9/9/54 gla

D FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : E. Wm. Ellis, DMEA Member, Uranium Commodity Committee

DATE: September 2, 1954

FROM : Arthur P. Butler, Jr., USGS Member, Uranium Commodity Committee

SUBJECT: Field Team Report of Examination and supplementary memoranda, DMEA Docket 3245 (uranium), Lockhart Uranium Corp., applicant, Monticello, Utah; unpatented claims in two groups in partsoof Ts. 28 and 29S, 20E, Lockhart Canyon area, San Juan County, Utah

Request for Government assistance to explore the property identified in the subject above was reviewed and denied in Region IV.

The Field Team examiners originally recommended a small amount of wagon drilling to explore the extent of uranium occurrences in the Cutler formation at four areas on the applicant's property. Within the month following the examination, three of the areas were partly explored with drilling by the Atomic Energy Commission. The results of this work indicated that the deposits were small and of sub-ore grade. The examining geologist, therefore, recommended changing the recommendation to explore and to deny the application instead.

I concur with the conclusion and action of the Field Team in denying the application.

Arthur P. Butler, Jr.

Copy to: E. Wm. Ellis (2)

E. Wm. Ellis, DMEA Member, Uranium Committee
Committee

September 2, 1954

Arthur P. Butler, Jr., WGMS Member, Uranium
Committee

Field Team Report of Examination and supplementary memorandum, DMEA Docket 3243 (uranium), Lockhart Uranium Corp., applicant, Monticello, Utah; unpatented claims in two groups in parts of Tn. 31 and 32S, R3E, Lockhart Canyon area, San Juan County, Utah

Request for Government assistance to explore the property identified in the subject above was reviewed and denied in Region IV.

The Field Team engineers originally recommended a small amount of vugsu drilling to explore the extent of uranium occurrences in the Cutler Formation at four areas on the applicant's property. Within the month following the examination, three of the areas were partly explored with drilling by the Atomic Energy Commission. The results of this work indicated that the deposits were small and of sub-ore grade. The examining geologist, therefore, recommended changing the recommendation to explore and to deny the application instead.

I concur with the conclusion and action of the Field Team in denying the application.

Copy to: E. Wm. Ellis (2)

E. Wm. Kilis, DMEA Member, Uranium Commodity Committee

September 2, 1954

Arthur P. Bahler, Jr., WSMM Member, Uranium Commodity Committee

Field Team Report of Examination and supplementary memoranda, DMEA Docket 3065 (uranium), Lockhart Uranium Corp., applicant, Monticello, Utah; unpatented claims in two groups in parts of Tn. 28 and 29S, 20E, Lockhart Canyon area, San Juan County, Utah

Request for Government assistance to explore the property identified in the subject above was reviewed and denied in Region IV.

The Field Team examiners originally recommended a small amount of wagon drilling to explore the extent of uranium occurrences in the Cutler formation at four areas on the applicant's property. Within the month following the examination, three of the areas were partly explored with drilling by the Atomic Energy Commission. The results of this work indicated that the deposits were small and of sub-ore grade. The examining geologist, therefore, recommended changing the recommendation to explore and to deny the application instead.

I concur with the conclusion and action of the Field Team in denying the application.

Copy to: E. Wm. Kilis (2)

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

August 25, 1954

Memorandum

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

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

Subject: Docket No. DMEA-3245, Lockhart Uranium Company, San Juan County, Utah

I have reviewed the subject report and have discussed it with Joseph O. Hosted, representative of the Atomic Energy Commission.

I concur with the recommendation of the Field Team that the application involved under the subject docket be denied.

The report has been forwarded to the Chief, Minerals Division, Bureau of Mines, in accord with the routing slip attached thereto.

John E. Crawford

John E. Crawford

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

224 New Customhouse
Denver 2, Colorado

August 16, 1954.

Memorandum

To: Chairman, Operating Committee, DMEA

From: DMEA Field Team, Region IV

Subject: Report of Examination - Docket No. DMEA-3245 (Uranium), Lockhart Uranium Company, San Juan County, Utah.

Enclosed are the original and three copies of the final examination report covering docket No. DMEA-3245.

Also enclosed are four copies of memoranda dated May 10, 1954 and July 26, 1954 by H. S. Johnson, geologist, U. S. Geological Survey, two copies of form 3b, and a copy of our letter of denial to the Operator.

The examining team recommended 3200 feet of wagon drilling and 100 feet of drifting dependent on the results of the drilling. The estimated cost of the proposed work was $8,930.00.

A short time after the completion of the examination report it was learned that the Atomic Energy Commission planned to explore the property, and action on the DMEA application was deferred pending the results of the Atomic Energy Commission drilling. The results of the AEC drilling are negative and the request for exploration assistance has been denied.

W. H. King
W. H. King

E. M. Hauschmann
for A. H. Koschmann

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

August 16, 1954.

Memorandum

To: DMEA Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Report of Examination - Docket No. DMEA-3245 (Uranium), Lockhart Uranium Company, San Juan County, Utah.

Enclosed are the original and ten copies of the Summary, Conclusions, and Recommendations, and the original and ten copies of an engineering report on docket No. DMEA-3245.

The examining engineer recommends 80 wagon drill holes totaling 3200 feet at $11.40 per foot under Phase I, and 100 feet of drifting at $35.50 per foot under Phase II if it is justified by the results of Phase I. Transportation of a tractor at $400.00 and assaying at $500.00 bring the total estimated cost of the project to $8,930.00.

W. H. King

W. H. King

Enclosures

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

P. O. Box 360
Grand Junction, Colo.

July 26, 1954

Memorandum

To: A. H. Koschmann

From: H. S. Johnson

Through: W. P. Williams

Subject: Docket DMEA 3245 (Uranium), Lockhart Uranium Company, San Juan County, Utah

After your phone call of July 23, 1954, requesting a large scale map of the Lockhart Uranium Company claims, we checked again with Y. W. Issachsen, AEC district supervisor for the Lockhart Canyon area, to see whether there has been any change in the picture since my memo of May 10, 1954, a copy of which is enclosed. Issachen said their drilling has been completed and they have pulled out of the area. He now feels that the Cutler deposits in Lockhart Canyon have little or no potential for production and that no further exploration is warranted.

According to their monthly reports, the AEC drilled 88 wagon-drill holes, totaling 2,510 feet in the Lockhart Canyon area. At least half of this drilling was on the claims originally recommended for exploration by Salsbury and Johnson in their engineering and geologic reports. Of the 88 holes drilled, two were mineralized, but not up to ore grade, and 10 others were very weakly mineralized. All other holes were barren. Neither mineralization nor bleaching effects could be traced any appreciable distance behind rim exposures.

We still feel, as we did on May 10, that no DMEA program can be justified on the Lockhart Uranium Company claims because the AEC has already explored the property and found it wanting.

HSJ/mlr

Enclosure

P. O. Box 380
Grand Junction, Colo.

May 10, 1954

Memorandum

To: W. H. King, Executive Officer, Field Team, Region IV

Through: W. P. Williams

From: H. S. Johnson, Colorado Plateau District Office

Subject: DMEA 3245, Lockhart Uranium Company, San Juan County, Utah

It has just come to our attention that the AEC has begun wagon drilling of several of the uranium occurrences in Lockhart Canyon area. About 36 holes have been divided among three of the four localities which Salsbury and Johnson recommended for exploration in their engineering and geologic reports. The holes are spaced 25 to 50 feet apart and are spotted so as to test the ground behind the mineralized outcrops on the Nancy Ann, Lindalee, Emily No. 2, and Lockhart Uranium Nos. 36, 37, and 38 claims (see Fig. 1 accompanying Johnson's geologic report). A few more holes may be drilled on Lockhart Uranium No. 37 and No. 38, but work to date indicates the deposits are sub-ore grade and do not extend for any appreciable distance behind the mineralized outcrops. Apparently this drilling on Lockhart Uranium Company claims has been done on the strength of a verbal agreement between company officials and the AEC project geologist in the Lockhart Canyon area. Y. W. Isachsen of the AEC informs us that they now consider the deposits in the Cutler formation in this area to have little or no potential for production.

Because the AEC has now tested three of the four localities proposed for exploration on the Lockhart Uranium Company claims, we do not see how we can proceed with any DMEA exploration program on these claims. As yet we have no information as to whether Lockhart Uranium Company plans to retract its application or whether they will try to push it through in spite of the unfavorable results of AEC drilling.

H. S. Johnson,
Geologist

HSJ/mlr

cc: G. J.file
Reading file

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Defense Minerals Exploration Administration
Denver Federal Center
Denver 2, Colorado

May 7, 1954

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 3245, Lockhart Uranium Company, San Juan County, Utah

Enclosed are 11 copies of a geologic report by H. S. Johnson of the U. S. Geological Survey covering the above docket.

It has been recommended that the original application for DMEA assistance be denied on the grounds that it is not an efficient way to prospect the several small deposits now known, and that a contract be prepared for about 3,200 feet of wagon drilling to test four of the better mineralized places. The plan recommended is acceptable to the applicants.

E. N. Harshman
for A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (11)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
May 6, 1954

Memorandum

To: Executive Officer, DMEA Field Team, Region IV

From: Chief, Mineral Resources Branch, Mining Division, Region IV

Subject: DMEA 3245 (Uranium), Lockhart Uranium Company (Lockhart Canyon claims), San Juan County, Utah

Transmitted herewith are the original and ten copies of the "Summary, Conclusions, and Recommendations" by M. H. Salsbury, Bureau of Mines, and H. S. Johnson, Geological Survey, and of M. H. Salsbury's engineering report on the above loan application.

Salsbury concludes the recommended exploration, considerably revised from that proposed by the applicants, but approved by them and the Atomic Energy Commission participant in the investigation, would serve to reveal some needed information on an essentially undeveloped but favorable area. He recommends 80 wagon drill holes totalling 3,200 feet at $11.40 per foot, $4,480.00, under Phase I and 100 feet of drifting at $35.50 a foot, $3,550.00, under a second phase, Phase II to be dependent on the results of Phase I and to be subject to approval by the DMEA, Region IV Field Team. In addition, he allows $400.00 for transportation of a tractor, if needed, and $500.00 for assaying, making a total for the project of $8,930.00, Government participation 75 percent or $6,697.50. A short-form, unit-cost contract is suggested.

Because the allowance of $400.00 for tractor transportation represents only a small part of the over-all cost, about 4 percent, I suggest the Government participate in its estimated cost.

