENT made and entered into this 11th day of July, 1956, by and between GOLDEN WEST OIL AND URANIUM, INC., incorporated under the laws of the State of Nevada, hereinafter designated as the first party, and BALCONES EXPLORATION AND DRILLING CORPORATION, incorporated under the laws of the State of Texas, hereinafter designated as second party;

W I T N E S S E T H:

THAT WHEREAS, the first party is the owner of certain mining claims located in the State of Utah and Colorado as follows, to-wit:

D. W. and PILOT GROUP consisting of fifty-nine unpatented lodemining claims located in Grand County, Utah, hereinafter referred to as D. W. and Pilot Group, and further designated as

NAME OF CLAIM	RECORDED IN BOOK	PAGES
D. W. 1-15 inclusive	36: 44	232-237, 165-169
Wava 1 and 2	15	435-436
Grey Fault 1 and 2	9k	69
Pilot 2-7 inclusive	45	487-492
Pilot 31-42 inclusive	20; 45	240-245 516-527
Pilot 48-59	20; 45	245-253; 528-343
Lion 1,3,5,7,9,11,13, 15,17,19	49	21,23,25,27,29, 31,33,35,37,39

said claims being located in Section 17,20 and 21, Township 26 South, Range 20 East, Salt Lake Meridian.

SLICK ROCK GROUP consists of fifty-six unpatented lode mining claims located in the Slick Rock Mining District, San Miguel County, Colorado, and further designated as

Balcones Exploration & Drilling Corp.
403 East Travis Street
San Antonio 5, Texas

NAME OF CLAIM	RECORDED IN BOOK	PAGES
Seattle 1-9 inclusive	239	304-312
Portland 1-4 inclusive	239	316-319
Tin Hat 1-6 inclusive	238	284-289
Hades 1-6 inclusive	238	290-295
Morrison 1-12 inclusive	238	296-307
Muriel 1-3 inclusive	239	313-315
Eva C. 1-10 inclusive	239	320-329
Alcie 1-6 inclusive	253	59-64

said claims being located in Township 42 and 43 North, Range 17 West, and shall hereinafter be referred to as the Slick Rock Group.

SCHOOL SECTION consisting of a lease from the State of Utah on School Section 16, Township 26 South, Range 20 East, Salt Lake Meridian. The School Section immediately adjoins the D. W. and Pilot Group to the North and shall hereinafter be referred to as the School Section.

WHEREAS, the second party is desirous of undertaking a development and mining operation upon said claims with a view to developing and shipping any marketable ores that may be located therein;

Now, Therefore, in consideration of the sum of Fifteen Thousand Dollars ($15,000.00) paid to the first party by the second party, receipt of which is hereby acknowledged by the first party, to provide sufficient monies for first party to meet all of its outstanding obligations, and in consideration of the mutual promises, covenants and agreements hereinafter set forth to be kept and performed by the parties hereto, it is mutually understood and agreed by and between them as follows:

1. Second party agrees to enter into immediate possession of said claims and to conduct thereon a mining operation as soon as feasible, and in that connection second party agrees to conduct such operation in workmanlike manner

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and in accordance with the generally accepted and suitable methods and practices of modern mining, with a view to recover the greatest amount of merchantable ores from the above described claims. First party hereby agrees to turn over and transfer to second party the claims herinabove described.

2. Second party agrees to comply in every respect with the laws of the States of Utah and Colorado and of the United States now existing or hereafter adopted, and second party agrees to comply with all the lawful rules and regulations of any federal or state bureau or department in any way affecting or regulating the management and operation of mining property. That second party agrees to keep the mining claims hereinabove described free and clear of all liens or encumbrances of any nature whatsoever. During the term of this agreement second party agrees to seasonably do and perform all annual assessment work in the manner and within the time required by law to maintain said claims and prevent forfeiture thereof and to make, prepare, execute and file any and all necessary affidavits and proofs of performance and assessment work on such claims; and first party hereby makes, constitutes and appoints second party as its agent and attorney in fact so to do.

3. First party also agrees to keep the mining claims herein described free and clear of all liens or encumbrances and to use its corporate power to defend the titles to said claims and properties against whomsoever shall claim any interest in them in any manner whatsoever.

4. Second party agrees to furnish and provide the necessary machinery, equipment and transportation facilities for the mining and delivery of ores and agrees to keep said machinery, equipment and transportation facilities in good working condition and repair. Second party further agrees that the

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machinery and equipment furnished shall not be unnecessary and shall only be such as is reasonably necessary for the greatest production of ores at the lowest reasonable cost. First party agrees to leave at the mines all machinery, equipment and transportation facilities and buildings for the use of the second party which are at the present being used at any of the said claims and to leave same free of any debt or encumbrances, it being understood that all future machinery and equipment shall be obtained and operated by the second party; and the actual cost of said machinery and equipment will be charged against the interest of the first party and the second party in the net ore profits in accordance with the division thereof hereinafter set forth under the several mining operations, it being understood and agreed that the machinery and equipment originally purchased by first party prior to this agreement shall remain at the properties and shall revert to the first party upon termination of this agreement. All charges, as set out above, shall be made before any division of net ore profits shall be made to either of the parties.

5. It is understood and agreed that the net ore profits from the several claims shall be distributed as follows:

D. W. and Pilot Group shall be distributed 50% to first party and 50% to second party.

Slick Rock Group shall be distributed 40$ to first party and 60% to second party.

School Group shall be a joint venture so far as pertains to the purchase of machinery and equipment, it being understood that second party shall reserve the right to make recommendations as to when and what machinery and equipment is necessary and upon approval by first party same shall be purchased equally by both parties and the net ore profits shall be distributed 50% to each party.

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Said net ore profits shall be construed to mean the profits obtained after the deduction of the reasonable cost of conducting the mining and developing operations herein agreed upon, including all equipment, salaries, expenses, and all other charges apropos to the operations of the properties, but not expenses of either parties home office operations. No charge shall be made against the mining and developing operation for officers of the second party, or employees of the second party, for work or services rendered outside of the States of Utah and Colorado unless directly connected with the mining and developing of the above claims.

6. Second party agrees to keep accurate and complete records and books pertaining to the operations contemplated by this agreement, and the said records and books shall be available for inspection at any time by the officially designated represetative of the first part.

7. Settlement and distribution of net ore profits shall be made, insofar as practical, at the end of each month for the proceeding month for all monies received the preceeding month or ofterner if more convenient by second party.

8. It is further understood and agreed that should the first party determine that second party is charging excessive wages or excessive operation costs for mining and developing said properties, the second party upon written demand, and within thirty (30) days from the receipt of said demand, shall produce evidence showing the actual cost of said mining operation in question and show that the wages, charges and other costs are not in excess of charges usually made for wages and other costs in the same vicinity at the same time involved; and if said costs or charges are excessive and out of proportion to chrges ordinarily made in like operations, then second party shall remit and pay to first party such sums as shall represent the excessive charges.

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9. First party further agrees to work with and give every assistance possible, upon request from second party for same, in order that any of the lands herein described may be patented or that it shall be deemed advisable by second party to apply for a D.M.E.A. loan on any of the claims or properties.

10. This agreement shall remain in force as long as minerals are developed and produced from any of said properties, but should productions stop by reason or exhaustion or exploitation of a known body of ore, or should the same be prevented by restrictions on the part of the Atomic Energy Commission, the United States Government, or any State or Government Agency, or should production be discontinued by reason of labor strikes or Acts of God, or other acts not within control of the second party, then this operating agreement shall continue until such restrictions, Acts of God, or labor strike is removed and the second party shall have a reasonable time thereafter to commence operations on said premises, and to commence prospecting for other bodies of ore upon said premises above described.

11. Second party agrees that first party, his agents or representatives shall at all times, which are reasonable, have the right to examine the said mining operations conducted by the second party under this agreement, provided such examination shall be made at such times and in such manner as will not interfere with mining operations.

12. It is mutually understood and agreed between the parties hereto that it is the intent of this agreement that the sale of minerals from the said claims above described shall pay all expenses, and that in no event will first party be liable, to second party, or to any other person, in connection with the operation of said claims or the acquisition of machinery and equipment to be used in connection therewith except as outlined in paragraph four above.

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13. In the event that marketable ore cannot be found in quantity and quality and it shall be economically unsound to continue mining operations, the second party may terminate that part of this agreement as pertains to that certain claim or claims by giving first party ten (10) days notice of its intention to do so by registered or certified mail addressed to the first party.

14. As a further consideration of this contract first party hereby agrees to freeze all further sale of its stock. In order to effectuate this agreement, first party shall issue to itself and endorese in blank, a certificate for all treasury stock and all unsold and unissued stock to the full extent of its authorized capital; the said stock certificate shall be marked across its face "this certificate carries no voting rights and no right to receive any dividends or other benefits whatsoever" and shall be deposited with The Frost National Bank of San Antonio, Texas, in escrow, upon the condition that the same shall not be withdrawn without the written consent of both first party and second party, who shall be the parties to said excrow agreement, or upon proff satisfactory to the escrow holder that this agreement has been terminated, in which event said certificate shall be returned to second party. Second party shall, forthwith upon the issuance of said certificate and its deposit in said escrow, notify the Securities Exchange Commission and the Corporation Commissioner of the State of Nevada that said stock has been so issued and that second party has no power or authority to issue other or further stock.

15. Both parties to this agreement hereby agree not to sell, assign or transfer the whole or any part of their respective interests, rights or equities in any of the claims and/or properties herein described to anyone without first giving the other party hereto a 30 days option to buy or acquire the same on the same terms and consideration as they could receive from any other source.

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16. In the event that either party hereto shall allege that the other party has failed to comply with the terms of this agreement as herein set out, the defending party shall have 30 days to reply to said allegation or to correct or dispose of the cause for complaint. During the said 30 day period, no suit or legal action shall be filed or started by either party hereto.

17. The second party, upon assuming control of these properties, agrees to proceed with a mining and/or exploration operation as outlined herein and agrees to use a minimum of 160 man hours per week on at least one of the hereinabove listed properties.

18. In the event it shall become necessary for either party to employ an attorney to enforce any right arising under this agreement, the party in default agrees to pay a reasonable attorney's fee.

19. In the event first party cannot, for any reason whatsoever, deliver full and good title to any of the above described claims and/or properties, or if there is later established that there is an interest or an impariment in the thereof, then and in that event the interest of the first party and the monies and consideration involved herein shall be reduced in proportion to the degree of impairment and first party shall hold second party harmless from any and all claims, demands or limitations whatsoever that may arise from such impairment, In the event that such impairment, reductions etc. tend to reduce the ownership and/or profits of second party, second party is empowered and authorized to use such funds, equipment etc. which may or have accrued to first party to insure that there is no loss of ownership and/or profits to second party from any of the aforesaid mentioned errors, omissions, impairments, etc.

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20. First party hereto agrees to immediately, and prior to second party signing this agreement, deliver to second party a resolution by the Board of Directors of first party approving this agreement, the written approval of at least 60% of the outstanding stock of said corporation of first party, signed by said stockholders affirming, accepting and putting into effect the requirements of this agreement as they pertain to first party as a corporation and to their Board of Directors empowering them to sign and agree to this agreement for the Golden West Oil and Uranium, Inc.

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed in quadruplicate and their corporate seals to be affixed thereto duly authorized.

GOLDEN WEST OIL AND URANIUM, INC.

