REGION III

Building 20
Denver Federal Center
Denver 2, Colorado
July 19, 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: E. H. Harshman
John F. Shaw

Subject: Docket No. DMEA 4252 (Uranium)
Monarch Exploration Company
Lookout, Hidy, Sparky & Ranger claims
Saguache County, Colorado

Enclosed are the original and nine copies Joint Engineering and Geologic Report by Robert U. King, Geologist and Edward W. Beal, Mining Engineer covering Docket No. DMEA 4252.

Monarch Exploration Company, Houston, Texas applied for DMEA assistance to explore the Lookout, Hidy, Sparky & Ranger Claims for uranium by drifting, bulldozer trenching, and core drilling at an estimated cost of $51,116.50.

The property was examined on May 22, 1956 by Robert U. King and Edward W. Beal. Several radioactivity anomalies have been discovered on the applicant's property, but the prospecting that has been done has not permitted an evaluation of the uranium potential of the property.

Little is known of uranium occurrences in the area and additional data is required before this property can qualify for DMEA assistance. It is recommended that the application be denied without prejudice.

for Robert U King
E. H. Harshman
Member Field Team

John F. Shaw
John F. Shaw
Supervising Mining Engineer

JFS:sh

cc: 9
DMEA 4252
Chron.

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

DMEA 4252

Monarch Exploration Company

Lookout Et. Al. Claims

Saguache County, Colorado

Uranium

Joint Engineering and Geologic Report

by

Robert U. King, Geologist
Geological Survey

Edward W. Buel, Mining
Engineer, Bureau of Mines

July 10, 1956

DMEA 4252

MONARCH EXPLORATION COMPANY
LOOKOUT ET. AL. CLAIMS
SAGUACHE COUNTY, COLORADO

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DMEA 4252

MONARCH EXPLORATION COMPANY
LOOKOUT ET AL. CLAIMS
SAGUACHE COUNTY, COLORADO

SUMMARY

Monarch Exploration Company of Houston, Texas, applied for Defense Minerals Exploration Administration assistance to explore for uranium on their Lookout et al. claims, Saguache County, Colorado. The exploration program is estimated to cost $51,116.50.

Radioactivity anomalies occur in Paleozoic sedimentary rocks and in Precambrian crystalline rocks on the applicant's claims. The applicant proposes to explore for uranium by drifting, bulldozer trenching and core drilling.

It is concluded that insufficient prospecting has been done to date to determine the geologic relationship or to permit an evaluation of the uranium occurrences.

It is recommended that the application be denied without prejudice.

INTRODUCTION

Monarch Exploration Company requested DMEA assistance to explore for uranium on the Lookout, Hidy, Sparky, and Ranger claim groups in Saguache County, Colorado. The amount requested is $51,116.50.

The claims were examined by Robert U. King, Geological Survey, and Edward W. Buel, Bureau of Mines, in company with Fred W. Howells, Vice President of Monarch Exploration Company, on May 22, 1956.

The Monarch Exploration Company's claim groups are bounded by claims leased to Vulcan Silver-Lead Corporation and by claims owned

by Uncompaghre Exploration Company. These companies are currently exploring uraniferous showings. Vulcan Silver-Lead Corporation has applied for DMEA assistance (DMEA Docket 4225).

The AEC was consulted in regard to the merits of the uranium occurrences on the property.

The applicant originally requested DMEA assistance for two exploration programs, one for the Ranger et al. claims (DMEA Docket 4254) and one for the Lookout et al. claims (DMEA Docket 4252). The estimated costs of the exploration programs were $34,994.00 and $16,122.50, respectively. These dockets were eventually consolidated as the Lookout et al. claims, DMEA Docket 4252, and as such are discussed in this report. The company also submitted an application on the Indian Creek et al. claims nearby, Docket 4251, which was recommended for approval in four exploration projects estimated to cost about $55,000.00.

LOCATION AND ACCESSIBILITY

The property is in secs. 15, 21, 22, 27, 28, 29, 32, and 33, T. 48 N., R. 6 E., N.M.P.M., Saguache County, Colorado and is approximately six miles southeast of Sargents (fig. 1). The property lies along the east side of a divide between Indian Creek and Harry and Marshall Creeks.

The property is accessible from Sargents over the old roadbed of the Denver Rio Grande and Western Railroad which follows along Marshall Creek to Chesterville, a distance of about nine miles. From the railway roadbed at Chesterville, a road crosses over Marshall Creek and follows along the southeast and east sides of the property (fig.)