A contract should not be prepared until the applicants submit written authorization to eliminate the Red Rock group from their loan request and also a copy of recording data on the "Notice of Lease Application" in accordance with my letters to them dated April 23 and May 6, 1954.

The brochure transmitted with your memorandum of January 18, 1954, instructing us to prepare a suitable report, is enclosed.

W. M. Traver

W. M. Traver

enclosures
WMT/kp
cc / 10
RFFischer, DMEA 3245, Chron

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

April 26, 1954

Memorandum

To: A. H. Koschmann, DMEA Field Team, Region IV

From: R. P. Fischer, Supervisor, Colorado Plateau District

Subject: DMEA 3245, Lockhart Uranium Company, San Juan County, Utah

Transmitted herewith are eleven copies of a geologic report on the Lockhart Uranium Company claims, San Juan County, Utah. The company applied for assistance to explore for uranium deposits by drifting, open cut work, and drilling. The estimated total cost of the proposed work is $16,200.

The attached report was prepared by H. S. Johnson and is based on a joint field examination on April 8, in company with M. H. Salsbury, USBM, P. C. deVergie, AEC, and R. T. Chew, USGS, plus A. J. Redd and George Palmer, representing the applicants.

Johnson concludes that the applicant proposes more work than is justified, but he recommends about 3,200 feet of wagon drilling to test four mineralized areas. Salsbury and deVergie concur in this plan, and it is acceptable to the applicants. Presumably Salsbury will supply cost estimates in the engineering report.

Johnson's plan of work appears sound to me, and I recommend that an exploration contract be prepared if the applicants obtain the necessary validating lease from AEC.

R. P. Fischer

R. P. Fischer

RPF/mlr
Enclosures 11

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 3245, Lockhart Canyon Claims

Lockhart Uranium Company

San Juan County, Utah

Uranium

M. H. Salsbury, Mining Engineer
Bureau of Mines

H. S. Johnson, Geologist
Geological Survey

May 5, 1954

DMEA 3245

LOCKHART CANYON CLAIMS
LOCKHART URANIUM COMPANY
SAN JUAN COUNTY, UTAH

Summary, Conclusions, and Recommendations

By M. H. Salsbury
Mining Engineer
Bureau of Mines

H. S. Johnson
Geologist
Geological Survey

DMEA 3245

LOCKHART CANYON CLAIMS
LOCKHART URANIUM COMPANY
SAN JUAN COUNTY, UTAH

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By M. H. Salsbury and H. S. Johnson

The Lockhart Uranium Company, a partnership composed of Monticello, Utah, businessmen, has applied for Government-assisted exploration on their unpatented claims in the Lockhart Canyon area, San Juan County, Utah. An exploration project consisting of 200 hours of bulldozing for access roads and drill sites, 2,000 feet of core drilling, 1,000 feet of wagon drilling, and 300 feet of underground exploration was proposed at an estimated cost of $16,200.00--Government participation 75 percent, or $12,150.00.

The property consists of 86 claims in 2 groups, which have been located in part on conflicting oil and gas leases. Validating leases from the Atomic Energy Commission have been applied for but had not been received at the time this report was made. One group of 14 claims, the Red Rock group, has been withdrawn from the application. The other 72 claims in the Lockhart group cover the exploration sites in a revised program agreed on in a conference between the examining team and 2 of the applicants.

The revised project calls for 24 hours of bulldozing, 3,200 feet of wagon drilling, and 100 feet of drifting or crosscutting from an adit portal as a second phase to be undertaken with prior Defense Minerals Exploration Administration Region IV Field Team

authorization if the results of drilling under the first phase justify it.

The formations exposed in the vicinity of the Lockhart Uranium Company claims consist of the Permian Cutler formation, and the Triassic Moenkopi, Chinle, and Wingate formations. The beds strike approximately northwest and dip less than 5° to the northeast. Uranium has been found in white, altered arkosic sandstone at several horizons in the Cutler formation in this area, and there are at least 12 exposures of uranium-bearing channels in the walls of shallow canyons on the property. The possible channel trends it is proposed to explore are probably not at an average depth of over 40 feet.

Although exploration and production to date in the Lockhart Canyon area indicate that the ore deposits in general are likely to be small, this does not preclude the possibility of finding significant deposits. This also applies to the totally unexplored property of the Lockhart Uranium Company. The Atomic Energy Commission is planning a drilling program in the area as a result of a reconnaissance now being completed, but the sites have not been selected. A Commission representative was consulted on the proposed project under this application and concurred in the exploration plan.

If drilling indicates significant mineralization in any of the channels, underground exploration is proposed for a second phase, rather than more drilling, because it is believed that such work would yield more information on the actual worth of one or more of the occurrences, inasmuch as so little data is now available.

A two-phase exploration project consisting of 24 hours of bulldozing, 80 wagon drill holes averaging 40 feet in depth for a maximum of 3,200 feet of drilling, and 100 feet of drifting or crosscutting at an estimated cost of $8,930.00--Government participation 75 percent, or $6,697.50--is recommended for approval.

UNITED STATES DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 3245, Lockhart Uranium Company,

San Juan County, Utah

Uranium

Geologic Report

H. S. Johnson
U. S. Geological Survey

April 26, 1954

INTRODUCTION AND SUMMARY

The Lockhart Uranium Company of Monticello, Utah, applied (DMEA 3245) for Government aid to explore for uranium on a group of unpatented mining claims on sections 3, 4, 9, 10, 11, 12, 13, and 14, T. 28 S., R. 20 E., and sections 22 and 27, T. 29 S., R. 20 E. in San Juan County, Utah. The claims are divided into two groups, one about 5 miles south and the other about 2 miles north of Lockhart Canyon. They can be reached by a fairly good dirt road leading north 15-20 miles from the Dugout Ranch on Indian Creek. The northern group of claims (fig. 1) is in possible conflict with oil and gas leases, but the applicants state that they are in the process of applying for an AEC lease to validate their claims. The Red Rock group of claims, about 5 miles south of Lockhart Canyon, surrounds the Cutler claim, which is now controlled by Robert Barrett and Dan O'Larie. Several other claims have been staked around the Cutler claim by O'Larie and Barrett, and there is evidently some conflict between these and several claims of the Red Rock group.

In its application for DMEA aid, Lockhart Uranium Company proposed the exploration of several mineralized lenses in the Cutler formation by means of drifts, open cuts, and core or wagon drilling. The whole project is estimated to cost $16,200, of which the Government's part would be $12,170.

The properties in question were examined on April 8, 1954, by M. H. Salsbury of the Bureau of Mines, H. S. Johnson and R. T. Chew of the Geological Survey, P. C. deVergie of the Atomic Energy Commission, and A. J. Redd and George Palmer representing the Lockhart Uranium Company. The Cutler formation in this area is about 600 feet thick and is predominantly reddish brown to purple arkosic sandstone. Uranium mineralization occurs in lenses of gray-white, medium- to coarse-grained arkosic sandstone about 200 feet below the top of the Cutler formation. These white lenses are very distinctive and can be easily recognized in what are otherwise rather uniformly red sediments. The anomalous white color is probably one of the better guides to ore in the Cutler formation in the Lockhart Canyon area. In Lockhart Canyon, however, the lighter colored lenses are small and discontinuous, and the average deposit can probably not be expected to contain more than a few hundred tons of ore-grade material. There are about 12 mineralized outcrops now known on the northern group of claims. Each of these occurrences could be easily tested by shallow drilling which would probably not exceed depths of 50 feet. No mineralized outcrops are known on the southern group of claims, and no development work has been done to date on either the northern or southern groups.

Because of the small size of the mineralized lenses in the Cutler formation in the Lockhart Canyon area, it is the writer's opinion that the exploration program originally proposed by the applicant is not suitable. Drifting is an expensive way of exploration, and it is definitely not recommended as a means of testing the small mineralized lenses now known on the Lockhart Uranium Company properties. Shallow drill holes, placed so as to test four or five of the better looking deposits, would provide a great deal more information at far less expense. There is a fair chance that a program of wagon drilling might discover two or three small, but minable ore bodies. Partial but not complete repayment of the Government's share of exploration costs could probably be expected as a result of mining following a modified drilling program of this sort.

Considering the views presented above, it is hereby recommended that the applicant's original request for $16,200 for a program of drifting and drilling be denied. However, a modified program, consisting of about 80 wagon-drill holes, for a total of about 3,200 feet of wagon drilling, to test four of the better looking deposits, is recommended. Holes would average about 40 feet deep and should be placed on 25-foot centers behind mineralized outcrops. No work is recommended on the southern (Red Rock) group of claims because no mineralized outcrops are known there and several of these claims are in conflict with claims staked by Barrett and O'Larie adjacent to the Cutler claim. M. H. Salsbury, Bureau of Mines, and Paul C. deVergie, AEC geologist in charge in the Lockhart Canyon area, are in agreement with the recommendations presented herein[1/], which are also acceptable to the applicants.

1/ deVergie, P.C., personal communication

GEOLOGY

The formations exposed in the vicinity of the Lockhart Uranium Company claims near Lockhart Canyon consist of the Permian Cutler formation and the Triassic Moenkopi, Chinle, and Wingate formations.

The Cutler formation in the vicinity of Lockhart Canyon is about 600 feet thick and is composed of reddish brown to purple arkosic sandstone with a little red shale and mudstone. Near Lockhart Canyon the Cutler formation forms a wide, relatively flat bench that is amenable to prospecting by drilling. Uranium mineralization has been found at several horizons in the Cutler formation in this area.

The Moenkopi formation is about 300-400 feet thick in the Lockhart Canyon area and is composed mainly of thin bedded chocolate-brown shale and mudstone which forms a very steep cliff-like bench. Above this is the Chinle formation with the Moss Back member (formerly considered to be the Shinarump conglomerate) at the base. The Moss Back member is about 10-50 feet thick and is composed of light gray sandstone, grit, and quartz and lime pebble conglomerate. It and the overlying 100 feet or so of shales and siltstones in the Chinle formation form a broad gray-green colored band in the midst of a predominantly red section. The upper part of the Chinle formation is principally reddish brown shale and fine-grained sandstone. The Chinle formation here continues the steep cliff-like slope begun by the Moenkopi formation. The Wingate sandstone is about 300 feet thick and makes a vertical cliff at the top of the Chinle formation. It is composed of medium-grained sandstone that is cross-bedded in long sweeping tangential beds.