By S/ D. W. Squirrell
Its President

ATTEST:

S/ L. W. Huck
Its Secretary

BALCONES EXPLORATION & DRILLING CORP.

ATTEST

S/ Billie M. Manion
Asst.-Secretary

By S/ James E. Duke, Jr.
Its President

THE STATE OF COLORADO)
) ss.
COUNTY OF MONTROSE)

Before me, John E. Kreidler, a notary public, on this day personally appeared D. W. Squirrell, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said Golden West Oil and Uranium, Inc., a corporation, and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

Given under my hand and seal of office this the 17th day of July, 1956.

S/ John E. Kreidler
Notary Public

My commission expires July 20, 1957

Balcones Exploration & Drilling Corp.
403 East Travis St.
San Antonio, Texas

THE STATE OF TEXAS)
) ss.
COUNTY OF BEXAR)

Before me, Joe Rainey Manion, a notary public in and for Bexar County, Texas, on this day personally appeared James E. Duke, Jr, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said Balcones Exploration and Drilling Corporation, a corporation and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

Given under my hand and seal of office this 20th day of July, 1956

S/ Joe Rainey Manion
Notary Public, in and for
Bexar County, Texas

My Commission expires_____

EXHIBIT "C"

GEOLOGICAL REPORT

COVERING

GOLDEN WEST PROPERTIES

RECEIVED
OCT 25 1956

FOR

BALCONES EXPLORATION & DRILLING CORPORATION

403 Est Travis Street

San Antonio 5, Texas

BY

CHARLES W. YETTER

REGISTERED PROFESSIONAL ENGINEER

P.O. BOX 118, Grand Junction, Colo.

RECEIVED
OCT 25 1956

I N D E X

SUMMARY	Page	1
LOCATION & TITLES		1 & 2
ACCESSIBILITY		2
HISTORY		3
GEOMORPHOLOGY & CLIMATE		3
GENERAL STRATIGRAPHY		4 & 5
LOCAL STRATIGRAPHY & SEDIMENTARY FEATURES		5
STRUCTURE		6
ECONOMIC GEOLOGY		6, 7, & 8
POTENTIAL EXPLORATION PROGRAM		8 & 9
DRILL PROGRAM		9 & 10
RECOMMENDATIONS		10
GENERALIZED STRATIGRAPHIC COLUMN		Plate 1
CLAIM MAP		Plate 2
MAIN ORE PRODUCING WORKINGS		Plate 3

RECEIVED
OCT 25 1956

GEOLOGICAL REPORT ON D. W., WAVA, GREY FAULT AND PILOT GROUP OF CLAIMS LOCATED IN GRAND COUNTY, UTAH.

SUMMARY

Charles W. Yetter, Registered Professional Mining Engineer was commissioned by Mr. Howard L. Grant, Superintendent of the Engineering Department of "The Balcones Corporation" of San Antonio, Texas to make a reconnaissance and geological report on certain Uranium claims in Grand County, Utah. The purpose of the report being for useage by Balcones in a D. M. E. A. application for exploration funds on said claims.

The writer examined the general area of these claims in Jan. 6th and again on August 31, 1956 and was accompanied on the later date by Messrs. W. O. Wickham and R. Mitcham.

The area of examination was principally confined to the ore-producing lower Chinle formation in the area of the Grey Fault # 2, Grey Fault # 1, Wava # 1, Wava #2, D. W. 9 and D. W. 8 claims.

LOCATION & TITLES

This property consists of a Utah School Section and 59 unpatented lode mining claims, each 600 feet x 1500 feet, located on the north rim of the Colorado River Canyon, approximately 20 miles Southwest of Moab, Utah, in T 26 S, R 20 E, S.L.P.M., Green River District, Grand County, Utah. The total area is approximately 1,600 acres.

It is the writers understanding that the title to these unpatented claims is held by Golden West Oil & Uranium, Inc., a Nevada Corporation, and

that Balcones Exploration & Drilling Corporation, a Texas corporation, now controls said claims by right of a certain Agreement, dated July 11, 1956, by and between said parties.

Following is a tabulation of the claims, together with the School Section:

NAME OF CLAIM	RECORDED IN BOOK	PAGES
D.W. 1-15 inclusive	36;44	232-237; 165-169
Wava 1 and 2	15	435 & 436
Grey Fault 1 and 2	9K	69
Pilot 2-7 inclusive	45	487-492
Pilot 31-42 inclusive	20;45	240-245 516-527
Pilot 48-59 inclusive	20-45	245-253; 528-543
Lion 1,3,5,7,9,11,13, 15,17,19	49	21,23,25,27,29, 31,33,35,37,39

said claims being located in Section 17, 20 and 21, Township 26 South, Range 20 East, Salt Lake Meridian.

SCHOOL SECTION consisting of a lease from the State of Utah on School Section 16, Township 26 South, Range 20 East, Salt Lake Meridian. The School Section immediately adjoins the D. W. and Pilot Group to the North and shall herinafter be referred to as the School Section.

ACCESSIBILITY

These claims are accessible over a secondary desert mine access road from U. S. Highway 160. Beginning at the Moab Uranium Mill on the north bank of the Colorado River approximately 3 miles north of Moab, Utah, thence west 0.3 miles to the M. G. M. Oil Co. road, thence left on this road thru a private gate. This gate and portion of the road is on private property and permission to use the road must be granted by a watchman there stationed. This permission is freely granted to all persons having legitimate business

on any mining claims contributory to this road. At a point 15 miles from U. S. Highway 160 turn right and continue a distance of 2.6 miles to the Killpacker Camp. Just as this camp is entered, turn sharply right for an additional distance of 2.7 miles to the Golden West Camp, a total distance of 20.3 miles from U. S. Highway 160. From the Golden West Camp a relatively steep mine road gives access to the various mine workings and ore horizons on these claims.

HISTORY

Mr. D. W. Squirrell, of Montrose, Colorado, the President of Golden West Oil & Uranium, Inc. has reported to the writer that commercial production from these claims commenced in late January 1956 and continued each month thereafter thru July 1956. A total of approximately 300-350 tons, ranging in grade from 0.18% to 0.26% U_3O_8 was shipped to the mill at Monticello, Utah. The vanadium content of this ore averaged approximately 0.04% V_2O_5. Mr. Squirrell stated that the lime content of the ore was often higher than 6% but after the first load the mill did not make a penalty charge of the lime content in the remaining shipments.

GEOMORPHOLOGY & CLIMATE

These claims are located in the Colorado Plateau Province. The mesas are well dissected, forming canyon topography of high relief.

All drainage is to East and Southeast into the Colorado River. Drainage is fairly steep and degrading. Practically all of the drainage is intermittent and of short duration. The valleys adjacent to the Colorado River show varying amounts of alluvial fill and gravel banks on terraces at different levels above the river.

The climate is semi-arid with annual precipitation less than 9 to 10 inches per year. However, localized downpours and "flash" runoff occasionally

will wash-out filled sections of the access roads and render them impassable for several days at a time. Snowfall is of little importance in the area and seldom impedes outdoor operations.

Vegetation is very thin and most of the area has sparse soil cover, Sagebrush and other types of desert shrubs are sprinkled over the lowlands with pinon and cedar on higher, rocky slopes. Occasional cottonwoods are found along the Colorado River bottoms.

GENERAL STRATIGRAPHY

The general geology of the area has been taken from Photogeologic Maps accompanying U. S. G. S. Trace Elements Memorandum Report 598 in which the Stratigraphic column was modified from U.S.G.S. Bulletin 908, dated 1940.

The oldest rock in the immediate area is a thin exposure of the Hermosa formation of Carboniferous age. The youngest rocks are the Navajo sandstones of Jurassic age. All other formations in the section, except where displaced by faulting, are in normal sequence. The units present are the Navajo sandstone, Kayenta formation, Wingate formation, Chinle formation, Moencopi formation, Cutler formation, Rico formation and the Hermosa formation.

The Navajo sandstone and Kayenta formation is relatively thin in the immediate area. The most conspicuous formation, exposed, is the Wingate sandstone which forms nearly vertical cliffs. It is a massive, cross-bedded sandstone. A very noticeable feature of the Wingate is the coating of desert varnish which gives it a blue-black to dark-red color.

The Chinle formation immediately underlying the Wingate sandstone is composed, in descending order, of massive argillaceous sandstone beds, red shales, limestone conglomerate, intercalated sandstone lenses and the unit described as the Lower Chinle. The lithology of this unit changes considerably from place to place, along the strike, making any section either very general or very local.

The lower part of the Chinle rests unconformably on the Moencopi formation, and the local contact contains shallow, narrow channels cut into the Moencopi and filled with Chinle sediments.

The Lower Chinle consists of the Mossback member, the basal contact of which contains the uranium producing horizon in this area. (see map No. 1).

LOCAL STRATIGRAPHY & SEDIMENTARY FEATURES

Detailed geological examination was made by the writer, on both trips to the property, at or near the various mine workings, or on the outcrops in the immediate vicinity of the uranium producing horizon, or underground in the same workings.

At the Moencopi-Lower Chinle contact there exists a mottled purple, reddish-brown and white siltstone containing scattered medium to coarse sand grains. The thickness of this bed ranges from 12 to 20 feet. In places, the mottled color of this unit extends down into the top part of the Moencopi formation, and it is quite likely that what has been identified as the mottled siltstone unit, is an altered zone at the top of the Moencopi. This mottled zone probably represents an interval of reworked and altered Moencopi sediment, at the base of the Chinle.

Where the formations outcrop on these claims, the Moencopi is unconformably overlain by the Mossback member of the Chinle. The Mossback overlies the mottled siltstone mentioned above.

Locally the Mossback is predominantly composed of gray-green fine to medium grained sandstone, subordinate lenses of siltstone and conglomerate. The conglomerate contains granules, pebbles and small cobbles of siltstone, limestone, quartz and chert. Silicified and carbonized plant remains are common. This member is well developed and forms a conspicuous bench, or rim, between the underlying Moencopi and the overlying Upper Chinle units.

STRUCTURE

This property is partially located on the crest and southwest flank of the Cane Creek Anticline (see map # 2). The major portion of the School Section included in this property is located on the northeast flank of the same anticline.

The CaneCreek Anticline is a strong, relatively flat dipping structure, with a general trend of northwesterly-southeasterly. Where the crest passes thru this property, the strike is approximately S 57 E or the reverse thereof.

On the southwest flank of this anticline, the beds in this property have a regional dip of 3° - 4° S 35' W, with the beds in the School Section having approximately the same dip in a N 35' E direction.

There is little faulting within the area of these claims. What may, by cursory examination appear to be folding at the Mossback-Moencopi contact, on more careful examination will be found to be Chinle sediments filling scours and channels in the underlying Moencopi.

Within these claims the relief is something in the vicinity of 1500 feet. The elevation at the southeast corner of the D. W. 15, being approximately 4600 feet and a V.A.B.M. on the Lion #5 claim reads 6115 feet above the mean sealevel.

The general elevation of the Mossback-Moencopi contact is approximately 5400 feet in the vicinity of the Grey Fault # 2 claim.

ECONOMIC GEOLOGY

The basal unit of the Mossback comprises medium to fine-grained sandstone, siltstones and conglomerate containing pebbles of mudstone and limestone.