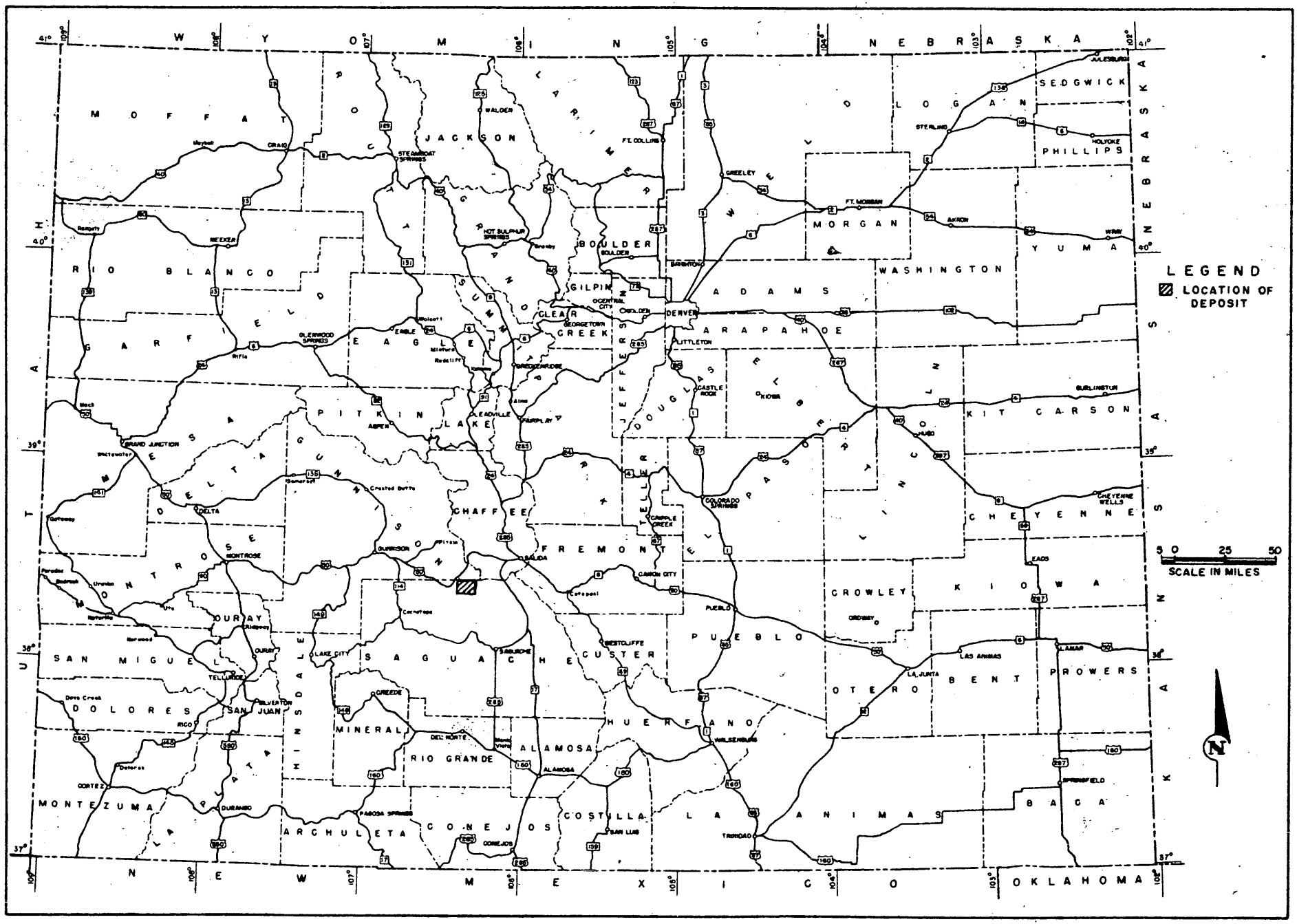

FIGURE 1 - INDEX MAP OF THE LOOKOUT ET. AL. CLAIMS, SAGUACHE COUNTY, COLO. DMEA 4252

GEOGRAPHY

The topography within the general area is one of moderate relief; narrow valleys with moderate to steeply sloping hillsides and small mesas are typical of the area.

The climate consists of relatively dry summers and cold severe winters. Snowfall in the area is not excessive and ordinarily it is possible to conduct surface exploration the year round.

Sufficient timber and water for exploration and mining is available on the property.

Mining supplies and labor can be obtained from Salida, Gunnison, and other nearby communities.

All power needs would have to be furnished by portable equipment.

PROPERTY

The property comprises 83 unpatented lode claims, covering approximately 1,790 acres, which are included in four claim groups as follows: Lookout, Hidy, Sparky, and Ranger (fig. 2).