ORE DEPOSITS

Known uranium mineralization in the Lockhart Canyon area is confined to the Cutler formation and the Moss Back member of the Chinle formation. To date no significant deposits have been found in the Moss Back member although it is weakly mineralized at many places. The Moss Back outcrops about half-way up a steep cliff-like slope in this area and is so difficultly accessible that it has probably not been well prospected. No exploration was planned by the applicant in the Moss Back member and none is recommended at this time.

The uranium deposits in the Cutler formation in the Lockhart Canyon area occur in discontinuous lenses of gray-white arkosic sandstone and are found stratigraphically at several different horizons in the upper half of the formation. Most of these deposits are, however, at a horizon about 200 feet below the top. The mineralized portions of the ore-bearing units are gray-white in color and very distinctive when compared to the red and purple barren rock. Apparently the light color has resulted from the reduction or removal of iron from originally red sediments, and this lighter color is one of the better guides to ore in this area. Uranium and copper minerals occur together and are usually found at the bottom of the altered lens or immediately above a thin mudstone split within the altered zone. Concretions of copper and uranium minerals may occur anywhere in the altered zones.

The Cutler claim (south of the area shown on fig. 1) has been the only deposit that has been worked to any appreciable extent in the Lockhart Canyon area. Production from the claim has amounted to about 175 tons of ore that averaged 0.22 percent U_3O_8. Mining is in progress on the Cutler claim at the present time, and it is likely that another 200-300 tons or so may be taken out before the deposit is exhausted. At present there is no indication that the other known uranium occurrences in the Cutler formation in this area are any larger than the deposit on the Cutler claim. The hope for this area seems to be to find a number of small deposits of this type, each of which might produce a few hundred tons of ore.

On the Lockhart Uranium Company holdings, there are about 12 occurrences of mineralized rock now known. Each of these is associated with a white arkosic sandstone lens or channel about 5-10 feet thick and 100 feet or so wide. None of these lenses seems to be very continuous and most of the ore-grade material is confined to the lower-most foot or two. In general, the channel-like lenses trend NW in the Lockhart Canyon area. The better looking mineralized places are on the Lockhart Uranium Nos. 36, 37, 38, Lockhart Uranium No. 5, Emily No. 2, Imogene, Alice Marie, Lindalee, and Nancy Ann claims. Samples from these claims have the following assays:

Claim	Sampled by	Type sample	% eU_3O_8	% U_3O_8	% V_2O_5	% $CaCO_3$
Lockhart U No. 36	G. Palmer	Grab (?)		0.198		19.6
" " " 36	P.C. deVergie	1.5' cut	0.16	0.14	0.05	15.0
" " " 36	P.C. deVergie	Grab	0.22	0.23	0.26	
" " " 5	P.C. deVergie	Grab	0.41	0.22	0.03	14.0
Emily No. 2	G. Palmer	Grab (?)		0.252		5.85
" " 2	P.C. deVergie	Selected hotspot	0.74	0.64	0.06	
" " 2	P.C. deVergie	3' cut	0.05	0.06	0.23	8
" " 2	P.C. deVergie	3' cut	0.08	0.06	0.17	9.5
" " 2	P.C. deVergie	2.5' cut	0.05	0.05	0.15	13
" " 2	P.C. deVergie	2' cut	0.11	0.08	0.10	9
" " 2	P.C. deVergie	1' cut	0.26	0.07	0.03	17
Marie-Imogene	George Palmer	Grab (?)		0.636		
Lindalee	George Palmer	Grab (?)		0.112	0.13	24.15
Nancy Ann	George Palmer	Grab (?)		0.112	0.16	16.60
" "	George Palmer	Grab (?)		0.147	0.11	11.85
" "	George Palmer	Grab (?)		0.185	0.15	23.55

To date there has been no development work on any of the claims mentioned above.

PROPOSED EXPLORATION

In its original application, Lockhart Uranium Company proposed a program of exploration by drifts, open cuts, and core and wagon drilling. The total cost of this program was estimated to be $16,200. No detailed plans were submitted to show where drifting or drilling was desired.

After examining the better mineralized places in the field, the writer feels that the exploration proposed by Lockhart Uranium Company is far too extensive considering the small size and the character of the deposits in the Lockhart Canyon area. Drifting is expensive exploration and would serve to give information on a very limited portion of the deposits. A modified program of wagon drilling could be expected to provide much information on the better deposits at far less expense. A program of this sort should consist of about 80 wagon drill holes equally divided between four of the better deposits.

These holes would average about 40 feet in depth and should be drilled on 25-foot centers behind the mineralized outcrops. Cuttings should be collected in 2 foot runs from top to bottom of each hole and chemical assays run for uranium, vanadium, copper, and $CaCO_3$ on any sample that shows radioactivity or copper mineralization. Radiometric probing of each hole after drilling would be helpful, but not absolutely necessary. All holes should be drilled on approximately 25-foot centers as specified: Lockhart Uranium No. 36 claim, 7 holes in two lines about 25 feet behind the mineralized outcrop; Lockhart Uranium No. 37 claim, 7 holes in two lines about 25 feet behind the mineralized outcrop; Lockhart Uranium No. 38 claim, 6 holes in two lines about 25 feet behind the mineralized outcrop; Lockhart Uranium No. 5 claim, 6 holes in a line about 25 feet behind the mineralized outcrop; Emily No. 2 claim, 14 holes in two lines about 25 feet behind the mineralized outcrop; Imogene and Alice Marie claims, 10 holes in a line about 25 feet behind the mineralized outcrop and a second line of 10 holes about 25 feet behind the more favorable holes in the first line; Lindalee and Nancy Ann claims, 10 holes in a line about 25 feet behind the mineralized outcrop, and a second line of 10 holes about 25 feet behind the first line. The positions of all the known mineralized outcrops are shown on figure 1.

CONCLUSIONS AND RECOMMENDATIONS

Uranium-copper mineralization occurs in lenses of gray-white arkosic sandstone about 200 feet below the top of the Cutler formation in the Lockhart Canyon area, San Juan County, Utah. There are 12 mineralized places now known on the claims held by the Lockhart Uranium Company, and there is a fair chance that each of two or three of these deposits may contain a few hundred tons of ore-grade material.

Because of the small size and tenuous character of these deposits it is felt that the applicant's original program of exploration is not suitable. A program of wagon drilling totaling about 3,200 feet of hole would give much information at less expense. Such a modified drilling program might discover two or three small deposits containing a few hundred tons of ore. Partial but not complete repayment of the Government's investment might be expected from exploration of this type.

It is hereby recommended that the original application for DMEA assistance be denied on the grounds that it is not an efficient way to prospect the several small deposits now known. It is recommended, however, that a contract be prepared for about 3,200 feet of wagon drilling to test four of the better mineralized places. M. H. Salsbury, Bureau of Mines, and P. C. deVergie of the U. S. Atomic Energy Commission, are in agreement with the conclusions and recommendations presented herein[2/], and the plan recommended is acceptable to the applicants.

2/ deVergie, P. C., personal communication.

DMEA 3245

LOCKHART CANYON CLAIMS
LOCKHART URANIUM COMPANY
SAN JUAN COUNTY, UTAH

Engineering Report

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Bureau of Mines

DMEA 3245

LOCKHART CANYON CLAIMS
LOCKHART URANIUM COMPANY
SAN JUAN COUNTY, UTAH

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DMEA 3245

LOCKHART CANYON CLAIMS
LOCKHART URANIUM COMPANY
SAN JUAN COUNTY, UTAH

ENGINEERING REPORT

By M. H. Salsbury

INTRODUCTION

The Lockhart Uranium Company of Monticello, Utah, a partnership, has made application for Defense Minerals Exploration Administration assistance in a project to explore for uranium two groups, totaling 86 unpatented mining claims, in T. 28 S. and T. 29 S., R. 20 E., Salt Lake meridian, Lockhart Canyon, San Juan County, Utah. The proposed project under DMEA 3245 called for 300 feet of lateral work underground, 2,000 feet of core drilling, 1,000 feet of wagon drilling, 200 hours of bulldozing for drill sites and access roads, and camp construction, at a total estimated cost of $16,200.00--Government participation 75 percent, or $12,150.00.

A field investigation was made on April 8, 1954, by a Region IV examining team, representing the Bureau of Mines and Geological Survey.

ACKNOWLEDGEMENTS

The examining team was accompanied by Paul C. DeVergie, Atomic Energy Commission geologist, in charge of the Lockhart Canyon camp, Randall Chew of the Geological Survey, and George N. Palmer and A. J. Redd, partners of the applicant company. DeVergie concurred in

the conclusions. An Atomic Energy Commission publication, RME-403A, "Reconnaissance of Uranium Deposits in Lockhart Canyon, Indian Creek Area," has been published.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The applicants' property in the Lockhart Canyon area consists of the Red Rock group of 14 claims in secs. 22 and 27, T. 29 S., R. 20 E. and a group of 72 claims in secs. 3, 4, 9, 10, 11, 12, 13, and 14, T. 28 S., R. 20 E., Salt Lake meridian (fig. 1(A).

The region is typical of the Colorado Plateau, with steep-walled canyons cut in tableland by tributaries of the Colorado River. The claims are in an area at the base of a high cliff on terraced benches intersected by a network of shallow canyons. The altitude of the property is about 4,500 feet. The climate is very dry with hot summers and mild winters. There may be occasional severe storms in winter and violent thunderstorms of cloudburst proportions in summer. Year-around operation, both on surface and underground, is normal.

The property is reached over an unimproved dirt road, extending west from Utah State Highway 160 at a point 14.5 miles north of Monticello, Utah. The route is a good dry weather road as far as the Atomic Energy Commission camp, a distance of 46 miles, but is poor for the remaining 8 miles. Portions of the road are barely passable in wet weather.

All supplies must be hauled from Monticello, Utah, which is served by scheduled motor-freight lines from Grand Junction, Colo., the nearest major supply center.