The uranium ore, characteristically, occurs in small irregular pods

blebs and stringers which exhibit only crude parallelism with the bedding. The writer was advised by Mr. Squirrell that one of the mineralized pods, during mining operations, was sufficiently large to make a full 7 foot vertical face of ore. Examination, by the writer, of the principal producing underground working, using a calibrated Geiger and a lead-shielded probe showed numerous residual pods of mineable ore remaining in the walls, several of which gave radiometric readings as high as 1.30% U_3O_8 over a vertical thickness of 8 to 12 inches.

Megascopic examination of the radioactive areas failed to distinguish any specific uranium minerals, however the writer was given a specimen of ore that had been shipped from these workings. The specimen is a piece of Moss-back, coated on one face with well-defined Autunite crystals $Ca(UO_2)_2(PO_4)_2 \cdot 10\text{-}12\ (H_2O)$.

Carbonized plant matter is widespread in the ore-bodies.

Pyrite is fairly abundant and in some places has replaced fossil vegetal matter.

There is appreciable Calcite filling of cells in carbonized wood, interstitial filling and coating on fissures and cracks.

In the proximity of ore-bodies there is a tendency for the gray-green color, which is characteristic of the ore-horizon, to extend into the overlying red mudstone of the Chinle.

At the portal of the main producing workings it was noted that a thin finely-conglomeritic lense, was highly radioactive. This lense is in the back of the portal and separated from the horizon from which ore was shipped by a two foot layer of fine-grained sandstone. This thin conglomerate, where radio-active, was stained with iron-oxide, with gradation laterally to unstained con-glomerate. There is a definite and appreciable <u>decrease</u> in radioactivity where the iron-oxide was <u>absent</u> in this particular horizon, and by corollary the radioactivity increased as the iron oxide stain increased.

Underground there is a series of narrow, nearly vertical open fissures. It was reported to the writer that most of the highest grade ore and largest individual pods of ore occurred in the immediate vicinity of these fissures.

The fissures cut thru the fine-grained sandstone, observed at the portal, and which forms the back of these workings. Examination of the walls of these fissures with the lead shielded probe indicated a higher than average radioactivity. One such fissure showed a radiometric reading slightly higher than 1.00% U_3O_8.

It is the writer's postulation that this thin conglomeritic layer, above the main ore horizon, may be a high grade uranium source, and percolating ground waters have and are transporting the uranium down the fissures where the uranium is re-deposited, by the action of the limestone, in the basal part of the Mossback. It is quite unlikely that the thin conglomerate above the back could be mined as a separate horizon. However, more careful use of the Geiger in the vicinity of these fissures could lead to additional substantial tonnages of commercial ore along the strike of the fissures.

From an exploration viewpoint, more detailed mapping of the ore-producing horizon could disclose numerous thin, iron-oxide stained, radioactive, conglomeritic exposures. Drilling behind such outcrop controls would eliminate large areas of unfavorable ground and could also lead to the uncovering of numerous hidden ore-bodies.

POTENTIAL EXPLORATION PROGRAM

The writer recommends the following stages of exploration on this property:

(a) The entire outcrop of the Mossback-Moencopi should be uncovered by bulldozing, for radiometric examination and mapping.

(b) The present underground workings should be explored by longhole diamond drilling. These holes can be drilled at least 200 feet

each in the plan of a horizontal fan with due allowance for the regional dip of the formations.

(c) The present mine access road running across the Wava 1 & 2 should be extended thru the D.W. #6, with switchbacks up the Chinle to the bottom of the Wingate sandstone. This road should then be continued around the base of the Wingate to the southwest corner of the Grey Fault #2 claim. This drill road can be used for exploratory vertical rotary or diamond drilling and inclined diamond drilling into the Mossback under the Wingate. This drilling should be concentrated as "fences" of holes behind the most favorable mineralization disclosed by item (a) above.

(d) Vertical exploratory rotary or diamond drilling should be done on 500 or 1000 foot centers from the surface of the Pilot and Lion claims and the School Sections. Access roads for drill supplies and equipment can be made quickly and inexpensively across the Pilot and Lion claims from the present road out of Mineral Canyon or Seven Mile Canyon. Access roads in the School Section will probably require jackhammer drilling and blasting, but this should not be too excessive since the benches on this Section are relatively broad in lateral dimensions. In this phase of the exploration program the greater part of each hole can be drilled using a plugged bit, with no core recovery. At the Mossback horizon coring can begin to recover core samples of the potential ore producing horizon. This will greatly reduce the cost of each hole.

DRILL PROGRAM

Following are the approximate depths of the various areas of drilling proposed by the writer: (letters in parenthesis refer to same item as exploration program)

(b) Horizontal holes, each 200 foot in depth.

(c) Vertical holes from the top of the Chinle at the base of the Wingate, thru the Mossback and into the unaltered red Moencopi, plus or minus 200 feet each.

Inclined holes from the same set-up to prospect the Mossback under the Wingate, plus or minus 250 feet each.

(d) Vertical holes thru the Navajo, Kayenta, Wingate and Chinle from the surface of the Mesa, plus or minus 700 feet each.

RECOMMENDATIONS

It is the writer's considered opinion that this property fully merits an extensive exploration drilling program, for the following reasons:

(1) This property is one of the few in the area that has actually shipped any appreciable tonnage of commercial ore.

(2) Prior exploration on this property has been on a "hit or miss" basis. There has been little, if any, competant geologic or mining engineering expended on this property by the former owners.

(3) The principal access roads to the ore horizon have already been built, a comfortable camp-site and buildings are in place and no expenditures need be made for these purposes.

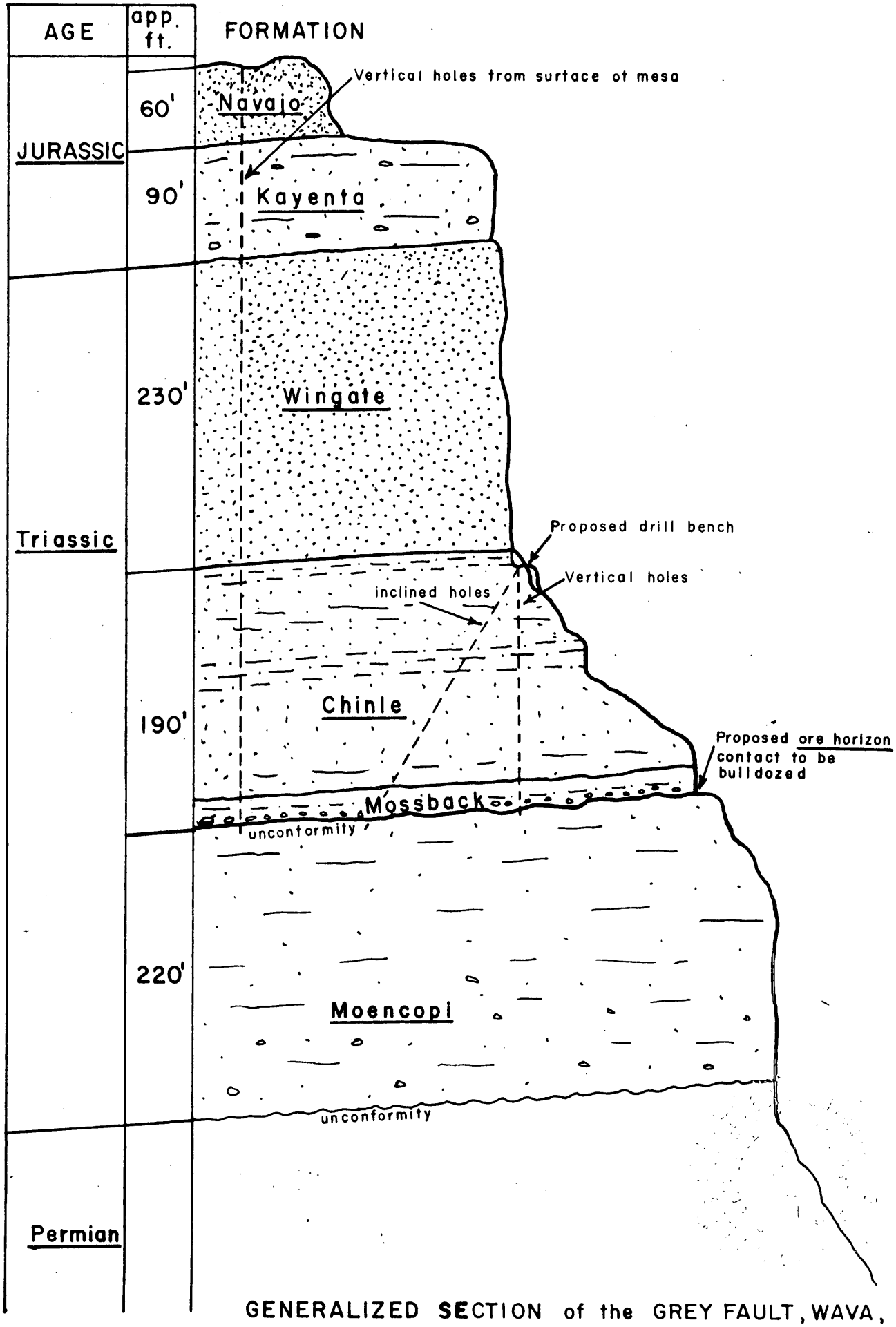
(4) The shipment of over 300 tons of commercial ore by inexperienced persons, from an area that appeared to have little promise, cannot be overlooked. An intelligently planned and supervised exploration program founded upon accepted geological conclusions should have a high potential for significant uranium ore disclosure and production.

Respectfully submitted,

Charles W. Yetter

Charles W. Yetter,
Registered Professional Engineer
1972

CWY;r



GENERALIZED SECTION of the GREY FAULT, WAVA, PILOT & LION CLAIM AREA, Grand County, UTAH.

PLATE NO. I

DMEA Form 7
(12-56)

700

OFFICIAL FILE COPY

Date	Surname	Code
3-1	Ching	700
3-1	Kyoute	700
"	Johnson	110
"	Mittendorf	100
3-4	C	220

MAR - 1 1957

Mr. Howard L. Grant, Chief Engineer
The Balcones Exploration and Drilling Corp.
403 East Travis Street
San Antonio, Texas

Re: Docket No. DMEA-4518 (Uranium)
Golden West Property
Grand County, Utah

Dear Mr. Grant:

Your letter of February 20, 1957, has been carefully considered in conjunction with the information available to us concerning the subject property and surrounding areas.

Our letter of February 8, denying your application, was based upon the fact that known deposits in the general area of your property are relatively small and scattered, and no mineralized trends or channel fillings are apparent in the Moss Back sandstone.

Other objections to your program are: The absence of a well-defined target area; the difficulty and high cost of preparing access roads to drill sites; and the depth of drilling required. The last objection would persist despite the modification suggested in your letter, because of the small size of known targets.

We note that the target for your proposed drilling program is a large ore body of a source nature at some point back of the present operations, probably under the Wingate cliff. You state that current information definitely indicates the existence of such an ore body, but none of the information available to us bears this out.

You have indicated that the work done by you to date along the Moss Back rim has been very encouraging. The discovery of several small ore deposits by this work, and the readiness with which further drifting may be done from your existing workings, may cause you to favor a continuation of this type of exploration as an alternative to your proposed drilling program.

Under these circumstances, if you believe that a limited underground exploration program is desirable and you can justify such a program by assay maps, production figures, and geological facts, it is suggested that you submit a detailed plan for our consideration. The plan and supporting data should be submitted in quadruplicate.

