UNITED STATES DEPARTMENT OF THE INTERIOR
P. O. BOX 360
GRAND JUNCTION, COLORADO

September 25, 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III

Through: E. N. Harshman
J. F. Shaw

From: J. William Hasler

Subject: Transmittal of joint engineering and geologic report, DMEA docket 4260, Sterling Uranium Corporation (North Markey group of claims), San Juan County, Utah

The Sterling Uranium Corporation, 522 Boston Building, Salt Lake City, Utah, made application to the Defense Minerals Exploration Administration to explore for uranium on the North Markey group of claims in the Red Canyon area in southeastern Utah. The application was referred to the field and an examination was made August 21, 1956, by an examining team consisting of F. M. Byers, Jr., U. S. Geological Survey, and H. F. Robertson, U. S. Bureau of Mines.

Development work on the property consists of 22 holes concentrated in the north central part of the group. Five of the holes were weakly mineralized, but none was sufficiently thick or contained enough uranium to indicate ore. There has been no production from the North Markey group of claims.

The applicant proposed to explore an area that appears to be an extension of the Blue Lizard channel which has had a considerable amount of production. However, the data obtained to date, and results of the field examination, do not support this idea. The exploration program proposed by the applicant would include holes ranging in depth from 150 to 400 feet and is not justified by the potential size and number of ore bodies that may exist on the property. The examining team, therefore, recommends denial of the application. I concur with the conclusions and recommendations of the examining team.

The Atomic Energy Commission geologists at the White Canyon AEC camp were consulted relative to the appraisal of the subject property.

Enclosed are the brochure and the required number (12) of maps for inclusion in the joint engineering and geologic report.

J. William Hasler
J. William Hasler,
Geologist

JWH/mlr
Enclosures

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY EXAMINING TEAM
REGION III

DMEA 4260

Sterling Uranium Corp.

North Markey claims

San Juan County, Utah

Uranium

Joint Engineering and Geologic Report

By

H. F. Robertson
Bureau of Mines

F. M. Byers
Geological Survey

September 1956

DMEA 4260

STERLING URANIUM CORP.

INTRODUCTION

Sterling Uranium Corporation, 522 Boston Building, Salt Lake City, Utah, made application on April 9, 1956, to the Defense Minerals Exploration Administration to explore for uranium on the North Markey group of claims in the Red Canyon area. The application, DMEA 4260, requested Government participation in drilling 55 holes containing about 16,500 feet of core and noncore footage and about 100 hours of rim stripping at an estimated total cost of $75,695.00.

The claims were examined on August 21, 1956 by a DMEA examining team consisting of F. M. Byers, USGS, and H. F. Robertson, USBM.

The property consists of 28 unpatented lode claims on the southeast side of Red Canyon approximately fourteen airline miles above the junction of Red Canyon and the Colorado River. The North Markey group covers parts of section 13, T. 37 S., R. 14 E., and section 18, T. 37 S., R. 15 E., Salt Lake Base Meridian, San Juan County, Utah.

Development work on the property consists of 22 holes concentrated in the north central part of the claim group. Five of the holes were weakly mineralized but none were sufficiently thick or contained enough uranium to indicate ore. There has been no production from the North Markey group of claims.

The rocks exposed in the vicinity of the claim group, in ascending order are the Moenkopi formation, Shinarump conglomerate, Chinle formation, and the Wingate formation, all of Triassic age. All major uranium deposits in the White Canyon-Red Canyon area occur in channel type sediments within the Shinarump formation. The channels usually occur at the base of the Shinarump conglomerate and usually show some channel scour into the underlying Moenkopi formation.

The applicant submitted an assay report of four samples taken from channel exposures on the property. The samples were assayed for uranium and copper and indicate the presence of small amounts of both metals. The examining team inspected the areas sampled and noted that the mineralized material occurred as very thin seams and did not specifically indicate that ore bodies of significant size might be present.

The supposition that the property overlies an extension of the Blue Lizard channel and would be similarly mineralized cannot be supported by the available data.

The exploration program proposed by the applicant would include holes ranging in depth from 150 to 400 feet and is not justified by the potential size and number of ore bodies which may exist on the property.

The examining team, therefore, recommends denial of the application.

ACKNOWLEDGEMENTS

The examining team was accompanied by Robert M. Anderson, geologist, who represented the applicant.

Atomic Energy Commission personnel at the Natural Bridges Camp, White Canyon, Utah, were consulted for information about the subject area.