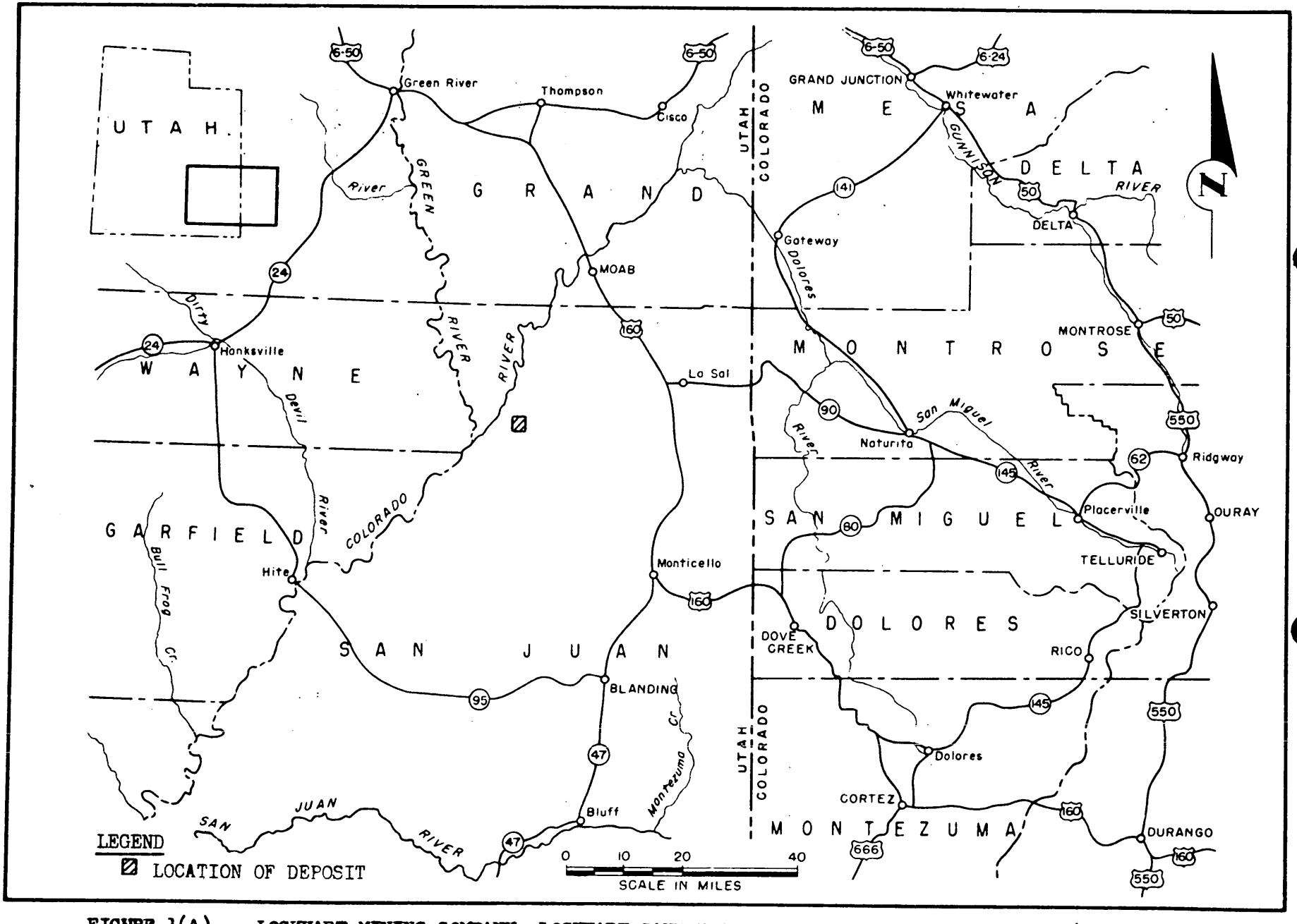

FIGURE 1(A). - LOCKHART MINING COMPANY, LOCKHART CANYON CLAIMS, SAN JUAN COUNTY, UTAH (DMEA 3245)

Firewood is obtainable on the property. Mining timber must be hauled in from lumbering operations near Monticello or Moab, Utah.

Water for both domestic and mining purposes is scarce, and in dry seasons, may have to be hauled 20 miles or more. Ponds to retain run-off can often be used to advantage. No electric power is available.

Uranium ore can be marketed at the purchasing depot of the American Smelting and Refining Company at Monticello, Utah, a distance of 70 miles.

There are no living facilities on or near the property. House trailers are the usual living quarters furnished for personnel engaged in exploratory work.

The nominal base rate for labor is $1.50 per hour, but actual rates run as much as $2.00 per hour in remote locations. Most exploratory work is carried on under contract, with the contractor furnishing his own camp facilities. Labor demand is high and it is often difficult to obtain experienced workmen in competition with operations closer to centers of population.

HISTORY, PRODUCTION, AND PROPERTY OWNERSHIP

Discovery of commercial uranium in Lockhart Canyon dates from 1951. Most claim locations have been made since 1953. Airborne reconnaissance by the Atomic Energy Commission was initiated in 1952. Fifteen anomalies were detected in this work and a camp was established to carry on more intensive prospecting. Exploratory drilling is planned for this year but no definite locations have been designated. The only production in the immediate area has come from the Cutler

No. 1 and 2 claims which are entirely surrounded by the applicants' Red Rock group. Barrett and O'Laurie produced a reported 175 tons of ore from this surface deposit in 1953. The Atomic Energy Commission reports a total of 130 tons of ore averaging 0.41 percent U_3O_8 and 0.15 percent V_2O_5 up to June 1953. Work had been resumed on the Cutler claims at the time of this examination.

After consultation with the examining team, the applicants decided not to include the 14 claims in the Red Rock group in the application, because assessment work must be done on them before a loan application could be processed. The proposed exploratory area is amply covered by the 72 claims listed in Appendix I. The claims were located in the period April 22, 1953, to January 12, 1954. The property conflicts in part with the following oil and gas leases, all in T. 28 S., R. 20 E.:

Oil and Gas Lease Number	Location
03340	S1/2 and NW1/4 sec. 9 and SW1/4 sec. 10
09154	N1/2 and SE1/4 sec. 10 and NE1/4 sec. 9
068012	All sec. 14
09155	N1/2 and SE1/4 sec. 13
03640	SW1/4 sec. 13
03938	All sec. 11

"Notice of lease applications" dated February 23, 1954, have been recorded at the San Juan County courthouse in Monticello, Utah, on pages 431 to 467 of Book 61. The recording date is February 26, 1954. The applicants had not filed the lease applications with the Atomic Energy Commission at the time of the examination but were planning to do so before April 26, 1954, the 60-day deadline under the provisions of the Commission's Domestic Uranium Program Circular 7.

Discovery monuments and location notices on claims near the mineralized outcrops which were designated for exploration were inspected by the examining team, and a random check of the location certificates on file at the courthouse in Monticello, Utah, made. The locations appear to satisfy Utah state law and Circular 7, except in regard to establishing claim corners or boundaries. This requirement does not seem to be generally observed in the region. No conflicting discovery monuments were found, but it was impractical to examine all claims or make a complete search of the records. Approval of the loan should be contingent on satisfactory validation of leases by the Atomic Energy Commission.

DESCRIPTION OF THE DEPOSITS

The uranium-vanadium ore deposits of the Lockhart Canyon area discovered to date are found in the Permian Cutler formation at several different horizons. On the applicants' ground, definite mineralized channels are exposed in at least 2 horizons and 12 locations where shallow canyons cut the gradually rising terrain at the base of cliffs of Triassic Moenkopi, Chinle, and Wingate sediments to the north and northeast (fig. 1 with the geologic report). The channels are lenticular in cross section, 15 to 40 feet in width as exposed, with a maximum thickness at the center of about 3 feet. At all the exposures seen, the normal reddish brown to purplish arkosic beds are bleached to a white sandstone which is, therefore, an excellent marker. There is usually a radioactive mudstone and/or conglomerate in the bed of the channel. At some points the mudstone

has been removed by erosion and shallow caves have been formed. The roofs of the caves may have sandstone pendants, representing depressions in the underlying mudstone, with a high uranium content. Both the sandstone outcrops above and below the channels will show a certain amount of radioactivity as much as 3 or 4 feet away, but sampling indicated that this was misleading, and apparently, the radiometric count was caused largely by mass effect of the deposit.

The long axis of the channels is not readily discernible from evidence at the outcrops but the direction of stream drainage appears variously to have been from east of north to west of north, judging from the relation of outcrops on opposite sides of a canyon which may work the same channel. The channel network probably represents what was a rapidly shifting drainage pattern with no easily recognized trend. The depth to the ore-bearing horizons increases gradually away from the outcrops, both because of the dip of the beds and the rising terrain. In the area to be explored it is not over 75 feet and holes to an average depth of 40 feet would penetrate the lowest of several possible ore horizons.

The uranium occurs as minerals of the copper-uranium type and the outcrops exhibit secondary copper-uranium minerals.

MINEABLE ORE RESERVES

There are no ore reserves developed on the property.

Radiometric means were used in examining the outcrops and only three samples were taken to check the uranium content of sandstone above and below the channel which, from radiometric readings, appeared

to be of ore grade. Apparently the readings from the sandstone were caused by mass effect, for the chemical analyses did not verify them (samples MHS-53 and -54). The results of these samples and of nine samples taken for the Atomic Energy Commission by DeVergie are shown in Appendix II.

PRESENT STATUS

Nothing has been done on the property except to locate the claims and investigate, briefly, favorable channel outcrops. The road to the property was not completed until March 1954.

No equipment of any kind has been brought in.

On the Range claims adjoining the applicants' ground on the southwest, a surface operation is being carried on by excavation of pits and open cuts. Uranium mineralization is showing at surface but, to date, no mineable deposit has been found there.

PROJECT PROPOSALS WITH COSTS

Originally, the applicants proposed exploration as follows:

300 feet drifts and crosscuts at $20.00 per foot	$ 6,000.00
2,000 feet core drilling at $3.00 per foot	6,000.00
1,000 feet wagon drilling at $1.00 per foot	1,000.00
200 hours bulldozer work at $8.00 per hour	1,600.00
New buildings (bunkhouse and kitchen) 400 square feet at $4.00 per square foot	1,600.00
Total	$16,200.00

In addition, geological consultation at $500.00 and accounting at $500.00 are listed on form MF-103, but not included in the total.

The applicants presented only a general plan of exploration.

After consultation with the examining team, a revised program incorporating a definite drilling plan acceptable to them was agreed upon. A base map showing proposed drill sites, claim boundaries, and conflicting oil and gas leases was prepared (fig. 1 with the geologic report). The Red Rock group, which was originally included in the application, has been withdrawn, and the revised program on the other claims can be carried out at a lower cost than in the original estimate.