Sincerely yours,

C. O. Mittendorf (for)

Administrator

MChing/izm 3-1-57
cc to: Admr.'s Reading File
Mr. Ching
THKiilsgaard, 5224
JKratchman, AEC

DMEA FT Reg. 3 (2) w/2cc of incoming letter.

8623

The BALCONES Corp.
EXPLORATION AND DRILLING

403 EAST TRAVIS STREET
SAN ANTONIO 5, TEXAS
CApitol 4-1232
TWX SA-65

February 20, 1957

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Mr. C. O. Mittendorf, Administrator
Defense Minerals Exploration Administration
Department of Interior
Washington, 25, D.C.

Re: Docket No. DMEA-4518 (Uranium
Golden West Property
Grand County, Utah

Dear Mr. Mittendorf:

Your letter of February 8th, 1957, turning down our request for an exploratory loan on the subject property was received and in view of the following facts, we are wondering if it would not be possible for you to reconsider your refusal.

In order that we might learn as much as possible regarding the conditions prior to the drilling we had hoped to start with your aid, we have engaged in a very thorough exploration program over a portion of the claims along the Moenkopi contact with quite favorable results. In the area below Tunnels 3 and 4, as shown on the map included as Exhibit "B" in our application, we have located several very good outcrops and at this time mineable ore exists in at least five of these places. We have also started drifts in two different places from each of which we are shipping good ore. The enclosed sketches shows one of these drifts which has been quite profitable. The portal of this drift is located at the southernmost outcrop shown on the Exhibit "B" map.

Incidental to this work, we have shipped about 120 tons of ore in the last three months and as a result of this work, we will continue to ship ore for some time to come. Indications, at present, are that we have many months of profitable mining ahead of us and some further exploration might easily extend this to a number of years.

Several geologists (some from the A.E.C.) have visited the property recently and they all feel, as I do, that current information definitely indicates the existence of a large ore body of a source nature at some point back of the present operations, probably under the Wingate Cliff. This body can only be located by drilling and drilling at this time will require some financial aid.

We do believe, as a result of the concerted studies we have carried out, that we can do a good exploratory job with considerable less money than was requested in our loan application. It is our opinion and that of several geologists that the deep hole drilling originally planned can be eliminated. The work required can be confined to the construction of the drill access road at the base of the Wingate and the drilling of the vertical and angle holes as covered by the first two paragraphs of Section 5 (b) of the application. This would reduce the cost about $40,000.00 making the total cost in the neighborhood of $75,000.00 and the needed loan about $56,000.00 instead of the $85,717.12 originally requested.

We will greatly appreciate your giving this your consideration as we feel that we can show you many more reasons to justify a loan than existed in many places where loans have been made.

We would like to thank you for your past cooperation and the friendly interest and cooperation shown by your representatives.

Yours very truly,

Howard L. Grant

Howard L. Grant
Chief Engineer

HLG/ph
Enclosures

EA Form 7
2-56)

700

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Date	Surname	Code
2-7	Ching	700
2-7	Elly	700
2/8	Lelunge	130
"	Johnson	110
"	Mittendorf	100
2-12	C	220
	Kulsgaard	225

FEB 8 1957

Col. James E. Duke, Jr., President
Balcones Exploration and Drilling Corp.
403 East Travis Street
San Antonio, Texas

Re: Docket No. DMEA-4518 (Uranium)
Golden West Property
Grand County, Utah

Dear Col. Duke:

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

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

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

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

Sincerely yours,

C. O. Mittendorf (for)

Administrator

MChing/izm 2-7-57
cc to: Code 700
Mr. Ching
Admr.'s Reading File
Operating Committee
DMEA FT Reg. 3 (2)
Messrs. THKiilsgaard, 5224
AEC - JKratchman

8623

Docket
700

Ching
Ellis

February 7, 1957

Summary of Proposed Project

Object: Denial of application for an exploration project.

Docket No.: DMEA-4518

Commodity: Uranium

Applicant: Balcones Exploration and Drilling Corp., a Texas Corp.
403 East Travis Street
San Antonio, Texas

Property: 59 unpatented lode mining claims, D.W. 1-15, Pilot 2-7, 31-42, 48-59, Lion, 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, Wava 1-2, and Grey Fault 1-2, situated in sec. 17, 20, and 21, T. 26 S., R. 20 E., S.L.M. & B., and school section 16, T. 26 S., R. 20 E., S.L.M. & B., Grand County, Utah. Applicant holds its property rights through an Agreement, dated July 11, 1956, with Golden West Oil and Uranium, Inc.

Date of Application: October 13, 1956

Amount of Application: $114,289.50

Work Proposed: Prepare access road from tunnel No. 4 to the base of the Wingate formation on D.W. No. 6 claim and then prepare a 6,000 feet bench or drill road at this horizon to the southwest edge of Grey Fault No. 1 claims. Drill vertical holes at 300-foot intervals along this bench and midway between each pair of vertical holes drill a 30 degree (from vertical) inclined hole. Then drill deep holes (700-800 feet) from the top of the mesa along lines running north and east.

Estimated Costs:

Independent contract drilling

13 deep holes 10,400 ft. @ $3.83/ft.	$35,750.00
Bench holes (quantity not shown)	33,762.50
Labor, supervision, consultants	15,860.00
Operating materials and supplies	1,809.00
Operating equipment	7,000.00
Miscellaneous	8,108.00
Contingencies	12,000.00
Total	$114,289.50
Government Participation @ 75%	$ 85,717.12

Field Team Report: January, 1957: W.B. Gazdik, USGS & H.F. Robertson, USBM:

Known uranium deposits in the vicinity of the subject property are found in the basal Moss Back member of the Chinle formation of Triassic age. On the subject property the Moss Back sandstone beds are lenticular, but average about 40 feet in thickness. No scouring of the underlying Moenkopi formation and channel filling were observed. The Chinle formation is overlain by the Wingate, Kayenta and Navajo formations on the property. Drill holes collared behind the Kayenta-Wingate cliff would have to penetrate as much as 850 feet of rock to explore the Moss Back member.

Known deposits in this general area are relatively small and scattered. They consist of thin seams and pods of material, restricted to the lower lenses of the Moss Back. According to AEC records 222 tons of ore averaging 0.22% U_3O_8 were shipped from four existing adits on the property. The Applicant is presently doing some exploratory drifting in the No. 2 adit. No mineralized trends are apparent on or near the property and the ore bodies appear to have an erratic spatial distribution.

The AEC conducted a geologic reconnaissance of the inter-river area between the Green and Colorado rivers and concluded that the district was not worthy of further investigation for uranium deposits. A USGS mapping team also found that the potential of the area was poor.

Exploring for characteristically small scattered deposits at depths up to 850 feet is prohibitive. The chances of finding deposits of significant size are poor. It is recommended that the application be denied.

Commodity Group Comments:

USBM, John E. Crawford, January 31, 1957:

Reviewed the Report of Examination with the AEC representative. Agrees with the Field Team that the application should be denied.

USGS, W. P. Williams, February 4, 1957:

The district has a poor production record. Under the conditions described by the examiners, agrees with the recommendation for denial of the application.

Rare & Miscellaneous Metals Division, Michael Ching, February 7, 1957:

In view of the small size and scattered occurrence of the known uranium deposits in the area and the depth of drilling required, the Applicant already appears to be exploring in the most practical manner; i.e., drifting off the existing adits in the Moss Back.

Conclusions and Recommendations:

The chances of finding a worthwhile ore body on this property are poor and the cost of a drilling program would be prohibitive. It is recommended that the application be denied.

Ernest Wm. Ellis

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
MetalsDivision

IN REPLY REFER TO:

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

February 4, 1957

Memorandum

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

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

Subject: Review of field examination report, DMEA 4518, Balcones Exploration and Drilling Corporation, Golden west property, Grand County, Utah, (uranium).

The examining team report that the inter-river area at Utah, in which the subject property is located, has been studied geologically by both the Atomic Energy Commission and the Geological Survey. The conclusion reached by both groups was that the general area was unfavorable for significant ore deposits. The district has a poor production record.

Drilling depths would be as much as 850 feet. Drilling to such depths for small, scattered deposits is justifiable only with great difficulty, if at all. Under the conditions I concur with the examining team's recommendation for denial of the application.

W. P. Williams

W. P. Williams

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

Date January 31, 1957

DMEA Docket No. 4518
DMEA Contract No.
Commodity Uranium
Name of applicant Balcones Exploration & Drilling Corp
Name of property Golden West Property
Location of property Grand County, Utah
Estimated cost of project $114,289.50

Ernest William Ellis, DMEA Member
Uranium Commodity Committee
John E. Crawford, Bureau of Mines member
Uranium Commodity Committee

Field Team Report
(Submitted with Attached, C.O.)

1. Date of field team: 1/57. 2. Date received by reviewer: 1/29/57.

3. Is geologic or other property data to reviewer: Yes ☐ No ☐

4. Is other property or mining production data to reviewer: Yes ☐ No ☐

5. Information available on past production: Yes ☐ No ☐

6. Other pertinent factors known to reviewer: Yes ☐ No ☐

7. Explain items marked yes above:

8. Factors meriting special consideration:
- a. Location ☐
- b. Commodity ☐
- c. Evidence of mineralization ☐
- d. Geology ☐
- e. Proposed exploration method ☐
- f. Alternate exploration method ☐
- g. Costs ☐
- h. _____ ☐

9. Action desired:
- a. Obtain information from applicant ☐
- b. Refer to Field Team ☐
- c. Funded ☒
- d. Agree with Field Team ☒
  - e. Consult with Mr. _____ at _____ AEC office.
- f. Disagree with Field Team ☐
- g. Suggest alternate plan ☐
- h. Suggest another consultation ☐
- i. Approval ☐

10. Remarks: (Use back of page if necessary)

Mr. Jack Kratchman, Washington representative of the Atomic Energy Commission, assisted in the review.

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

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224 New Customhouse
Denver 2, Colorado

January 21, 1957

Memorandum

To: Secretary to the Operating Committee

From: DMEA Field Team, Region III

Subject: Joint Report of Examination Docket DMEA 4518 (Uranium) Balcones Exploration and Drilling Corporation (Golden West Property) Grand County, Utah.

Enclosed are four copies of a joint engineering and geologic Report of Examination on the subject property.

The examiners find that the few known uranium deposits in the general vicinity of this property are small and scattered. A U. S. Geological Survey mapping team also found that the potential of this area was poor. Drilling depths would be as much as 850 feet. They conclude that the chances of finding uranium deposits of significant size on the Applicant's property are poor. They recommend that the application be denied. We concur in this recommendation.

DMEA Field Team, Region III

W. M. Traver

By W. M. Traver
Executive Officer

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
1-30-57
(date)

MINERAL DEPOSITS
DMEA
RECEIVED
JAN 17 1957
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

DMEA
DEPARTMENT OF THE INTERIOR
JAN 18 1957
REGION III
DENVER, COLORADO

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

IN REPLY REFER TO:

January 16, 1957

Memorandum

TRANSMITTED JAN 21 1957

To: Executive Officer, DMEA Field Team, Region III

Through E. N. Harshman
J. F. Shaw

From: F. M. Byers, Jr.,

Subject: Transmittal of joint engineering and geologic report DMEA 4518 (Uranium), Balcones Exploration & Drilling Corp., (Golden West Property), Grand County, Utah

The Balcones Exploration and Drilling Corporation, 403 East Travis Street, San Antonio, Texas, applied for DMEA assistance to explore for uranium on 59 claims and one Utah School Section in Grand County, Utah. The proposed program would consist of 6,000 feet of road building and an unspecified amount of drilling, at an estimated total cost of $114,289.50, with Government participation at $85,717.12.