Claim information and recording data from Saguache County Court House are tabulated as follows:

Claims	Date Recorded	Book	Pages
Lookout 15 to 34	July 26, 1955	263	370 to 408
Hidy & Hidy 1 to 4	October 26, 1955	272	390 to 398
Sparky 1 to 10 *	---	---	---
Ranger 1 to 25	July 18, 1955	262	
Ranger 26 to 34	" "	263	1 to 17
Ranger 37 to 50	" "	263	19 to 45

* Data not obtained

All the listed claims are owned by Monarch Exploration Company, 511 San Jacinto Building, Houston 2, Texas.

HISTORY AND PRODUCTION

The Marshall and Harry Creek area has not been extensively prospected for minerals, but the remains of exploratory adits and shallow prospect pits are visible in the area.

Radioactive anomalies were detected in the Indian Creek area northwest of the applicant's claims during the Spring of 1955. Shortly after, pitchblende was found along Harry Creek just east of the applicant's claims, at the Brinkerhof property (Uncompaghre Exploration Company). During the summer and fall of 1955, Monarch Exploration Company staked claims in the Marshall and Harry Creek area based on their discovery of several radioactivity anomalies. Prospect holes were sunk on three of these anomalies.

There have been no known uranium shipments made from the Brinkerhof or from any other property in the general region.

PRESENT STATUS

The property has been but superficially prospected by a few inaccessible short adits and shallow pits. Adjoining properties, held by Vulcan Silver-Lead Corporation and Uncompaghre Exploration Company, are currently being explored by bulldozer stripping on favorable showings of pitchblende and secondary uranium minerals. Vulcan has applied for Government assistance (DMEA Docket 4225).

The property is more than 100 miles from any mill or uranium buying station. It is anticipated that a mill or buying station will be established on the basis of the Los Ochos mine, at Gunnison which is 42 miles from the property.

Monarch Exploration Company has not undertaken any additional prospecting and/or exploratory work on the property pending the outcome of the DMEA application. Conversations held with Monarch's geologist, Mr. Fred W. Howells, indicate that the company will do additional work on the property. The nature and amount of work, however, is not known.

SAMPLING AND ORE ESTIMATES

Sample information submitted by the applicant is given as follows:

Location	Length	U_3O_8%
Lookout Claim #34) Prospect Hole 1)	3½ ft.	0.15
Lookout Claim #34) Prospect Hole 2)	Grab	0.72

Two samples collected by the DMEA examining team gave the following assays:

Sample	Description	Length	U_3O_8%	eU_3O_8%
EB-14	Ranger Claim #5 (?) Shattered quartz pegmatite, much limonite staining.	Grab from 3-foot pit	0.033	0.04
EB-15	Lookout Claim #34 Prospect Hole 2 1-foot wide shear zone in Granite Pegmatite	Grab from 2-foot pit	0.007	0.04

Inasmuch as the applicant's assay of 0.72 percent U_3O_8 of material from Prospect hole 2, Lookout No. 34 claim, was not confirmed by the results of DMEA sampling it is concluded that the uranium deposit is either very small or that the uranium minerals are erratically and sparsely distributed through the deposit.

No uranium reserves are calculated for the Lookout et al. claims.

APPLICANT'S PROPOSAL AND DISCUSSION

The applicant requested DMEA assistance for $51,116.50 to explore for uranium on the Lookout and Ranger claims. The proposed exploration on the Lookout No. 34 claim consists of driving a 150-foot drift and two 50-foot crosscuts from the drift; and bulldozer work in the form of 1,900 feet of access roadway and stripping to further expose the veins.

Work proposed for the Ranger claims Nos. 4, 5, 7, 8, and 11, and Lookout claim No. 28 consists of 13 bulldozer trenches spaced at intervals of 400 feet along a major north-south fault; two trenches are also proposed to explore a radioactive conglomerate outcrop. In addition to the trenching, the applicant proposes core drilling two 200-foot holes at the conglomerate area and eight 200-foot holes at favorable locations along the fault.

A review of the applicant's proposed exploration project suggests that it is chiefly prospecting.

The applicant's cost estimates seem rather high for most items, especially drilling costs.

GEOLOGY

Paleozoic sedimentary rocks and Precambrian crystalline rocks underlie the applicant's claims (Lookout et al.) along Marshall and Harry Creeks in Saguache County, Colorado. Tertiary volcanic rocks cover all of the older formations to the south and west of the property.