Present limited geological data indicates that individual ore deposits in this area may be small, containing perhaps only a few hundred tons or less. The exploratory program is designed to determine at a moderate cost if any of the best exposures on the property are mineable. Planned in 2 phases, the first phase calls for 80 wagon drill holes averaging 40 feet each, or a maximum of 3,200 feet of drilling at 6 locations where the channel exposures on the rim appear to be the best. Two rows of holes on 25-foot centers would be drilled, 25 feet and 50 feet back from the rim, with 6 to 18 holes at each location (fig. 1 with the geologic report). Work under this phase would establish whether mineralization in those channels explored extends back from the rim and perhaps indicate the long axis of the deposits. It would not necessarily prove conclusively the occurrence of mineable ore bodies. If, in the opinion of the Region IV Field Team, the results of Phase I drilling justify further exploration, Phase II would be carried out, consisting of a maximum of 100 feet of drifting or crosscutting from an adit portal on one or more of the best channel outcrops, as indicated by drilling. Underground

exploration is recommended as a pilot operation, in preference to more drilling. It should demonstrate more fully the ore occurrence and grade in at least one of the channels, and other similar deposits might be evaluated in the light of the results without the need for more than the preliminary drilling. This would be particularly valuable in a new area such as Lockhart Canyon, where exploration has been very limited to date.

Wagon drilling would be satisfactory for the shallow holes in dry formations, provided a competent driller and suitable sampling procedures are used. Supervision would be required to spot drill holes and oversee sampling procedures, but geological consultation during Phase I should not be necessary, inasmuch as no hole locations are dependent on interpretation of results from previous work. A close watch on collection and disposition of samples of cuttings would be advisable to insure reliable results. Samples should be subjected to radiometric tests, and when any mineralization is indicated, they should be split, one portion saved for the Government and the other analyzed for U_3O_8, V_2O_5, and lime. With proper control of these procedures, gamma-ray logging of the holes is not considered necessary.

Estimated Cost

The cost estimate is based on contract work for bulldozing and drilling, and either contract or an operation carried on by the applicants for the drifting. The contract rates are comparable to established rates in the region. The cost of clearing access roads

and drill sites is dependent on the availability of a bulldozer in the vicinity of the property. If the machine must be moved in from Monticello, approximately $400.00 will be added to the cost. The actual time on the job should not exceed 24 hours. The estimated time for completion is 12 weeks or 3 months.

Following is an itemized cost estimate:

Phase I (estimated time for completion 6 weeks)

Contracts		
Move in and move out of D-6 tractor from Monticello (if necessary)	$ 400.00	
Clearing access roads and drill sites 24 hours bulldozing at $8.00 per hour D-6 tractor or equivalent	192.00	
Wagon drilling of 80 holes to average depth of 40 feet, or a maximum of 3,200 feet at $1.00 per foot (includes moving in and out)	3,200.00	
Total contracts		$3,792.00
Labor		None
Supervision		
1 foreman, 1-1/2 months at $500.00 per month	$750.00	
Total supervision		750.00
Technical services		None
Operating materials and supplies		
Fuel, lubricating oil, grease, and repairs on truck, 1-1/2 months at $75.00 per month	$112.50	
Total operating materials and supplies		112.50

Operating equipment			
Rental			
1 house trailer at $75.00 per month, 1-1/2 months	$112.50		
Total rental		$112.50	
Depreciation			
1 used pickup truck valued at $1,200.00 depreciated at $20.00 per month, 1-1/2 months	$30.00		
Total depreciation		30.00	
Total operating equipment			$ 142.50
Miscellaneous			
Bookkeeping (To be done by supervisor)		None	
Compensation Insurance, Social Security, unemployment tax on supervision 8 percent of $750.00		60.00	
Sampling Estimated 75 samples of drill cuttings analyzed for U_3O_8, V_2O_5, and lime at $5.00 each		375.00	
Hauling charges on tractor Maximum if necessary to haul from Monticello (See under contracts)		---	
Total miscellaneous			435.00
Total cost of Phase I, 3,200 feet of wagon drilling			$5,232.00
Over-all cost, per foot of drilling 5232/3200			$1.64
Cost per foot of drilling, less sampling and hauling 5232-775/3200			$1.36

Phase II (estimated time 6 weeks)

Contracts			None
Labor and supervision			
Labor			
1 miner at $16.00 per day with time-and-one-half for over 40 hours per week--6 weeks at $104.00 per week	$624.00		
1 mucker at $14.00 per day with time-and-one-half for over 40 hours per week--6 weeks at $91.00 per week	546.00		
Total labor		$1,170.00	
Supervision			
1 foreman, 1-1/2 months at $500.00 per month	750.00		
Total supervision		750.00	
Technical services		None	
Total labor and supervision			$1,920.00
Operating materials and supplies			
Pipe		15.00	
Track		100.00	
Explosives		165.00	
Drill bits and rods		75.00	
Fuel, lubricating oil, and grease for compressor		225.00	
Fuel, lubricating oil, grease, and repairs on truck, 1-1/2 months at $75.00 per month		112.50	
Other		50.00	
Total operating materials and supplies			742.50
Operating equipment			
Rental			
1 - 160 c.f.m. compressor at $225.00 per month, 1-1/2 months	337.50		
1 - mine car at $26.00 per month, 1-1/2 months	39.00		

1 - jackleg drifting outfit at $75.00 per month, 1-1/2 months	$112.50		
1 - house trailer at $75.00 per month, 1-1/2 months	112.50		
Total rentals		$601.50	
Depreciation			
1 used pickup truck valued at $1,200.00. Depreciated at $20.00 per month, 1-1/2 months	30.00		
Total depreciation		30.00	
Total operating equipment			$ 631.50
Miscellaneous			
Sampling and analyses			
Estimated 25 samples analyzed for U_3O_8, V_2O_5, and lime at $5.00 each		125.00	
Bookkeeping (To be done by supervisor)		None	
Compensation Insurance, Social Security, and unemployment tax			
8 percent of $1,170.00 labor	93.60		
8 percent of $750.00 supervision	60.00		
Total Compensation Insurance, etc.		153.60	
Hauling compressor in and out of Lockhart Canyon		100.00	
Total miscellaneous			378.60
Total cost Phase II, 100 feet of drifting			$3,672.60
Over-all cost per foot of drifting 3672.60/100			$36.73
Cost per foot of drifting, less sampling 3672.60-125.00/100			$35.48

Summary of Costs

	Phase I	Phase II
Contracts	$3,792.00	---
Labor and supervision	750.00	$1,920.00
Operating materials and supplies	112.50	742.50
Operating equipment	142.50	631.50
Initial rehabilitation and repairs, new buildings, and improvements	None	None
Miscellaneous	435.00	378.60
Totals	$5,232.00	$3,672.60
Total cost of project	$8,904.60	
Cost of drilling 3,200 feet of wagon drill holes, less hauling of tractor and sample cost, per foot	$1.39	
Cost of drifting 100 feet, less sampling, per foot	$35.48	

CONCLUSIONS

The proposed project would explore a completely undeveloped property in an area where the limited geological knowledge to date indicates it to be one of narrow uranium-bearing Permian stream channels in several horizons of the Cutler formation. Some of the 12 or more known mineralized outcrops may be exposures of significant uranium deposits, the continuity of which can be investigated at a reasonable cost by wagon drilling to moderate depths. Because there has been no actual underground mining experience on any of these channels, it is believed that, if preliminary drilling should indicate any channels in which mineralization is likely to continue back from the rim, more information would be gained from a limited amount of drifting on one or more of the more promising channels, than from further drilling.

The principals of the applicant company include reputable businessmen of Monticello, Utah. George M. Palmer, one of the partners who accompanied the examining team, would be responsible for supervising the operation. He appears to have a good understanding of exploratory procedures and should be competent to supervise the work without technical assistance. Supervision would be a full-time job while drilling is in progress to insure good sampling procedures.

RECOMMENDATIONS

It is recommended that a Government-assisted exploration loan in the amount of $8,930.00--Government participation 75 percent, or $6,697.50,-be approved, and a short-form contract be prepared for a two-phased program consisting of:

Phase I	
Wagon drilling 80 holes, 3,200 feet maximum as shown on figure 1 with the geologic report. The recommended cost is $1.40 per foot, or	$4,480.00
Phase II	
Drifting or crosscutting a maximum of 100 feet from adit portals on one or more channel outcrops as determined by results of Phase I. Prior approval of this work by the Region IV Field Team should be required. The recommended cost is $35.50 per foot, or	3,550.00
Hauling tractor in and out of Lockhart Canyon from Monticello, Utah. To be allowed if a machine is not available at a closer point. Maximum recommended cost	400.00
Chemical analyses of a maximum of 100 samples for U_3O_8, V_2O_5, and lime. The recommended cost is $5.00 each, or	500.00
Total maximum amount of contract	$8,930.00
Government participation, 75 percent	$6,697.50

The estimated costs are somewhat higher than average costs for comparable work on the Colorado Plateau, but are not out of line, considering the relatively small amounts of drilling and underground exploration allowed and the remote location.

Suggested Contract Provisions

The method of all sampling, of all determinations, and of recovering drill-hole cuttings are subject to Government approval.

All drill-hole cuttings of suspected mineralized material are to be sampled at not more than 1-foot intervals. Wagon-drill cuttings are to be recovered by a Duclone dust collector. Each mineralized sample is to be checked for equivalent U_3O_8 by radiometric means, and splits of such samples are to be analyzed chemically for U_3O_8, V_2O_5, and lime if the equivalent U_3O_8 determination indicates the material contains significant uranium.

Splits of drill-hole cuttings representing the entire length of all holes, taken at intervals of not more than 5 feet in barren material, and not more than 1 foot in suspected mineralized material, shall be retained for inspection by Defense Minerals Exploration Administration representatives.

When more than one horizon appears to be present at the rim, holes shall be drilled deep enough to insure penetration of the lower horizon.

A supervisor approved by the Government will be employed on a full-time basis to direct the operation, including hole spotting, collection, examination, and storing of samples, and preparation of maps and reports.