LOCATION, TOPOGRAPHY, AND CLIMATE

The North Markey group of claims lie in an unsurveyed area on the southeast side of Red Canyon, approximately fourteen airline miles above the junction of Red Canyon and the Colorado River. Projection of existing land lines into the area indicates the claim group covers parts of section 13, T. 37 S., R. 14 E. and section 18, T. 37 S., R. 15 E., Salt Lake Base Meridian.

The Red Canyon area lies in west-central San Juan County, in the southeast corner of Utah. The area of the North Markey group can be reached by traveling about three miles south of Blanding, Utah, on Highway 47; thence westerly for 38 miles on a graveled access road to a junction with Highway 95; thence 8 miles west of the junction and about one-half mile beyond the entrance to the Natural Bridges National Monument to an improved dirt road which heads southwesterly; thence 11 miles to a fork in the road; thence 14 miles out the right-hand fork into Red Canyon and the North Markey group of claims. The Posey and Blue Lizard mines are also in the same area. The property is about 270 miles from Grand Junction, Colorado, the nearest major supply center.

The claims lie on a steeply sloping bench between the vertical Wingate cliffs and the rim of Red Canyon. The property is at an altitude of about 4500 feet and has relatively mild winters, but hot, dry summers with infrequent occurrences of heavy rainfall.

HISTORY AND PRODUCTION

The North Markey group of 28 claims, in the Red Canyon area of San Juan County, were originally located in 1951 as part of a much larger group of claims covering most of the Shinarump outcrops in the area. The claims were assigned to the Anaconda Copper Mining Company who undertook a limited exploration program in 1951 and 1952. In 1953, Anaconda shipped copper-uranium ore from the Markey mine and, in 1954, transferred title to E. H. Eakland, Jr.

There has been no past or present production from the subject group of claims. Anaconda Copper Company formerly operated a small mine, known as the Markey mine, which is located about 300 feet southeast of the North Markey claims (see figure 2). Total production from this mine, which is now abandoned, was 1,214 tons of ore averaging 0.20 percent U_3O_8.

The nearest present production is from the Blue Lizard mine which is located approximately one-quarter mile northeast and across Red Canyon from the subject claim group. Total production from this mine, as of April 1, 1956, was 14,800 tons of ore averaging 0.24 percent U_3O_8 and 0.70 percent Cu.

OWNERSHIP AND EXTENT

The twenty-eight, unpatented lode mining claims comprising the North Markey Group are located as shown on figures 1 and 2. The claims were surveyed by compass-pace methods, showing the total area covered to be slightly more than 370 acres.

The claims were located in February 1951 by E. H. Eakland, Jr.; J. P. Rigg, Jr.; D. H. Wegner; and O. L. Jahnke. The claims were conveyed, in 1951, by an unrecorded deed to the Anaconda Copper Mining Company. By a quitclaim deed, executed in April 1954, title was transferred from the Anaconda Copper Mining Company to E. H. Eakland, Jr. No information is given on the transference of the property from Eakland to Red Man Uranium Company and it is assumed that Sterling Uranium Corporation acquired the property by means of the Agreement of Consolidation.

The 28 claims are recorded at the office of the County Clerk, San Juan County, Monticello, Utah as shown by Table I.

U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEFENSE MINERALS EXPLORATION ADMINISTRATION
SEPTEMBER 1956
DOCKET 4260