Paleozoic rocks that occupy the west half of the property range in age from Ordovician to Pennsylvanian. They consist of the Ordovician Manitou dolomite, Harding sandstone, and Fremont limestone; Devonian sandstones, shales, and dolomites of the Chaffee formation; and Pennsylvanian sandstone, grit, and carbonaceous shale.

The Precambrian rocks that occupy the east half of the property are chiefly made up of pink, coarse-grained granite, but include small bodies of biotite schist, and considerable pegmatite.

The sedimentary rocks strike north to northeasterly and dip gently east and southeast. A north-trending high angle reverse fault that crosses about the middle of the property has displaced the sedimentary formations on the west or foot wall side down against granite on the east side. Displacement on the fault is estimated to be more than 2,000 feet. This fault is inferred to be the southerly extension of the Chester fault from the adjacent property to the north. The Chester fault is only approximately located with respect to the applicant's claims.

ORE DEPOSITS

The ore deposits of the Marshall Creek district consist of bedded deposits of uranium in sandstone and vein deposits of uranium and copper in crystalline rocks.

On properties to the west, uranium occurs in bedded deposits in the Ordovician Harding sandstone (Monarch Exploration Company, DMEA 4251 and Vulcan Silver-Lead Corporation, DMEA 4225); to the north and east uranium occurs in vein deposits along the Chester

Fault (Vulcan Silver-Lead Corporation, DMEA 4225, and in granite (Brinkerhoff prospect - Uncompaghre Exploration Company).

At several places on the applicant's property radioactivity anomalies range from twice background to as much as 1.2 mr/hr. in Paleozoic sedimentary rocks and in shear zones in shattered granite pegmatite. Secondary uranium minerals were observed at two exposures.

The anomalies in the Paleozoic sedimentary rocks are weak and their relationship to mineralization in the host rocks is not apparent. The Harding sandstone, which is the favorable host rock for uranium on adjoining properties does not crop out on the applicant's claims, nor has it been prospected at depth by drilling. The anomalies in the Precambrian crystalline rocks appear to be related to syngenetic deposits in pegmatite masses in granite.

Weak radioactivity anomalies occur along the foot wall of the Chester Fault in highly broken black carbonaceous shale and sandstone on the Ranger No. 5 claim. A few small flakes of a secondary fluorescent uranium mineral probably autunite, are visible in shale within 10 feet of the fault, where it is exposed in a road cut.

A fractured and limonite stained quartz pegmatite dike is mildly radioactive where it crops out on the Ranger No. 5 claim. A sample (EB-14) of the material from a 2 x 6 - foot pit, contained 0.04 percent equivalent U_3O_8 by radiometric assay and 0.033 percent U_3O_8 by chemical assay. Nearby, other pegmatite veins have been prospected for the copper content. Radioactivity of the copper-bearing veins is negligible.

The radioactivity anomalies at Prospect holes 1, 2, and 3, on Lookout claim No. 34 are, however, of sufficient intensity to be of some significance.

Radioactive quartz-magnetite pegmatite is exposed by a 2-foot deep pit on Lookout No. 34 claim (Prospect hole 3, fig. 2). Radioactivity over a 10-square foot area amounted to 0.3 mr/hr.

The radioactivity of a 1-foot wide shear zone in quartz pegmatite at Prospect hole 2, 100 to 200 feet north of Prospect hole 3, amounts to about 1.0 mr/hr. The shear zone consists largely of shattered granite and gouge with limonite and hematite. Sample EB-15 taken across the shear contains 0.04 percent equivalent U_3O_8 and 0.007 percent U_3O_8 by chemical assay. The cause of the radioactive disequilibrium is not known.

At Prospect hole 1, 200 feet north of Prospect hole 2, radioactivity amounting to 1.2 mr/hr. is associated with quartz vein material and pegmatite on the dump of a caved adit. The vein material contains sparsely disseminated autunite and pyrite in a fine-grained quartz gangue.

The applicant postulates that the radioactive deposits exposed in Prospect holes 1, 2, and 3 are related to an inferred north-northeastward trending shear zone 300-600 feet wide that includes the pitchblende-bearing breccia-vein recently discovered in the Brinkerhoff Prospect. Although such a projection is entirely within the realm of geologic possibilities, too little prospecting has been done on the known radioactive localities to determine the attitudes or geologic relationships of individual occurrences.

CONCLUSIONS AND RECOMMENDATIONS

The several radioactivity anomalies that have been discovered on the applicant's property (Lookout, etc. claims) have not been sufficiently prospected to permit reasonable determination of the geologic relationships nor an evaluation of the uranium potential of the property. It is possible that the several anomalies are related and may represent the surface expressions of a major shear zone. The relationship of other anomalies being explored in the area to radioactivity anomalies on the applicant's property is not apparent.