/fkp

APPENDIX I

List of Claims Owned by Lockhart Mining Company Included in DMEA 3245 Application

Name of Claim	Book	Page	Name of Claim	Book	Page
Ann	17	306	Lockhart Uranium No. 18	45	55
Nancy Ann	23	372	" " 19	45	55
Lindalee	23	373	" " 20	45	56
Julie Ann	23	372	" " 21	45	56
Christine	25	11	" " 22	45	57
Carolee	25	10	" " 23	45	57
Stephanie	25	74	" " 24	45	58
Emily	17	307	" " 25	45	58
Imogene	25	74	" " 26	45	59
Alice Marie	25	75	" " 27	45	59
Maude Agatha	39	434	" " 28	45	60
Hattie Josephine	39	434	" " 29	45	60
Alene	39	433	" " 30	45	61
Emily No. 2	39	433	" " 31	45	61
Wyman H.	39	432	" " 32	45	62
A. Jay	39	435	" " 33	45	62
Philip K.	39	435	" " 34	45	63
Jay Whitney	39	436	" " 35	45	63
Amasa M.	39	436	" " 36	47	7
George M.	39	437	" " 37	47	7
Benjamin K.	39	437	" " 38	47	8
High Boy	17	307	" " 39	47	8
Buckskin No. 1	39	430	" " 40	47	9
Lockhart Uranium No. 5	45	48	" " 41	47	9
" " 6	45	49	" " 42	47	217
" " 7	45	49	" " 43	47	218
" " 8	45	50	" " 44	47	218
" " 9	45	50	" " 45	47	219
" " 10	45	51	" " 46	47	219
" " 11	45	51	" " 47	47	220
" " 12	45	52	" " 48	47	220
" " 13	45	52	" " 49	47	221
" " 14	45	53	" " 50	47	221
" " 15	45	53	" " 51	47	222
" " 16	45	54	" " 52	47	333
" " 17	45	54	" " 53	47	333

APPENDIX II

DMEA 3245 Lockhart Uranium Company, Grand County, Utah
Sampling Results

Sample No.	Claim	Sample Width	Percent Eu	U_3O_8	V_2O_5	CaO	Description
Atomic Energy Commission samples							
30514	Lockhart No. 5	grab	0.41	0.22	0.03	14.0	
15	Emily No. 2	grab	0.74	0.64	0.06	--	
16	Lockhart No. 38	1.5-ft. cut	0.16	0.14	0.05	15.0	
17	Lockhart No. 36	grab	0.22	0.23	0.26	--	
21	Emily No. 2	3.0-ft. cut	0.05	0.06	0.23	8.0	
22	Emily No. 2	3.0-ft. cut	0.08	0.06	0.17	9.5	Above channel
23	Emily No. 2	2.5-ft. cut	0.05	0.05	0.15	13.0	Below channel
24	Emily No. 2	2.0-ft. cut	0.11	0.08	0.10	9.0	Above channel
25	Emily No. 2	1.0-ft. cut	0.26	0.07	0.03	17.0	"Hot"(?) streak E. side canyon
Samples by Bureau of Mines							
MHS-53	Lockhart No. 37	4.0-ft. chip	--	0.066	0.03	11.0	E. side canyon sandstone above channel. 1.0 to 1.5 Mr per hour
-54	Lockhart No. 36	3.0-ft. chip	--	0.051	0.02	10.8	W. side canyon--mudstone below high-grade pendants in roof.
-55	Emily No. 2	2.5-ft. cut	--	0.136	0.02	8.0	Cut across sandstone below mudstone in channel

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

224 New Customhouse
Denver 2, Colorado

August 16, 1954.

Memorandum

To: Chairman, Operating Committee, DMEA

From: DMEA Field Team, Region IV

Subject: Report of Examination - Docket No. DMEA-3245 (Uranium), Lockhart Uranium Company, San Juan County, Utah.

Enclosed are the original and three copies of the final examination report covering docket No. DMEA-3245.

Also enclosed are four copies of memoranda dated May 10, 1954 and July 26, 1954 by H. S. Johnson, geologist, U. S. Geological Survey, two copies of form 3b, and a copy of our letter of denial to the Operator.

The examining team recommended 3200 feet of wagon drilling and 100 feet of drifting dependent on the results of the drilling. The estimated cost of the proposed work was $8,930.00.

A short time after the completion of the examination report it was learned that the Atomic Energy Commission planned to explore the property, and action on the DMEA application was deferred pending the results of the Atomic Energy Commission drilling. The results of the AEC drilling are negative and the request for exploration assistance has been denied.

W H King
W. H. King

E. N. Koschmann
for A. H. Koschmann

Reviewed by
DMEA OPERATING COMMITTEE
8-25-54
(date)

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

August 16, 1954.

Memorandum

To: DMEA Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Report of Examination - Docket No. DMEA-3245 (Uranium), Lockhart Uranium Company, San Juan County, Utah.

Enclosed are the original and ten copies of the Summary, Conclusions, and Recommendations, and the original and ten copies of an engineering report on docket No. DMEA-3245.

The examining engineer recommends 80 wagon drill holes totaling 3200 feet at $11.40 per foot under Phase I, and 100 feet of drifting at $35.50 per foot under Phase II if it is justified by the results of Phase I. Transportation of a tractor at $400.00 and assaying at $500.00 bring the total estimated cost of the project to $8,930.00.

W. H. King

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
8-25-54
(date)

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

P. O. Box 360
Grand Junction, Colo.

July 26, 1954

Memorandum

To: A. H. Koschmann

From: H. S. Johnson

Through: W. P. Williams

Subject: Docket DMEA 3245 (Uranium), Lockhart Uranium Company, San Juan County, Utah

After your phone call of July 23, 1954, requesting a large scale map of the Lockhart Uranium Company claims, we checked again with Y. W. Issachsen, AEC district supervisor for the Lockhart Canyon area, to see whether there has been any change in the picture since my memo of May 10, 1954, a copy of which is enclosed. Issachen said their drilling has been completed and they have pulled out of the area. He now feels that the Cutler deposits in Lockhart Canyon have little or no potential for production and that no further exploration is warranted.

According to their monthly reports, the AEC drilled 88 wagon-drill holes, totaling 2,510 feet in the Lockhart Canyon area. At least half of this drilling was on the claims originally recommended for exploration by Salsbury and Johnson in their engineering and geologic reports. Of the 88 holes drilled, two were mineralized, but not up to ore grade, and 10 others were very weakly mineralized. All other holes were barren. Neither mineralization nor bleaching effects could be traced any appreciable distance behind rim exposures.

We still feel, as we did on May 10, that no DMEA program can be justified on the Lockhart Uranium Company claims because the AEC has already explored the property and found it wanting.

HSJ/mlr

Enclosure

DMEA OPERATING COMMITTEE
8-25-54
(date)

P. O. Box 360
Grand Junction, Colo.

May 10, 1954

Memorandum

To: W. H. King, Executive Officer, Field Team, Region IV

Through: W. P. Williams

From: H. S. Johnson, Colorado Plateau District Office

Subject: DMEA 3245, Lockhart Uranium Company, San Juan County, Utah

It has just come to our attention that the AEC has begun wagon drilling of several of the uranium occurrences in Lockhart Canyon area. About 36 holes have been divided among three of the four localities which Salsbury and Johnson recommended for exploration in their engineering and geologic reports. The holes are spaced 25 to 50 feet apart and are spotted so as to test the ground behind the mineralized outcrops on the Nancy Ann, Lindalee, Emily No. 2, and Lockhart Uranium Nos. 36, 37, and 38 claims (see Fig. 1 accompanying Johnson's geologic report). A few more holes may be drilled on Lockhart Uranium No. 37 and No. 38, but work to date indicates the deposits are sub-ore grade and do not extend for any appreciable distance behind the mineralized outcrops. Apparently this drilling on Lockhart Uranium Company claims has been done on the strength of a verbal agreement between company officials and the AEC project geologist in the Lockhart Canyon area. Y. J. Isachsen of the AEC informs us that they now consider the deposits in the Cutler formation in this area to have little or no potential for production.

Because the AEC has now tested three of the four localities proposed for exploration on the Lockhart Uranium Company claims, we do not see how we can proceed with any DMEA exploration program on those claims. As yet we have no information as to whether Lockhart Uranium Company plans to retract its application or whether they will try to push it through in spite of the unfavorable results of AEC drilling.

H. S. Johnson,
Geologist

HSJ/mlr

Reviewed by
DMEA OPERATING COMMITTEE
8-25-54
(date)

cc: G. J. file
Reading file

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Defense Minerals Exploration Administration
Denver Federal Center
Denver 2, Colorado

May 7, 1954

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Keschmann

Subject: DMEA Docket 3245, Lockhart Uranium Company, San Juan County, Utah

Enclosed are 11 copies of a geologic report by H. S. Johnson of the U. S. Geological Survey covering the above docket.

It has been recommended that the original application for DMEA assistance be denied on the grounds that it is not an efficient way to prospect the several small deposits now known, and that a contract be prepared for about 3,200 feet of wagon drilling to test four of the better mineralized places. The plan recommended is acceptable to the applicants.

E. M. Hausman
for A. H. Keschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (11)

Reviewed by
DMEA OPERATING COMMITTEE
8-25-54
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
May 6, 1954

Memorandum

To: Executive Officer, DMEA Field Team, Region IV

From: Chief, Mineral Resources Branch, Mining Division, Region IV

Subject: DMEA 3245 (Uranium), Lockhart Uranium Company (Lockhart Canyon claims), San Juan County, Utah

Transmitted herewith are the original and ten copies of the "Summary, Conclusions, and Recommendations" by M. N. Salsbury, Bureau of Mines, and H. S. Johnson, Geological Survey, and of M. N. Salsbury's engineering report on the above loan application.

Salsbury concludes the recommended exploration, considerably revised from that proposed by the applicants, but approved by them and the Atomic Energy Commission participant in the investigation, would serve to reveal some needed information on an essentially undeveloped but favorable area. He recommends 80 wagon drill holes totalling 3,200 feet at $11.40 per foot, $4,480.00, under Phase I and 100 feet of drifting at $35.50 a foot, $3,550.00, under a second phase, Phase II to be dependent on the results of Phase I and to be subject to approval by the DMEA, Region IV Field Team. In addition, he allows $400.00 for transportation of a tractor, if needed, and $500.00 for assaying, making a total for the project of $8,930.00, Government participation 75 percent or $6,697.50. A short-form, unit-cost contract is suggested.

Because the allowance of $400.00 for tractor transportation represents only a small part of the over-all cost, about 4 percent, I suggest the Government participate in its estimated cost.

A contract should not be prepared until the applicants submit written authorization to eliminate the Red Rock group from their loan request and also a copy of recording data on the "Notice of Lease Application" in accordance with my letters to them dated April 23 and May 6, 1954.

The brochure transmitted with your memorandum of January 18, 1954, instructing us to prepare a suitable report, is enclosed.