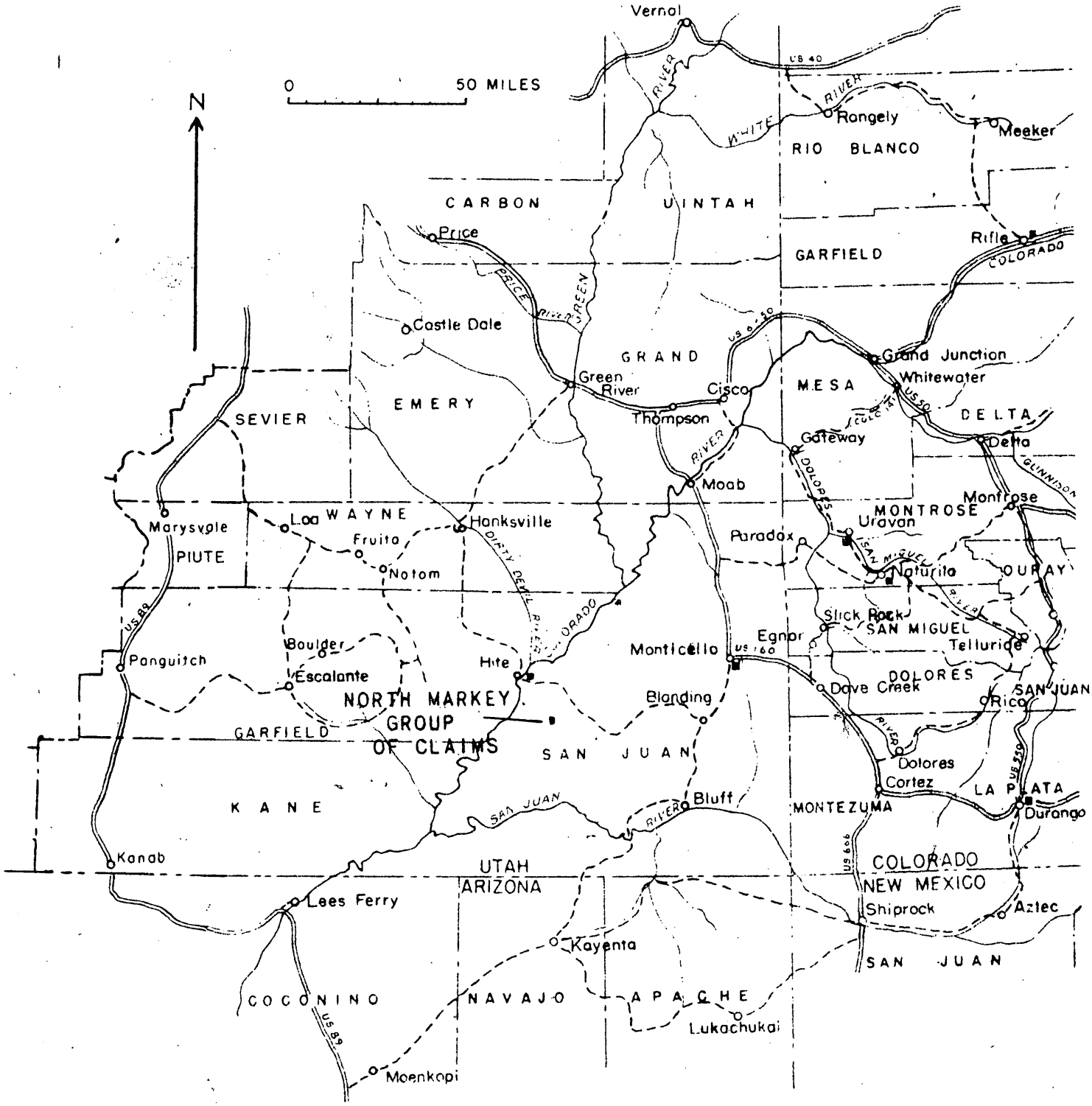

FIGURE 1.--INDEX MAP OF PART OF COLORADO PLATEAU REGION SHOWING LOCATION OF NORTH MARKEY GROUP OF CLAIMS, STERLING URANIUM CORPORATION, SAN JUAN COUNTY, UTAH.