The property was examined on December 4, 1956 by W. B. Gazdik, U. S. Geological Survey and H. F. Robertson, U. S. Bureau of Mines. Known uranium deposits in the vicinity of the applicant's property are found in the basal Moss Back member of the Triassic Chinle formation. The erratic distribution and small size of the known ore deposits in the area, combined with deep drilling depths, make the cost of exploration excessive with respect to the size of ore deposits that might be found.

The examining team recommends denial of the application under docket 4518 and I concur with the recommendations of the examining team.

Enclosed are 12 copies of the report complete with two illustrations. Also enclosed is the applicant's brochure.

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DMEA
RECEIVED JAN 25 1957

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F. M. Byers, Jr.
F. M. Byers, Jr.,
For J. William Hasler
Geologist

FMB/mlr
Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
1-30-57
(date)

FOR UNITED STATES GOVERNMENT USE ONLY

TRANSMITTED

JAN 21 1957

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY EXAMINING TEAM
REGION III

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DMEA 4518

BALCONES EXPLORATION & DRILLING CORPORATION

GOLDEN WEST PROPERTY

GRAND COUNTY, UTAH

Uranium

ON-SITE REPORT

Joint Engineering and Geologic Report

by

W. B. Gazdik
Geological Survey

H. F. Robertson
Bureau of Mines

January 1957

Reviewed by
DMEA OPERATING COMMITTEE
1-30-57
(date)

CONTENTS

	Page
Introduction and Summary	1
Acknowledgments	2
Location, Topography, and Climate	2
History and Production	3
Ownership and Extent	4
Present Status	5
Geology	6
Ore Deposits	7
Ore Reserves	8
Proposed Exploration	8
Conclusions and Recommendations	9

ILLUSTRATIONS

Figure

1. Location Map
2. Geologic map showing applicant's property

DMEA 4518
Balcones Exploration and Drilling Corporation

INTRODUCTION AND SUMMARY

The Balcones Exploration and Drilling Corporation, 403 East Travis Street, San Antonio, Texas, applied on October 13, 1956, for DMEA assistance to explore for uranium on 59 unpatented lode mining claims and one Utah school section located in Sections 16, 17, 20, and 21, T. 26 S., R. 20 E., SLM, Grand County, Utah.

The applicant proposes a two-stage exploration program of road construction, non-core drilling, and core drilling. The proposed program would consist of about 6,000 feet of road building, and an unspecified amount of core and non-core drilling at an estimated overall cost of $114,289.50. Government participation would be 75 percent of the total or $85,717.12.

The property was examined on December 4, 1956 by a DMEA examining team consisting of W. B. Gazdik, U. S. Geological Survey and H. F. Robertson, U. S. Bureau of Mines. The applicant was represented by H. L. Grant, vice-president and chief engineer of the corporation.

Known uranium deposits in the vicinity of the applicant's property are found in the basal Moss Back member of the Chinle formation of Triassic age. The absence of known mineralized trends, low frequency of occurrence, erratic distribution and small size of known ore deposits in this area indicate that it would be very difficult to devise a suitable drilling program. Since the major portion of the property lies on the Navajo, Kayenta and Wingate formations, drilling depths would be excessive when the small size of potential ore bodies is considered. Denial of the application under docket DMEA 4518 is recommended.

ACKNOWLEDGMENTS

The Atomic Energy Commission was consulted for production and reserve information and other data pertaining to the area concerned by the subject application.

Memoranda from John E. Crawford and N. E. Nelson were carefully noted.

U. S. Geological Survey personnel who have been concerned with geologic studies in the area were consulted on their views concerning the uranium potential of the applicant's property.

LOCATION, TOPOGRAPHY, AND CLIMATE

The 59 unpatented lode mining claims and one Utah school section are located in Sections 16, 17, 20, and 21, T. 26 S., R. 20 E., SLM, Grand County, Utah (figs. 1 and 2). The property is located mostly on a high mesa capped by Wingate, Kayenta, and Navajo formations. The southeast corner of the subject area extends over a steep rim down to the Moenkopi and Cutler outcrops below. Altitudes on the property range from 4,600 to 6,100 feet. All mining activity on the property is confined to workings on this rim.

The claims can be reached by traveling about 3.5 miles northwesterly from Moab, Utah on U. S. Highway 160 to the M.G.M. Oil Company road; thence left on this road for a distance of 15 miles. At this point, turn right and continue a distance of 2.6 miles to the Killpacker Camp. Just as this camp is entered, turn sharply right for an additional distance of 2.7 miles to the Golden West Camp, a total distance of about 24 miles from Moab. From the Golden West Camp, a relatively steep mine road gives access to the various mine workings and ore horizons on these claims.

The climate is semi-arid with annual precipitation of 9 or 10 inches per year. However, localized downpours and "flash" runoffs occasionally wash out filled sections of the access roads and leave them impassable for several days at a time. There is very little snowfall during the winter months.

Vegetation is very thin and most of the area has sparse soil cover. Sagebrush and other types of desert shrubs are found on the lowlands with scrub pinon and cedar trees on higher, rocky slopes. Occasional cottonwoods grow along the Colorado River bottoms.

HISTORY AND PRODUCTION

The general area of the subject claims has been prospected since about 1951 but very few commercial size ore bodies have been discovered. The subject claims were located during the period 1951-1954, however, no ore was produced until April, 1956. All production to date has been credited to the Grey Fault No. 2 and the D. W. No. 12 claims and is summarized below. The data is from AEC production records.

CLAIM NAME	PERIOD	PRODUCTION (Tons)	MILL ASSAY (percent) U_3O_8	V_2O_5	$CaCO_3$
Grey Fault No. 2	April, May, June, 1956	145.0	0.22	0.04	36.0
	July, Aug, Sept, 1956	24.0	0.25	0.02	35.4
D. W. No. 12	April, May, June, 1956	53.0	0.21	0.06	57.0
Total		222.0	0.22	0.04	41.0

Total production from the property as reported by the applicant ranges from 300 to nearly 400 tons. The Atomic Energy Commission production records do not credit the claims with that much uranium ore. The Grey Fault mine (number 2 on figure 2) is operating at the present time and small amounts

of ore grade material are being dumped into the ore bin. At the time of the examination, the ore bin contained 8 or 10 tons of ore obtained during development drifting. Production from other properties in the vicinity of the subject claims has been consistently small.

OWNERSHIP AND EXTENT

The property consists of 59 unpatented lode mining claims and one Utah school section in Grand County, Utah. The claims are recorded in the office of the County Recorder as follows:

	RECORDED	
NAME OF CLAIM	BOOK	PAGES
D. W. 1-15 inc.	36	232-237 incl.
	44	165-169 incl.
Wava 1 and 2	15	435-436
Grey Fault 1 and 2	9 K	69
Pilot 2-7 incl.	45	487-492 incl.
Pilot 31-42 incl.	20	240-245 incl.
	45	516-527 incl.
Pilot 48-59 incl.	20	245-253 incl.
	45	528-543 incl.
Lion 1, 3, 5, 7, 9, 11 13, 15, 17, and 19	49	21, 23, 25, 27, 29, 31, 33, 35, 37, 39

The lease on the Utah school Section 16, T. 26 S., R. 20 E., SLM is not included in the applicant's brochure and no data as to lease number or terms are given.

Balcones Exploration and Drilling Corporation control the property under the terms of an agreement, dated July 11, 1956 with the owner, Golden

West Oil and Uranium, Inc. The respective parties to the agreement would share equally in the costs and profits resulting from operations on the property.

PRESENT STATUS

Exploration and Development

There has been no planned exploration program attempted on the property. The four adits can probably be classed as exploratory since they followed seams and pods of mineralized material from exposures on the rim. No specific direction was followed in driving these adits. A limited amount of underground long-hole drilling was attempted in adits 1 and 2 (figure 2) but was soon given up due to difficulties encountered. The applicant did not submit logs or other data on the few holes which were completed, however, the examining team was informed that none of the holes located mineralized material.

Development of the property has been by hit or miss methods and all ore discovered was mined and shipped, and no known reserves remain. At the time of the examination, the working drift in the Grey Fault mine had penetrated barren rock.

Mining Equipment and Other Facilities

Mining equipment and other facilities on the property consisted of the following major items: Scootcrete ore hauler, jack leg drills and drill accessories, compressor, bulldozer, mine ventilating system with blower, light plant, ore bins, ore chutes, two pickup trucks (3/4 ton), flat bed truck, Jeep, Dodge Power Wagon, gasoline, diesel, and water tanks, welding equipment, bunk house, cookhouse and dining room, tool house, machine shop, and two small house trailers.

Water for drilling and other mining requirements is available at the Colorado River about 5 miles from the property. Domestic water can be obtained from a spring about two miles from the camp site. Several access roads have been built on the property and are fairly well maintained. Supplies and equipment are available in Moab or Salt Lake City, Utah and Grand Junction, Colorado.

GEOLOGY

The applicant's Golden West property is located in the inter-river area between the Green and Colorado Rivers. The rocks exposed in the general area are marine and continental formations ranging in age from Pennsylvanian to Jurassic. The formations that crop out on the Golden West property are, in ascending order, the Cutler formation of Permian age, the Moenkopi and Chinle formations of Triassic age, and the Wingate, Kayenta and Navajo formations of Jurassic age. (Figure 2.)

The few known uranium deposits in the area occur in the basal Moss Back member of the Chinle formation. The MossBack member consists predominantly of light gray, medium to medium-fine grained lenticular sandstone beds with lesser amounts of gray-green mudstone, siltstone and conglomeratic beds. Most of the pebbles contained in the conglomeratic beds are limestone pebbles but locally smaller amounts of mudstone and siltstone pebbles are present. Silicified and carbonized logs are scattered through the Moss Back member. Some of the woody material is richly replaced by uranium minerals. When viewed from a distance the Moss Back member stands out as a light gray-green horizon between the dark red and red brown beds of the underlying Moenkopi formation and the overlying upper Chinle beds. On the applicant's property the Moss Back member averages about 40 feet in thickness but the lenticular sandstone beds thicken and thin abruptly. The Moenkopi formation underlies the Moss Back member

unconformably. Elsewhere channels, scoured into the top of the Moenkopi formation and filled with Moss Back sediments, are important features related to localization of ore bodies. However, during the course of the field examination no definite scour and fill features were observed on the applicant's property where the contact was exposed.

Because of excessive topographic development in the area, preparation of drill sites and access roads is costly. The Chinle formation generally crops out as a steep slope broken by sandstone ledges and strewn with huge Wingate boulders. The Kayenta and Wingate formations form vertical cliffs as much as 600 feet high. Drill holes collared behind the Kayenta-Wingate cliff would have to penetrate as much as 850 feet of rock in order to explore the Moss Back member.

The applicant's property lies on the crest of the northwest trending Cane Creek anticline. The beds dip NE and SW about 1° to 4° away from the axis of the anticline.

ORE DEPOSITS

Known uranium deposits in the general vicinity of the Golden West property are relatively small and scattered. They consist of thin seams and pods of mineralized material restricted to the lower sandstone, siltstone and conglomeratic lenses in the Moss Back member.