W. M. Traver

W. M. Traver

Reviewed by
DMEA OPERATING COMMITTEE
8-25-54
(date)

enclosures
WMT/mp
cc 10
RPFischer, DMEA 3245, Chron

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

April 26, 1954

Memorandum

To: A. H. Koschmann, DMEA Field Team, Region IV

From: R. P. Fischer, Supervisor, Colorado Plateau District

Subject: DMEA 3245, Lockhart Uranium Company, San Juan County, Utah

Transmitted herewith are eleven copies of a geologic report on the Lockhart Uranium Company claims, San Juan County, Utah. The company applied for assistance to explore for uranium deposits by drifting, open cut work, and drilling. The estimated total cost of the proposed work is $16,200.

The attached report was prepared by H. S. Johnson and is based on a joint field examination on April 8, in company with M. H. Salsbury, USBM, P. C. deVergie, AEC, and R. T. Chew, USGS, plus A. J. Redd and George Palmer, representing the applicants.

Johnson concludes that the applicant proposes more work than is justified, but he recommends about 3,200 feet of wagon drilling to test four mineralized areas. Salsbury and deVergie concur in this plan, and it is acceptable to the applicants. Presumably Salsbury will supply cost estimates in the engineering report.

Johnson's plan of work appears sound to me, and I recommend that an exploration contract be prepared if the applicants obtain the necessary validating lease from AEC.

R. P. Fischer

R. P. Fischer

RPF/mlr
Enclosures 11

Reviewed by
DMEA OPERATING COMMITTEE
8-25-54
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 3945, Lockhart Canyon Claims

Lockhart Uranium Company

San Juan County, Utah

Uranium

M. H. Salsbury, Mining Engineer
Bureau of Mines

N. S. Johnson, Geologist
Geological Survey

May 5, 1954

Reviewed by
DMEA OPERATING COMMITTEE
8-25-54
(date)

DMRA 3245

LOCKHART CANYON CLAIMS
LOCKHART URANIUM COMPANY
SAN JUAN COUNTY, UTAH

Summary, Conclusions, and Recommendations

By M. H. Salsbury
Mining Engineer
Bureau of Mines

H. S. Johnson
Geologist
Geological Survey

DMMA 3245

LOCKHART CANYON CLAIMS
LOCKHART URANIUM COMPANY
SAN JUAN COUNTY, UTAH

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By M. H. Salsbury and N. S. Johnson

The Lockhart Uranium Company, a partnership composed of Monticello, Utah, businessmen, has applied for Government-assisted exploration on their unpatented claims in the Lockhart Canyon area, San Juan County, Utah. An exploration project consisting of 200 hours of bulldozing for access roads and drill sites, 2,000 feet of core drilling, 1,000 feet of wagon drilling, and 300 feet of underground exploration was proposed at an estimated cost of $16,200.00--Government participation 75 percent, or $12,150.00.

The property consists of 86 claims in 2 groups, which have been located in part on conflicting oil and gas leases. Validating leases from the Atomic Energy Commission have been applied for but had not been received at the time this report was made. One group of 14 claims, the Red Rock group, has been withdrawn from the application. The other 72 claims in the Lockhart group cover the exploration sites in a revised program agreed on in a conference between the examining team and 2 of the applicants.

The revised project calls for 24 hours of bulldozing, 3,200 feet of wagon drilling, and 100 feet of drifting or crosscutting from an adit portal as a second phase to be undertaken with prior Defense Minerals Exploration Administration Region IV Field Team

authorization if the results of drilling under the first phase justify it.

The formations exposed in the vicinity of the Lockhart Uranium Company claims consist of the Permian Cutler formation, and the Triassic Moenkopi, Chinle, and Wingate formations. The beds strike approximately northwest and dip less than 5° to the northeast. Uranium has been found in white, altered arkosic sandstone at several horizons in the Cutler formation in this area, and there are at least 12 exposures of uranium-bearing channels in the walls of shallow canyons on the property. The possible channel trends it is proposed to explore are probably not at an average depth of over 40 feet.

Although exploration and production to date in the Lockhart Canyon area indicate that the ore deposits in general are likely to be small, this does not preclude the possibility of finding significant deposits. This also applies to the totally unexplored property of the Lockhart Uranium Company. The Atomic Energy Commission is planning a drilling program in the area as a result of a reconnaissance now being completed, but the sites have not been selected. A Commission representative was consulted on the proposed project under this application and concurred in the exploration plan.

If drilling indicates significant mineralization in any of the channels, underground exploration is proposed for a second phase, rather than more drilling, because it is believed that such work would yield more information on the actual worth of one or more of the occurrences, inasmuch as so little data is now available.

A two-phase exploration project consisting of 24 hours of bulldozing, 80 wagon drill holes averaging 40 feet in depth for a maximum of 3,200 feet of drilling, and 100 feet of drifting or crosscutting at an estimated cost of $8,930.00--Government participation 75 percent, or $6,697.50--is recommended for approval.

UNITED STATES DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 3245, Lockhart Uranium Company,

San Juan County, Utah

Uranium

Geologic Report

H. S. Johnson
U. S. Geological Survey

April 26, 1954

Reviewed by
DMEA OPERATING COMMITTEE
8-25-54
(date)

INTRODUCTION AND SUMMARY

The Lockhart Uranium Company of Monticello, Utah, applied (DMEA 3245) for Government aid to explore for uranium on a group of unpatented mining claims on sections 3, 4, 9, 10, 11, 12, 13, and 14, T. 28 S., R. 20 E., and sections 22 and 27, T. 29 S., R. 20 E. in San Juan County, Utah. The claims are divided into two groups, one about 5 miles south and the other about 2 miles north of Lockhart Canyon. They can be reached by a fairly good dirt road leading north 15-20 miles from the Dugout Ranch on Indian Creek. The northern group of claims (fig. 1) is in possible conflict with oil and gas leases, but the applicants state that they are in the process of applying for an AEC lease to validate their claims. The Red Rock group of claims, about 5 miles south of Lockhart Canyon, surrounds the Cutler claim, which is now controlled by Robert Barrett and Dan O'Larie. Several other claims have been staked around the Cutler claim by O'Larie and Barrett, and there is evidently some conflict between these and several claims of the Red Rock group.

In its application for DMEA aid, Lockhart Uranium Company proposed the exploration of several mineralized lenses in the Cutler formation by means of drifts, open cuts, and core or wagon drilling. The whole project is estimated to cost $16,200, of which the Government's part would be $12,170.

The properties in question were examined on April 8, 1954, by M. H. Salsbury of the Bureau of Mines, H. S. Johnson and R. T. Chew of the Geological Survey, P. C. deVergie of the Atomic Energy Commission, and A. J. Redd and George Palmer representing the Lockhart Uranium Company. The Cutler formation in this area is about 600 feet thick and is predominantly reddish brown to purple arkosic sandstone. Uranium mineralization occurs in lenses of gray-white, medium- to coarse-grained arkosic sandstone about 200 feet below the top of the Cutler formation. These white lenses are very distinctive and can be easily recognized in what are otherwise rather uniformly red sediments. The anomalous white color is probably one of the better guides to ore in the Cutler formation in the Lockhart Canyon area. In Lockhart Canyon, however, the lighter colored lenses are small and discontinuous, and the average deposit can probably not be expected to contain more than a few hundred tons of ore-grade material. There are about 12 mineralized outcrops now known on the northern group of claims. Each of these occurrences could be easily tested by shallow drilling which would probably not exceed depths of 50 feet. No mineralized outcrops are known on the southern group of claims, and no development work has been done to date on either the northern or southern groups.

Because of the small size of the mineralized lenses in the Cutler formation in the Lockhart Canyon area, it is the writer's opinion that the exploration program originally proposed by the applicant is not suitable. Drifting is an expensive way of exploration, and it is definitely not recommended as a means of testing the small mineralized lenses now known on the Lockhart Uranium Company properties. Shallow drill holes, placed so as to test four or five of the better looking deposits, would provide a great deal more information at far less expense. There is a fair chance that a program of wagon drilling might discover two or three small, but minable ore bodies. Partial but not complete repayment of the Government's share of exploration costs could probably be expected as a result of mining following a modified drilling program of this sort.

Considering the views presented above, it is hereby recommended that the applicant's original request for $16,200 for a program of drifting and drilling be denied. However, a modified program, consisting of about 80 wagon-drill holes, for a total of about 3,200 feet of wagon drilling, to test four of the better looking deposits, is recommended. Holes would average about 40 feet deep and should be placed on 25-foot centers behind mineralized outcrops. No work is recommended on the southern (Red Rock) group of claims because no mineralized outcrops are known there and several of these claims are in conflict with claims staked by Barrett and O'Larie adjacent to the Cutler claim. M. H. Salsbury, Bureau of Mines, and Paul C. deVergie, AEC geologist in charge in the Lockhart Canyon area, are in agreement with the recommendations presented herein[1/], which are also acceptable to the applicants.

1/ deVergie, P.C., personal communication

GEOLOGY

The formations exposed in the vicinity of the Lockhart Uranium Company claims near Lockhart Canyon consist of the Permian Cutler formation and the Triassic Moenkopi, Chinle, and Wingate formations.

The Cutler formation in the vicinity of Lockhart Canyon is about 600 feet thick and is composed of reddish brown to purple arkosic sandstone with a little red shale and mudstone. Near Lockhart Canyon the Cutler formation forms a wide, relatively flat bench that is amenable to prospecting by drilling. Uranium mineralization has been found at several horizons in the Cutler formation in this area.

The Moenkopi formation is about 300-400 feet thick in the Lockhart Canyon area and is composed mainly of thin bedded chocolate-brown shale and mudstone which forms a very steep cliff-like bench. Above this is the Chinle formation with the Moss Back member (formerly considered to be the Shinarump conglomerate) at the base. The Moss Back member is about 10-50 feet thick and is composed of light gray sandstone, grit, and quartz and lime pebble conglomerate. It and the overlying 100 feet or so of shales and siltstones in the Chinle formation form a broad gray-green colored band in the midst of a predominantly red section. The upper part of the Chinle formation is principally reddish brown shale and fine-grained sandstone. The Chinle formation here continues the steep cliff-like slope begun by the Moenkopi formation. The Wingate sandstone is about 300 feet thick and makes a vertical cliff at the top of the Chinle formation. It is composed of medium-grained sandstone that is cross-bedded in long sweeping tangential beds.

ORE DEPOSITS

Known uranium mineralization in the Lockhart Canyon area is confined to the Cutler formation and the Moss Back member of the Chinle formation. To date no significant deposits have been found in the Moss Back member although it is weakly mineralized at many places. The Moss Back outcrops about half-way up a steep cliff-like slope in this area and is so difficultly accessible that it has probably not been well prospected. No exploration was planned by the applicant in the Moss Back member and none is recommended at this time.