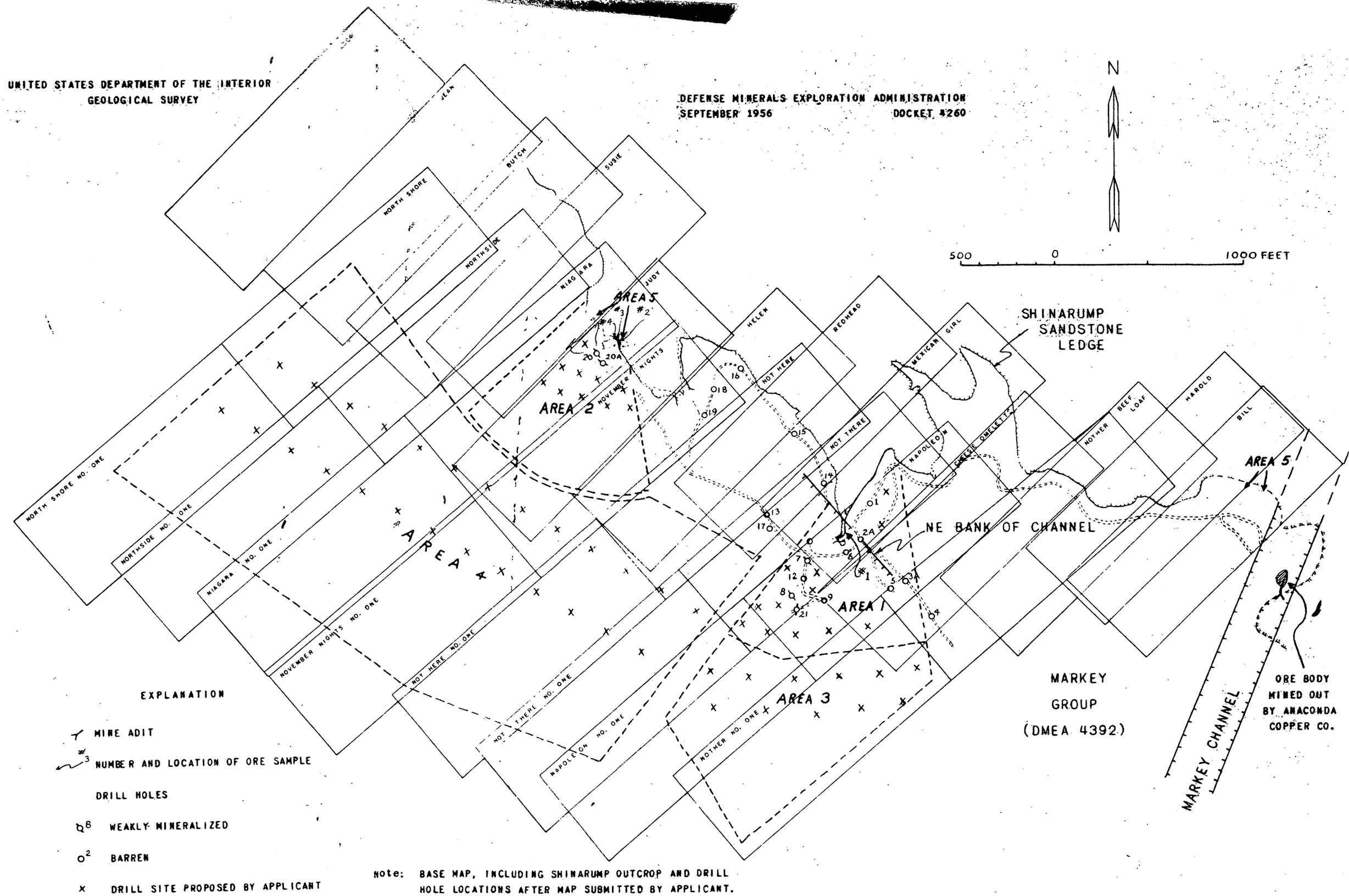

FIGURE 2.--MAP SHOWING DRILL HOLES, MARKEY CHANNEL AND SHINARUMP OUTCROP, NORTH MARKEY GROUP OF CLAIMS, STERLING URANIUM CORPORATION, SAN JUAN COUNTY, UTAH.

DMEA 4260

TABLE I

Claim Name	Recording Information		
	Date	Book	Page
Harold	2-26-51	R-2	454
Beef Loaf	2-26-51	R-2	455
Cheese Omelette	2-26-51	R-2	454
Mexican Girl	2-26-51	R-2	454
Redhead	2-26-51	R-2	449
Helen	2-26-51	R-2	449
Judy	2-26-51	R-2	450
Susie	2-26-51	R-2	450
Butch	2-26-51	R-2	450
Jean	2-26-51	R-2	451
Joan	2-26-51	R-2	451
North Shore	3-21-51	R-2	634
North Shore No. 1	3-21-51	R-2	634
Northside	3-21-51	R-2	633
Northside No. 1	3-21-51	R-2	633
Niagara	3-21-51	R-2	633
Niagara No. 1	3-21-51	R-2	632
November Nights	3-21-51	R-2	632
November Nights No. 1	3-21-51	R-2	632
Not Here	3-21-51	R-2	631
Not Here No. 1	3-21-51	R-2	631
Not There	3-21-51	R-2	631

TABLE I cont.

Claim Name	Recording Information		
	Date	Book	Page
Not There No. 1	3-21-51	R-2	630
Napoleon	3-21-51	R-2	630
Napoleon No. 1	3-21-51	R-2	630
Nother	3-21-51	R-2	629
Nother No. 1	3-21-51	R-2	629
Bill	2-26-51	R-2	448

PRESENT STATUS

Exploration and Development

During June, July, and August 1954, an exploration program was undertaken on the North Markey group of claims. The program was designed to explore a broad, flat, weakly mineralized channel exposed at the base of the Shinarump sandstone on the outcrop in the reentrant on the Redhead claim (figure 2).