According to AEC production records 222 tons of ore averaging 0.22 percent U_3O_8 and 0.04 percent V_2O_5 were shipped from four adits on the claims. The $CaCO_3$ content averaged 41 percent. Most of this ore was produced from the Nos. 1 and 2 adits (fig. 2). The applicant is presently doing some exploratory drifting in the number 2 adit and several tons of ore have been stockpiled on the property.

A detailed examination of the four adits indicates that the ore bodies consist of thin, discontinuous seams and pods that could not be mined economically for any appreciable distance behind the rim. No mineralized trends are apparent on or near the property and the ore bodies appear to have an erratic spatial distribution. Recent movement of ground water apparently concentrated uranium minerals along several well developed joints in the Nos. 1 and 2 workings (fig. 2). However, no significant ore bodies were localized along or near the fissures where the adits cross these features. Such mineralization, as an efflorescence, probably originated from the general uranium content of the Chinle formation and not from buried deposits.

ORE RESERVES

There are no known ore reserves on or near the applicant's property.

PROPOSED EXPLORATION

The applicant proposes a two-stage exploration program of road construction, non-core drilling and core drilling. The proposed program would consist of about 6,000 feet of road construction along the base of the Wingate cliff. Vertical holes would be drilled on 300-foot centers along this road and would penetrate the Moss Back-Moenkopi contact. The lower 100 feet of each hole would be core drilled. Halfway between each of these holes, additional holes would be drilled on an approximate 30 degree angle with similar core recovery. These holes are estimated to require approximately 350 feet of drilling per hole. The specific number of holes proposed for this phase of the project was not given by the applicant.

The second phase would depend upon evaluation of the results obtained by the first-stage drilling. Thirteen deep holes, ranging from 750 to 850 feet in depth would then be drilled from the top of the mesa to the Moenkopi contact with core recovery from the last 100 feet in each hole. The line of drill holes on the claim groups would be approximately 500-700 feet behind the rim. The proposed drilling line across the school section has no apparent correlation with physical features.

A summary of the costs of the applicant's proposed program is as follows:

1.	Independent contracts	$69,512.50
2.	Labor, Supervision, and Consultants	15,860.00
3.	Operating Materials and Supplies	1,809.00
4.	Operating Equipment	7,000.00
5.	Miscellaneous	8,108.00
6.	Contingencies	12,000.00
	Estimated total cost of Project	$114,289.50

CONCLUSIONS AND RECOMMENDATIONS

The few known uranium deposits in the general vicinity of the applicant's property are small and scattered. The Atomic Energy Commission conducted a geologic reconnaissance of the inter-river area and concluded that the district was not worthy of further investigation for uranium deposits. A U. S. Geological Survey mapping team also found that the potential of the area was poor. The applicant's claims, for the most part, lie on the Navajo, Kayenta and Wingate formations. Drilling depths to the Moss Back-Moenkopi contact would be as much as 850 feet. Exploring for characteristically small, scattered deposits at such excessive depths is prohibitive. It is concluded that the chances of

finding uranium deposits of significant size on the applicant's property are poor. Denial of the application under docket DMEA 4518 is recommended.

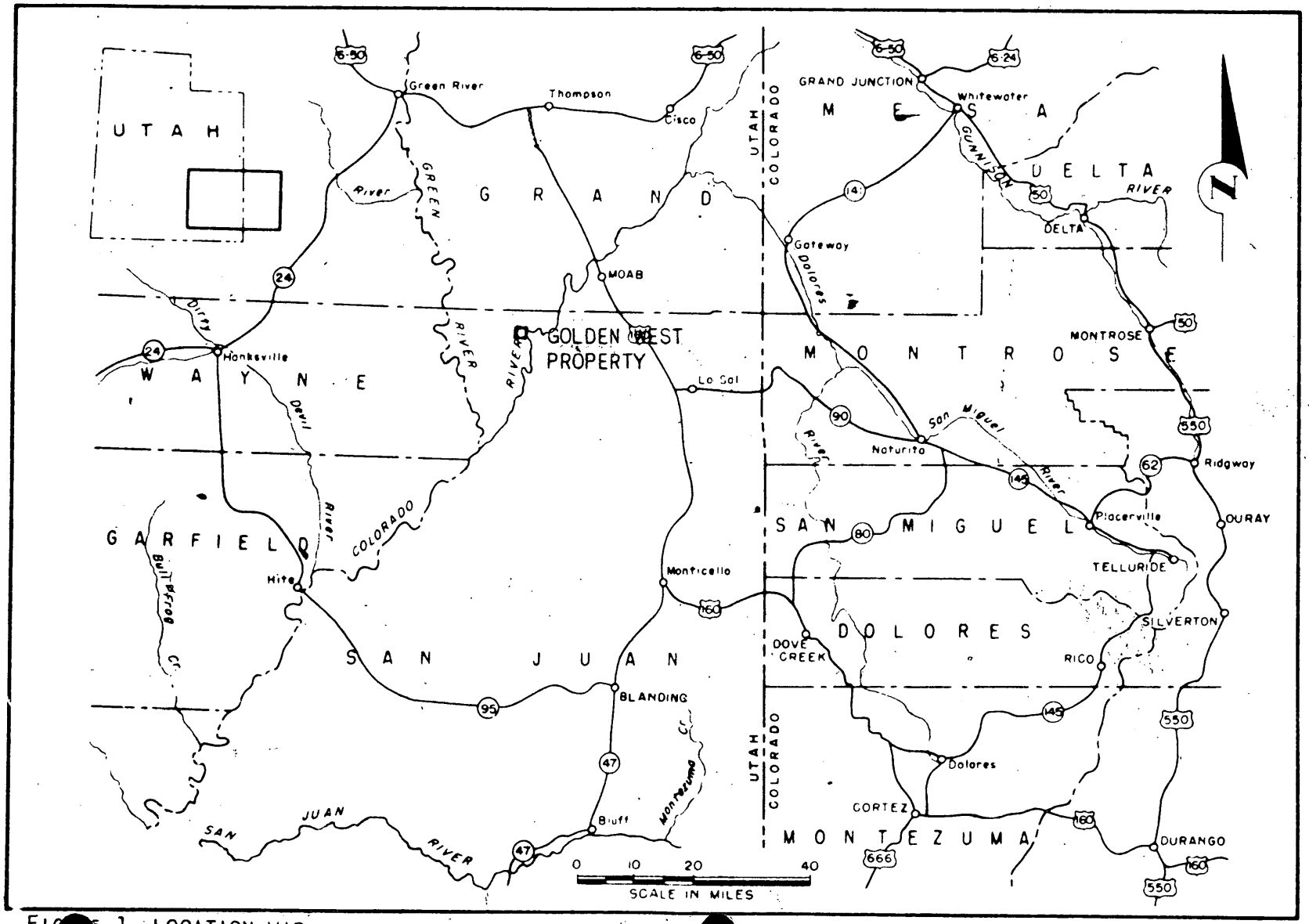


FIGURE 1. LOCATION MAP, GOLDEN WEST PROPERTY, BALCONES EXPLORATION AND DRILLING CORP., GRAND COUNTY, UTAH

11/23/56

Filing

Region III

Building 20
Denver Federal Center
Denver 2, Colorado

November 19, 1956

Memorandum

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

From: Superintendent, Denver Experiment Station, Reg. III

Subject: Docket DMEA 4518 (Uranium), Balcomes Exploration and Drilling Corporation (Golden West Property,) Grand County, Utah

The application for Balcomes Exploration and Drilling Corporation, Docket DMEA 4518, in the amount of $85,717.12 was received in this office on November 19, 1956.

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

W. K. King

cc: W. M. Traver (2)
E. W. Harshman
J. W. Basler
M. K. Salsbury
J. F. Shaw
Sec Op. Comm (2)

700

FILE COPY
Surname:
Ching
Selfridge
Johnson

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

Mr. R. M. Traver
Executive Officer
DMEA Field Team, Region III
224 New Custom house Building
Denver 2, Colorado

Re: Docket No. DMEA-4518 (Uranium)
Balcones Exploration & Drilling Corp.
Golden West Property
Grand County, Utah

Dear Mr. Traver:

The subject application is being referred to you for investigation, a field examination if warranted, and recommendations. One copy of the application was forwarded to you on October 26.

Enclosed for the information and use of the Field Team are the following documents:

1. One copy of the application, complete with 11 supplemental sheets, operating agreement, geological report, and maps.

2. Two copies of a memorandum, dated October 31, 1956, from John A. Crawford, USGS, relating to the application.

3. Two copies of a memorandum, dated November 8, 1956, from N. L. Nelson, USGS, relating to the application.

If a contract appears likely, a Consent to Lien and Subordination Agreement should be obtained from Golden West Oil and Uranium, Inc., covering all the land involved.

It is assumed that a Consent to Lien would not be obtainable from the State of Utah on section 16; therefore, a Performance Bond would be required in lieu thereof. In this connection, if a field examination indicates that section 16 is unfavorable and the rest of the property warrants exploration, the Applicant may wish to exclude section 16 from the project.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (26B)

Enclosures
APPROVED:

Frank D. Lamb (26B)
Member, Bureau of Mines

Thor H. Kiilsgaard (26B)
Member, Geological Survey

MChing/izm 11-13-56
cc to: Docket
Code 700
Mr. Ching
Admr.'s Reading File
Operating Committee

Messrs. JECrawford, Rm. 3643
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA

700

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

FILE COPY
Surname:
Ching
Clague
Kellogg
Taylor
Jeffrey
Johnson

Col. James E. Duke, Jr., President
Balcones Exploration and Drilling Corp.
403 East Travis Street
San Antonio, Texas

Re: Docket No. DMEA-4518 (Uranium)
Golden West Property
Grand County, Utah

Dear Col. Duke:

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

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

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

Sincerely yours,

C. O. Mittendorf

Administrator

izm 11-13-56
cc to: Docket
Code 700
Mr. Ching
Admr.'s Reading File
DMEA Field Team, Region III (2)

11/9/56

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

IN REPLY REFER TO:

RECEIVED NOV 9 1956

November 8, 1956

Re: DMEA 4518
Balcones Expl. &
Drilling Corp.
Golden West Mine
Grand Co., Utah
$85,717.12 - Uranium

Memorandum

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

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

Subject: Review of application.

The applicant requests assistance in exploring a property from which about 400 tons of uranium-bearing materials has been shipped. The ore occurs in the Mossback member of the Chinle formation.

The proposed work consists of non core and core drilling 'behind' the outcrops for extensions of the known deposits and for unknown bodies of ore. The initial holes will be about 350 feet deep- to the Moenkopi contact. If warranted other deeper holes will be drilled.

An examination is indicated. Referral of the application to the Field Team for appropriate action is recommended.

T. H. Kilsgaard
FOR: N. E. Nelson

11-1-56

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

RECEIVED OCT 31 1956 L.M.E.A.

Date October 31, 1956

DMEA Docket No. 4518
DMEA Contract No.
Commodity Uranium
Name of applicant Balcones Expl. & Drilling Corp.
Name of property Golden West Property
Location of property Grand County, Utah
Estimated cost of project $85,717.12

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee

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

Subject: Review of Application
(Application, Field Team Report, etc.)