Uranium was discovered in this area relatively recently, and properties are in the prospecting and exploration phase of development. There has been no production. Two of the properties being explored, including one by the applicant, have been recommended for a DMEA project.

Because of little being known of the geology and of uranium occurrences in the area and because exploration will soon reveal additional data for evaluation, the application is recommended for denial, without prejudice.

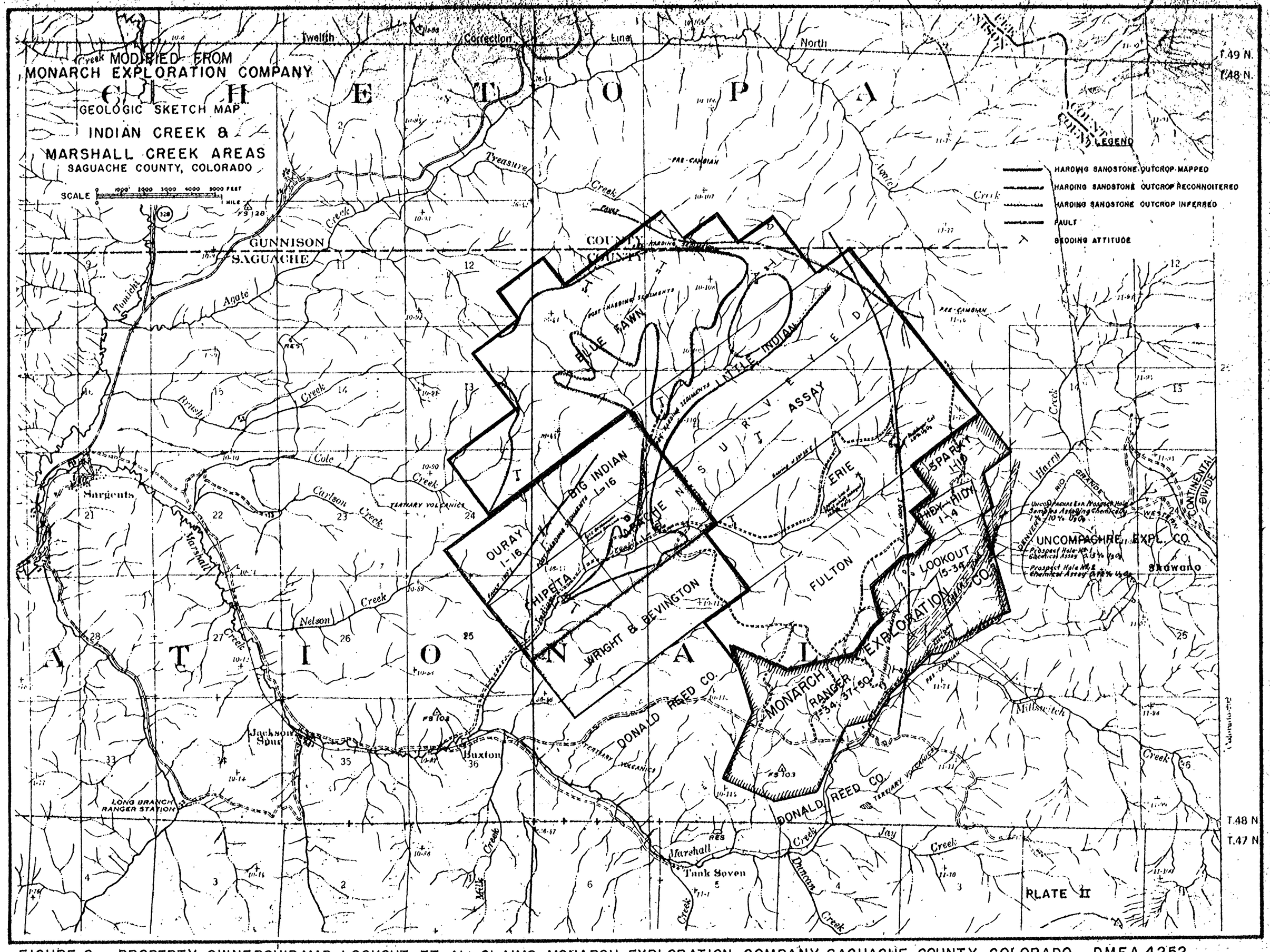

FIGURE 2 - PROPERTY OWNERSHIP MAP, LOOKOUT ET. AL. CLAIMS, MONARCH EXPLORATION COMPANY, SAGUACHE COUNTY, COLORADO. DMEA 4252