During the period from June 29 through August 6, 1954, approximately 9,000 feet of new roads and drill sites were completed. During the period from July 19 through August 6, 1954, twenty-two holes were completed that totaled about 300 feet of core drilling and 1,072 feet of non-core drilling.

Mining Equipment and other Facilities

There is no mining equipment on the property at the present time. The necessary equipment for exploration would be furnished by the contractor doing the work. Drilling water can be obtained from a small creek located

in the bottom of Red Canyon and domestic water from wells in Fry Canyon and hauled to the property by truck. Project personnel would live in house-trailers near the area.

The nearest uranium ore buying station is located in White Canyon and is 55 miles distant from the North Markey claim group. The AEC uranium processing mill at Monticello, Utah, is 105 miles from the property.

Geology

The North Markey group is on the gently dipping west flank of the Monument upwarp. The lower Triassic Moenkopi formation is about 200 feet thick. The overlying upper Triassic Shinarump sandstone is about 30 feet thick on the property and forms a prominent ledge. The overlying Chinle formation is about 700 feet thick. The Wingate sandstone forms a sheer 400-foot cliff above the Chinle, in the southernmost part of the property.

Only the northeast bank of one channel is exposed in a gully on the Mexican Girl claim (see figure 2). About 5 feet of scour into the underlying Moenkopi was observed, and the flat base of this channel extends from the bottom of the bank for 100 feet southwest to the head of the gully. One small pod of mineralized conglomerate, 6 inches by 3 feet in cross-section, is exposed but otherwise the flat base of the channel is barren.

The applicant claims that a second channel exists on the Suzie claim (fig. 2), but the examining team could detect no scour into the Moenkopi where the channel was supposed to exist.

The Markey channel, which is possibly the southerly extension of the Blue Lizard channel, is almost entirely off the applicant's claim to the east (fig. 2).

Ore Deposits

The drilling, as shown on figure 2, was concentrated mainly in the area of the Redhead and Mexican Girl claims in an attempt to find uranium mineralization of ore grade in a northwest-trending shallow Shinarump channel (5 feet deep) apparently underlying the property. The results of the drilling are summarized in table 1. Of twenty holes drilled in the channel area, three holes, (nos. 7, 8, and 21) penetrated weakly mineralized sandstone (table 1) but were not of ore grade. Sample No. 1 (table 2) taken on the outcrop assayed only 0.07 percent of U_3O_8, although high in copper.

Holes 20 and 20A were drilled on the Judy claim (fig. 2) to test the area back of the mineralized outcrop on the rim. Both holes were weakly mineralized in the lower ten feet of the Shinarump formation and averaged about 0.04 eU_3O_8. Three channel samples across 1-1/2 feet on the rim assayed 0.01 to 0.07 percent of U_3O_8 (table 2). Mineralization of this magnitude in the absence of a channel does not in the opinion of the examining team indicate the possibility of a singificant discovery of uranium ore in the Red Canyon area.

The nearby Markey mine (fig. 2) is on the east side of the Markey channel, the west side of which crosses less than 100 feet of the subject claim group in the easternmost part. However, prior drilling, both private and Government, has indicated that the west side of the Markey channel is essentially barren.

Table 1.--Drill hole data, North Markey Group.

Drill hole	Total depth (feet)	Radiometric anomaly footage From	To	Radiometric anomaly thickness (feet)	Grade reported by applicant Percent eU_3O_8	Depth Shinarump-Moenkopi contact (feet)
1	42	35 -	36	1.0	0.02	38
2A	44				Barren	35
3A	77				Barren	56
4	88				Barren	77
5	72	37 -	39	2.0	0.02	66.5
		64 -	67	3.0	0.02	
6	52				Barren	50
7	70	48 -	51	3.0	0.04*	63
8	80	52½ -	61½	9.0	0.03*	77
9	82				Barren	?
10	60				Barren	58
11	88				Barren	82
12	79				Barren*	67.3
13	52	Not bottomed				?
14	47	34 -	34½	0.5	0.02	46
15	52				Barren	50
16	44	30 -	31	1.0	0.02*	43
17	112	97 -	100	3.0	0.02*	111
18	63	38 -	41	3.0	0.02*	59
19	55				Barren*	50
20	50	40½ -	43	2.5	0.05*	48.5
		46 -	47	1.0	0.02	
20A	50	39½ -	43½	4.0	0.04	49
21	84	64 -	65	1.0	0.05*	?