1. Date of subject document: 10/13. 2. Date received by reviewer: 10/29.

3. Prior reports on this property known to reviewer: Yes ☐ No ☐

4. Prior reports on nearby properties known to reviewer: Yes ☐ No ☐

5. Information available on past production: Yes ☐ No ☐

6. Other pertinent factors known to reviewer: Yes ☐ No ☐

7. Explain items marked yes above:

8. Factors needing special consideration:
   a. Location ☐
   b. Ownership ☐
   c. Evidence of mineralization ☐
   d. Geology ☐
   e. Proposed exploration method ☐
   f. Alternate exploration method ☐
   g. Costs ☐
   h. ____ ☐

9. Action advised:
   a. Obtain information from applicant ☐
   b. Refer to Field Team ☒
   c. Denial ☐
   d. Agree with Field Team ☐
   e. Disagree with Field Team ☐
   f. Suggest alternate plan ☐
   g. Request another examination ☐
   h. Approval ☐
   i. Consult with Mr. E. R. Gordon at Grand Junction AEC office.

10. Remarks: (Use back of page if necessary) I recommend that the application be sent to the Field Team and that they consult with E. R. Gordon, Director for Exploration, Grand Junction, AEC. Mr. J. O. Hosted, Washington representative of the Atomic Energy Commission, assisted in the review.

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration
Washington 25, D. C.

October 26, 1956

Balcones Exploration & Drilling Corp.
403 East Travis Street
San Antonio, Texas

Gentlemen:

Subject: DMEA-4518
Re: Exploration Assistance
"Golden West Properties"

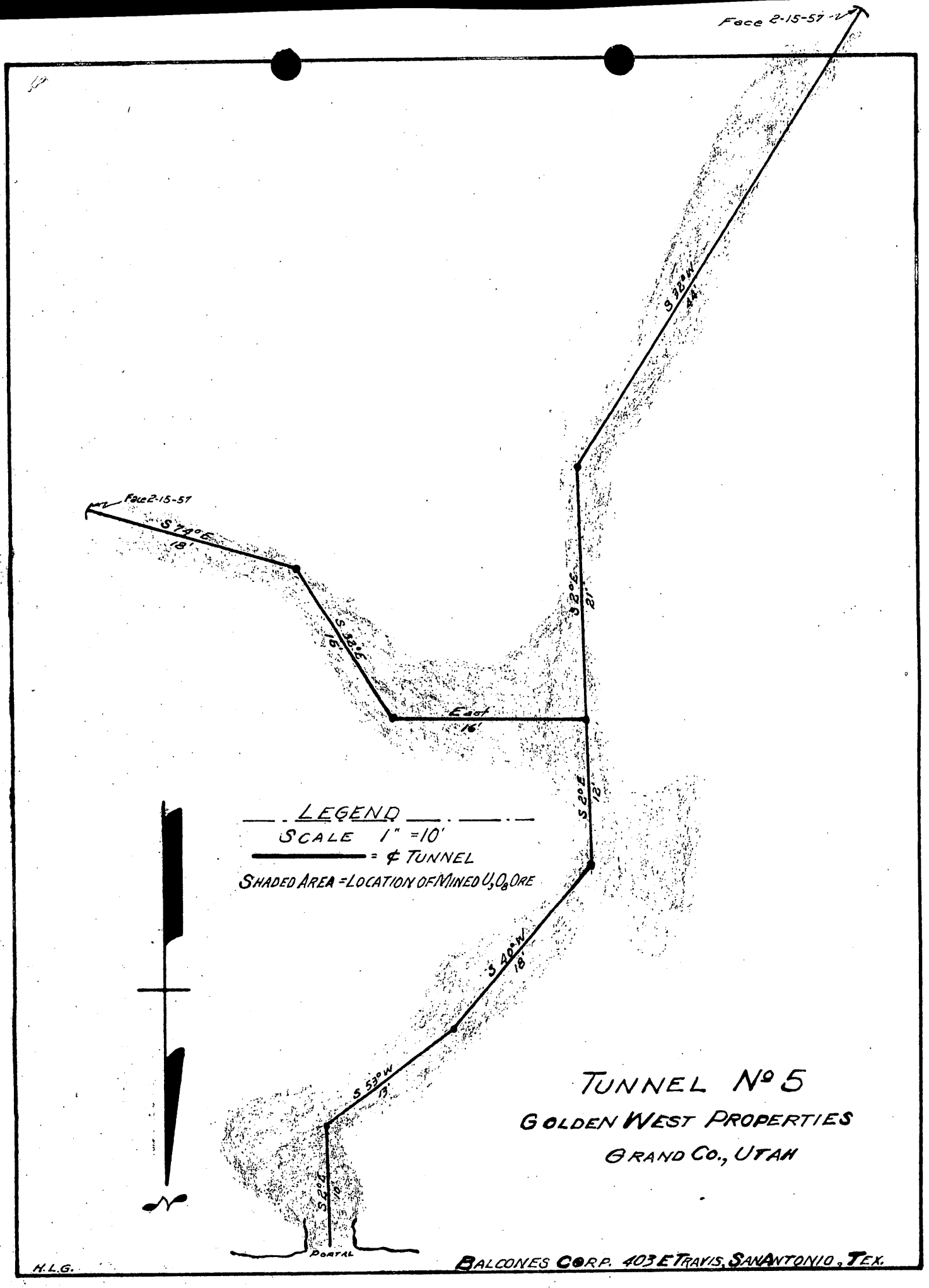
Your application for exploration assistance, dated October 13, 1956, submitted to our office at Washington D. C. has been assigned Docket Number DMEA-4518 and referred to the Rare and Miscellaneous Division, in the Washington office. Kindly identify all future correspondence relating to your application by this Docket Number.

Sincerely yours,

Allen S. Dakan, Chief
Operations Control and
Statistics Division

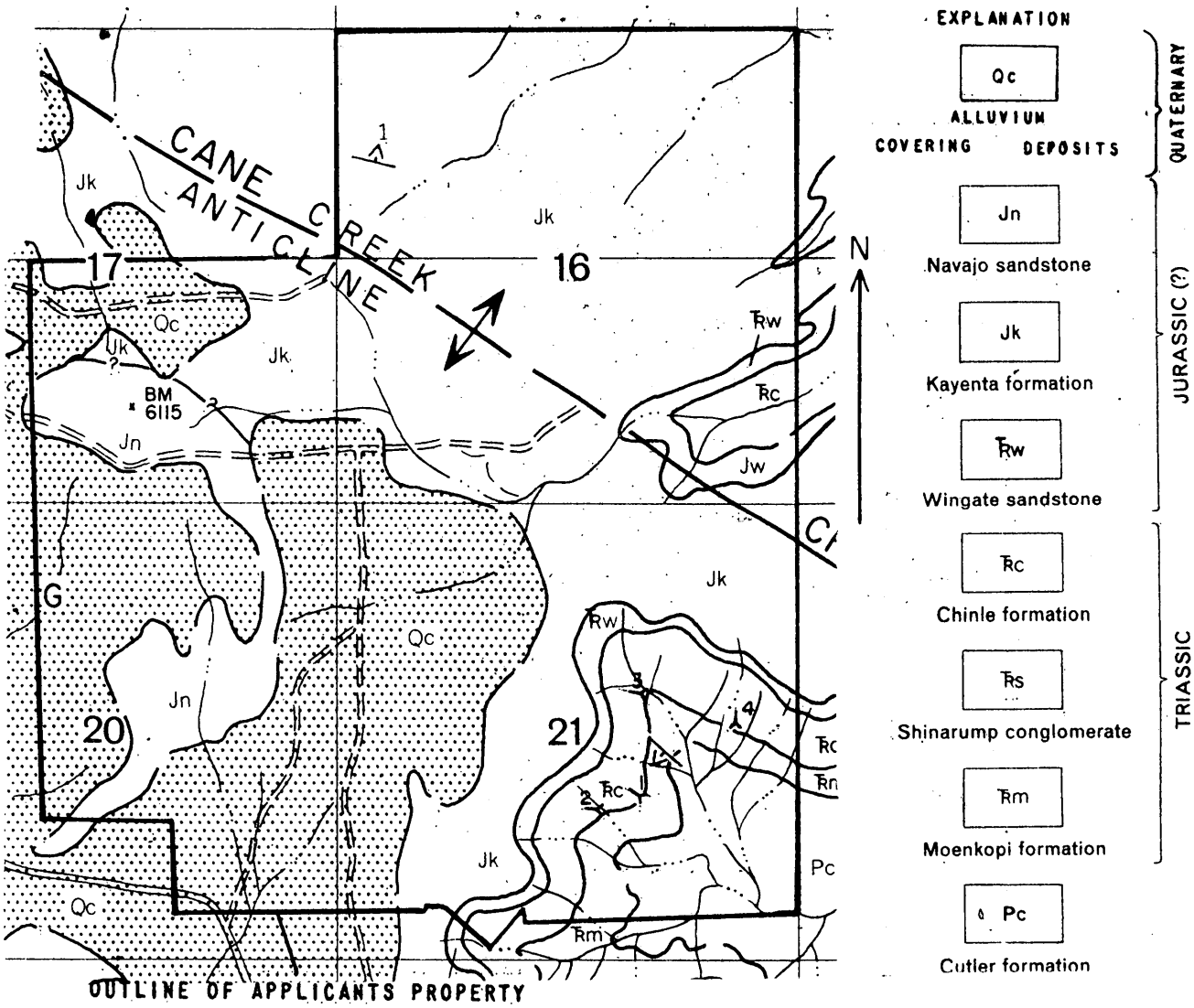
Copy to: Region III, Denver
700 ✓

3571


Face 2-15-57
S 32°W
44'
S 2°E
21'
Face 2-15-57
S 74°E
18'
S 35°E
15'
East
16'
S 2°E
12'
LEGEND
SCALE 1" = 10'
= ℄ TUNNEL
SHADED AREA = LOCATION OF MINED U_3O_8 ORE
S 40°W
18'
S 53°W
13'
S 2°E
10'
PORTAL
TUNNEL Nº 5
GOLDEN WEST PROPERTIES
GRAND CO., UTAH
H.L.G.
BALCONES CORP. 403 E TRAVIS, SAN ANTONIO, TEX.