* Disseminated chalcopyrite or copper oxides.

Table 2.--Assays of ore samples, North Markey Group (for location see figure 2)

Sample No.	Thickness sampled	Percent U_3O_8	Percent Copper
1	?	0.07	4.04
2	1.5	0.03	1.11
3	1.5	0.01	1.50
4	1.5	0.07	0.27

Ore Reserves

Exploration and development to date has not indicated any commercial grade ore reserves on the property. The nearby Markey Mine apparently mined all its known reserves in producing 1,214 tons of 0.20 percent U_3O_8 ore. The AEC estimates a reserve of 6,000 tons of copper-uranium ore averaging 0.26 percent U_3O_8 and 0.70 percent Cu in the Blud Lizard Mine, one of the larger producers in the Red Canyon area.

Proposed Exploration

The applicant proposes a program of core and non-core drilling combined with a limited amount of rim stripping to explore for channel indications and boundaries and to test the channels for copper-uranium mineralization. The claim group is divided into five areas in which work is proposed by the applicant. Areas 1, 2, 3, and 4 would be explored with 55 drill holes, core and non-core, while exploration of area 5 would entail rim stripping of the Shinarump outcrop in the area of company drill hole no. 20 on the Judy and Susie claims, and rim stripping at the north end of the Harold and Bill claims.

A summary of the estimated cost of the applicant's proposed program is shown below:

Independent Contracts--Drilling:

Area	No. of holes	Average depth feet	Average cost per foot	Total Footage	Total Cost
1	10	200	$3.00	2,000	$6000.00
2	10	150	3.00	1,500	4500.00
3	10	300	3.25	3,000	9750.00
4	25	400	3.50	10,000	35000.00
Total	55			16,500	$55250.00

Bulldozing: (Based on D-6 Cat at $12.00 per hour)

Area 1	125 hours	$1,500.00
Area 2	90 hours	1,080.00
Area 3	125 hours	1,500.00
Area 4	300 hours	3,600.00
Area 5	100 hours	1,200.00
Total	740 hours	$8,880.00

(An alternate proposal on bulldozing costs is offered by the operator in which the applicant uses equipment owned by the company. The total price would amount to about the same as the above costs.)

Total independent contracts $64,130.00

Labor, supervision, and consultants	
One geologic consultant--3 months at $1,500 per month	$4,500.00
One driller (to assist in rim stripping)--2 months at $500.00 per month	1,000.00
Supervising mining superintendent--2 months at $600.00 per month	1,200.00
Secretarial work	200.00
Total Labor, supervision, and consultants	$6,900.00
Operating materials and supplies	
Dynamite, blasting caps, bits, steel, gasoline, oil, butane, etc.	
Total operating materials and supplies	$2,304.00
Operating equipment	
1 light plant (purchased)	375.00
200' air hose drilling line (purchased)	216.00
Model 105 air compressor--2 months at $100 per month	200.00
Jack Hammer--2 months at $75 per month	150.00
300 or 500 gallon water tank--3 months at $150 per month	450.00
Total operating equipment	$1,391.00
Rehabilitation and repairs	
One bunk and cook house	560.00
Outhouse and shower	150.00
Total rehabilitation and repairs	$710.00

Contingencies	
Transportation of compressor, jackhammer, and water tank	$310.00
Total contingencies	$310.00
Estimated total cost of project	$76,745.00
Government participation at 75 percent	$57,558.75

Inasmuch as the examining team is going to recommend denial of the application, no modifications of the applicant's proposal are offered.

CONCLUSIONS AND RECOMMENDATIONS

The one observed channel bank on the North Markey group is only 5 feet in height as compared with 15 to 20 feet on the through-going Blue Lizard-?-Markey Channel. Assays of 4 channel samples on the outcrop and radiometric assays of about 20 drill holes indicate no sandstone of ore grade. The shallow channel scour of only 5 feet is not indicative of the presence of an ore body in the Red Canyon area. Further, the low grade assays of many outcrop samples and drill holes is not encouraging.

Because of the shallow or complete lack of channel scours combined with weak mineralization, it is recommended that the application of Sterling Uranium Corporation for DMEA assistance be denied.