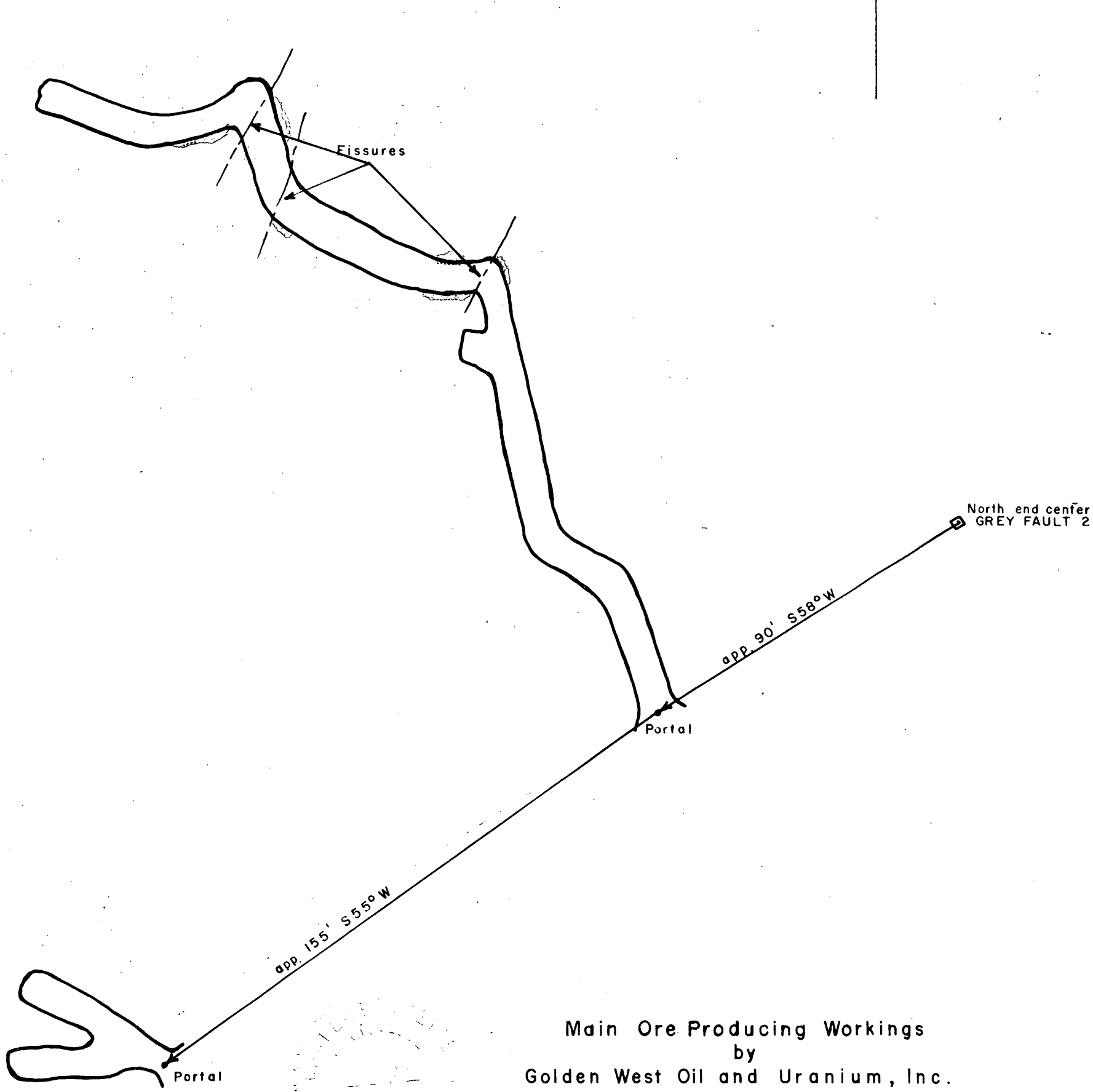
U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEFENSE MINERALS EXPLORATION ADMINISTRATION
DECEMBER 1956
DOCKET 4518



Note: PROPERTY BOUNDARY TAKEN FROM APPLICANTS MAP.

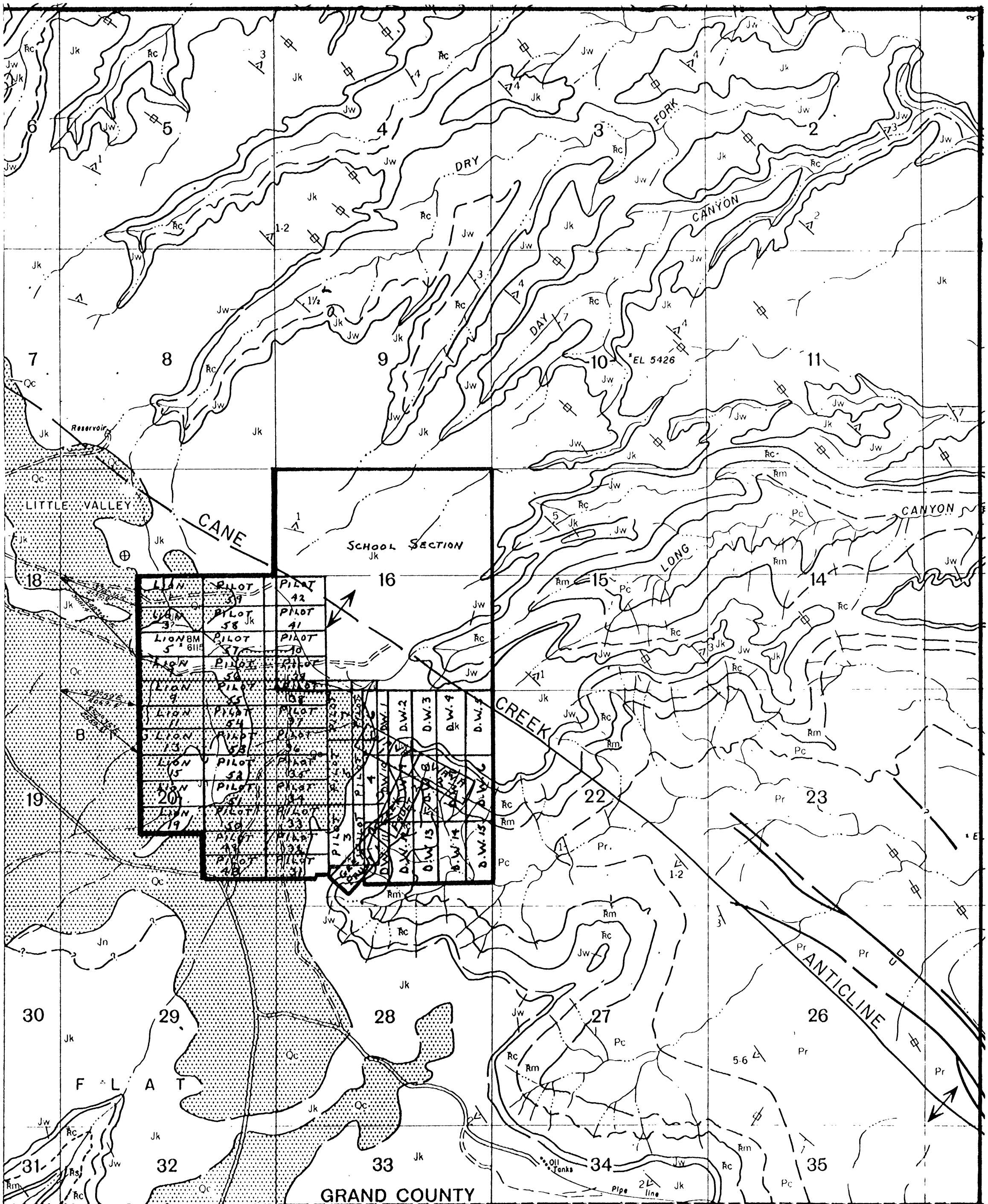
FIGURE 2.--GEOLOGIC MAP SHOWING APPLICANTS PROPERTY, BALCONES EXPLORATION AND DRILLING CORPORATION, GRAND COUNTY, UTAH.



Main Ore Producing Workings
by
Golden West Oil and Uranium, Inc.

Brunton - Pace Aug. 31, 1956
Scale 1" = 30'
Charles W. Yetter Reg. Prof. Eng.

PLATE NO. 3



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

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

MOAB QUADRANGLE

TRUE NORTH
MAGNETIC NORTH
15°30'

PHOTOGEOLOGIC MAP
MOAB-15
GRAND COUNTY, UTAH

PHOTOGEOLOGY BY V.M.HOSLEY
PHOTOGEOLOGY UNIT, ALASKAN GEOLOGY BRANCH
SCALE 1:24,000
0 — 1 MILE
MARCH 1963

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

PLATE 2

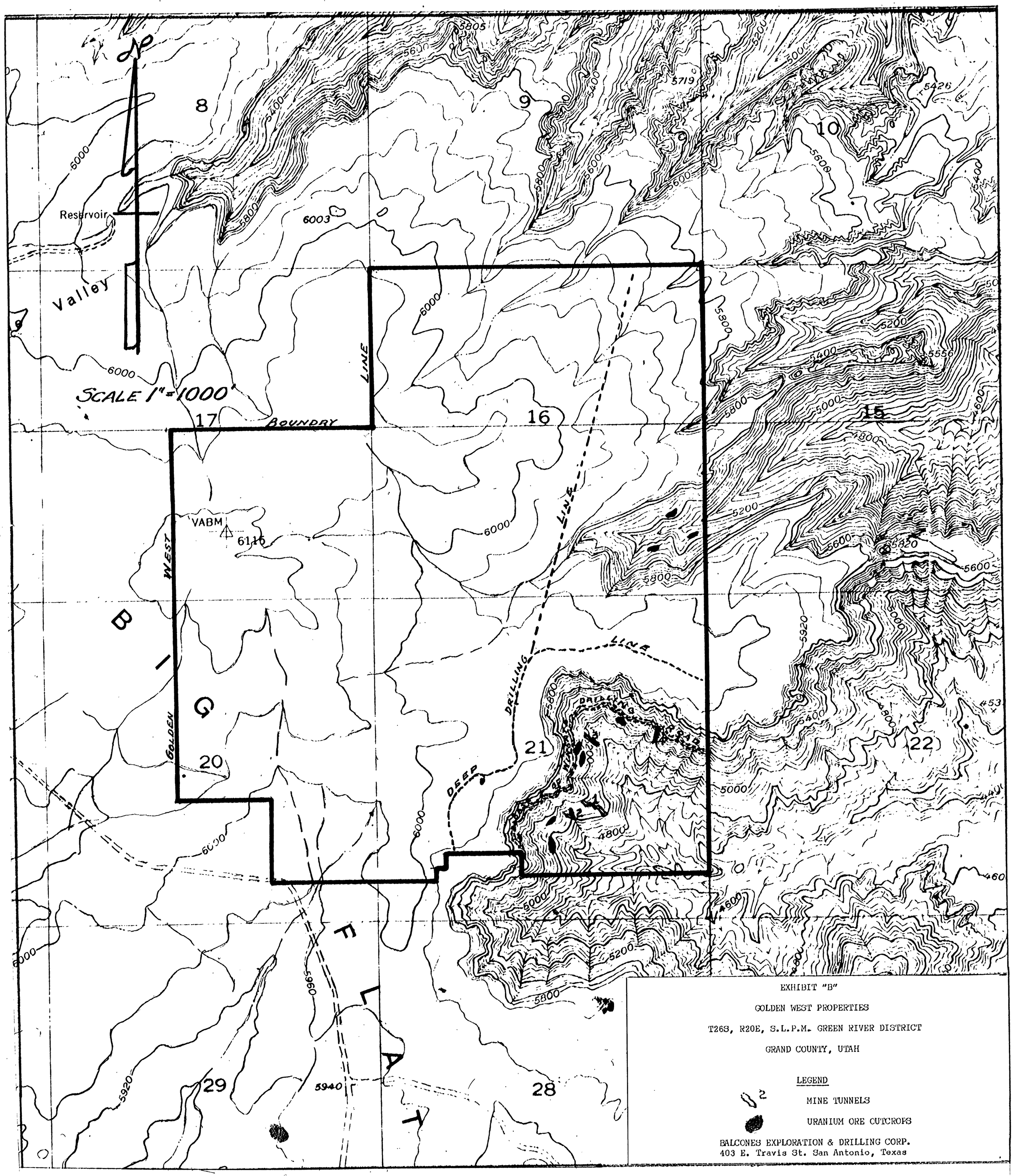


EXHIBIT "B"

GOLDEN WEST PROPERTIES

T26S, R20E, S.L.P.M. GREEN RIVER DISTRICT

GRAND COUNTY, UTAH

LEGEND

MINE TUNNELS

URANIUM ORE OUTCROPS

BALCONES EXPLORATION & DRILLING CORP.
403 E. Travis St. San Antonio, Texas