The uranium deposits in the Cutler formation in the Lockhart Canyon area occur in discontinuous lenses of gray-white arkosic sandstone and are found stratigraphically at several different horizons in the upper half of the formation. Most of these deposits are, however, at a horizon about 200 feet below the top. The mineralized portions of the ore-bearing units are gray-white in color and very distinctive when compared to the red and purple barren rock. Apparently the light color has resulted from the reduction or removal of iron from originally red sediments, and this lighter color is one of the better guides to ore in this area. Uranium and copper minerals occur together and are usually found at the bottom of the altered lens or immediately above a thin mudstone split within the altered zone. Concretions of copper and uranium minerals may occur anywhere in the altered zones.

The Cutler claim (south of the area shown on fig. 1) has been the only deposit that has been worked to any appreciable extent in the Lockhart Canyon area. Production from the claim has amounted to about 175 tons of ore that averaged 0.22 percent U_3O_8. Mining is in progress on the Cutler claim at the present time, and it is likely that another 200-300 tons or so may be taken out before the deposit is exhausted. At present there is no indication that the other known uranium occurrences in the Cutler formation in this area are any larger than the deposit on the Cutler claim. The hope for this area seems to be to find a number of small deposits of this type, each of which might produce a few hundred tons of ore.

On the Lockhart Uranium Company holdings, there are about 12 occurrences of mineralized rock now known. Each of these is associated with a white arkosic sandstone lens or channel about 5-10 feet thick and 100 feet or so wide. None of these lenses seems to be very continuous and most of the ore-grade material is confined to the lower-most foot or two. In general, the channel-like lenses trend NW in the Lockhart Canyon area. The better looking mineralized places are on the Lockhart Uranium Nos. 36, 37, 38, Lockhart Uranium No. 5, Emily No. 2, Imogene, Alice Marie, Lindalee, and Nancy Ann claims. Samples from these claims have the following assays:

Claim	Sampled by	Type sample	% eU_3O_8	% U_3O_8	% V_2O_5	% $CaCO_3$
Lockhart U No. 36	G. Palmer	Grab (?)		0.198		19.6
" " " 36	P.C. deVergie	1.5' cut	0.16	0.14	0.05	15.0
" " " 36	P.C. deVergie	Grab	0.22	0.23	0.26	
" " " 5	P.C. deVergie	Grab	0.41	0.22	0.03	14.0
Emily No. 2	G. Palmer	Grab (?)		0.252		5.85
" " 2	P.C. deVergie	Selected hotspot	0.74	0.64	0.06	
" " 2	P.C. deVergie	3' cut	0.05	0.06	0.23	8
" " 2	P.C. deVergie	3' cut	0.08	0.06	0.17	9.5
" " 2	P.C. deVergie	2.5' cut	0.05	0.05	0.15	13
" " 2	P.C. deVergie	2' cut	0.11	0.08	0.10	9
" " 2	P.C. deVergie	1' cut	0.26	0.07	0.03	17
Marie-Imogene	George Palmer	Grab (?)		0.636		
Lindalee	George Palmer	Grab (?)		0.112	0.13	24.15
Nancy Ann	George Palmer	Grab (?)		0.112	0.16	16.60
" "	George Palmer	Grab (?)		0.147	0.11	11.85
" "	George Palmer	Grab (?)		0.185	0.15	23.55

To date there has been no development work on any of the claims mentioned above.

PROPOSED EXPLORATION

In its original application, Lockhart Uranium Company proposed a program of exploration by drifts, open cuts, and core and wagon drilling. The total cost of this program was estimated to be $16,200. No detailed plans were submitted to show where drifting or drilling was desired.

After examining the better mineralized places in the field, the writer feels that the exploration proposed by Lockhart Uranium Company is far too extensive considering the small size and the character of the deposits in the Lockhart Canyon area. Drifting is expensive exploration and would serve to give information on a very limited portion of the deposits. A modified program of wagon drilling could be expected to provide much information on the better deposits at far less expense. A program of this sort should consist of about 80 wagon drill holes equally divided between four of the better deposits.

These holes would average about 40 feet in depth and should be drilled on 25-foot centers behind the mineralized outcrops. Cuttings should be collected in 2 foot runs from top to bottom of each hole and chemical assays run for uranium, vanadium, copper, and $CaCO_3$ on any sample that shows radioactivity or copper mineralization. Radiometric probing of each hole after drilling would be helpful, but not absolutely necessary. All holes should be drilled on approximately 25-foot centers as specified: Lockhart Uranium No. 36 claim, 7 holes in two lines about 25 feet behind the mineralized outcrop; Lockhart Uranium No. 37 claim, 7 holes in two lines about 25 feet behind the mineralized outcrop; Lockhart Uranium No. 38 claim, 6 holes in two lines about 25 feet behind the mineralized outcrop; Lockhart Uranium No. 5 claim, 6 holes in a line about 25 feet behind the mineralized outcrop; Emily No. 2 claim, 14 holes in two lines about 25 feet behind the mineralized outcrop; Imogene and Alice Marie claims, 10 holes in a line about 25 feet behind the mineralized outcrop and a second line of 10 holes about 25 feet behind the more favorable holes in the first line; Lindalee and Nancy Ann claims, 10 holes in a line about 25 feet behind the mineralized outcrop, and a second line of 10 holes about 25 feet behind the first line. The positions of all the known mineralized outcrops are shown on figure 1.

CONCLUSIONS AND RECOMMENDATIONS

Uranium-copper mineralization occurs in lenses of gray-white arkosic sandstone about 200 feet below the top of the Cutler formation in the Lockhart Canyon area, San Juan County, Utah. There are 12 mineralized places now known on the claims held by the Lockhart Uranium Company, and there is a fair chance that each of two or three of these deposits may contain a few hundred tons of ore-grade material.

Because of the small size and tenuous character of these deposits it is felt that the applicant's original program of exploration is not suitable. A program of wagon drilling totaling about 3,200 feet of hole would give much information at less expense. Such a modified drilling program might discover two or three small deposits containing a few hundred tons of ore. Partial but not complete repayment of the Government's investment might be expected from exploration of this type.

It is hereby recommended that the original application for DMEA assistance be denied on the grounds that it is not an efficient way to prospect the several small deposits now known. It is recommended, however, that a contract be prepared for about 3,200 feet of wagon drilling to test four of the better mineralized places. M. H. Salsbury, Bureau of Mines, and P. C. deVergie of the U. S. Atomic Energy Commission, are in agreement with the conclusions and recommendations presented herein[2/], and the plan recommended is acceptable to the applicants.

2/ deVergie, P. C., personal communication.

DMRA 3245

LOCKHART CANYON CLAIMS
LOCKHART URANIUM COMPANY
SAN JUAN COUNTY, UTAH

Engineering Report

By M. H. Salsbury
Mining Engineer
Bureau of Mines

Reviewed by
DMEA OPERATING COMMITTEE
8-25-54
(date)

DMEA 3845

LOCKHART CANYON CLAIMS
LOCKHART URANIUM COMPANY
SAN JUAN COUNTY, UTAH

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ILLUSTRATIONS

Figure — Follows page

1. Claim map adapted from information submitted by Lockhart Uranium Company, Monticello, Utah..... *
1(A). Lockhart Mining Company, Lockhart Canyon claims, San Juan County, Utah..... 2

APPENDIX

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II DMEA 3845 Lockhart Uranium Company, Grand County, Utah, sampling results..... 18

*See figure 1 with geologic report.

DMEA 3245

LOCKHART CANYON CLAIMS
LOCKHART URANIUM COMPANY
SAN JUAN COUNTY, UTAH

ENGINEERING REPORT

By M. H. Salsbury

INTRODUCTION

The Lockhart Uranium Company of Monticello, Utah, a partnership, has made application for Defense Minerals Exploration Administration assistance in a project to explore for uranium two groups, totaling 86 unpatented mining claims, in T. 28 S. and T. 29 S., R. 20 E., Salt Lake meridian, Lockhart Canyon, San Juan County, Utah. The proposed project under DMEA 3245 called for 300 feet of lateral work underground, 2,000 feet of core drilling, 1,000 feet of wagon drilling, 200 hours of bulldozing for drill sites and access roads, and camp construction, at a total estimated cost of $16,200.00--Government participation 75 percent, or $12,150.00.

A field investigation was made on April 8, 1954, by a Region IV examining team, representing the Bureau of Mines and Geological Survey.

ACKNOWLEDGMENTS

The examining team was accompanied by Paul C. DeVergie, Atomic Energy Commission geologist, in charge of the Lockhart Canyon camp, Randall Chew of the Geological Survey, and George H. Palmer and A. J. Redd, partners of the applicant company. DeVergie concurred in

the conclusions. An Atomic Energy Commission publication, RME-403A, "Reconnaissance of Uranium Deposits in Lockhart Canyon, Indian Creek Area," has been published.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The applicants' property in the Lockhart Canyon area consists of the Red Rock group of 14 claims in secs. 22 and 27, T. 29 S., R. 20 E. and a group of 72 claims in secs. 3, 4, 9, 10, 11, 12, 13, and 14, T. 28 S., R. 20 E., Salt Lake meridian (fig. 1(A).

The region is typical of the Colorado Plateau, with steep-walled canyons cut in tableland by tributaries of the Colorado River. The claims are in an area at the base of a high cliff on terraced benches intersected by a network of shallow canyons. The altitude of the property is about 4,500 feet. The climate is very dry with hot summers and mild winters. There may be occasional severe storms in winter and violent thunderstorms of cloudburst proportions in summer. Year-around operation, both on surface and underground, is normal.

The property is reached over an unimproved dirt road, extending west from Utah State Highway 160 at a point 14.5 miles north of Monticello, Utah. The route is a good dry weather road as far as the Atomic Energy Commission camp, a distance of 46 miles, but is poor for the remaining 8 miles. Portions of the road are barely passable in wet weather.

All supplies must be hauled from Monticello, Utah, which is served by scheduled motor-freight lines from Grand Junction, Colo., the nearest major supply center.

Firewood is obtainable on the property. Mining timber must be hauled in from lumbering operations near Monticello or Moab, Utah.

Water for both domestic and mining purposes is scarce, and in dry seasons, may have to be hauled 20 miles or more. Ponds to retain run-off can often be used to advantage. No electric power is available.

Uranium ore can be marketed at the purchasing depot of the American Smelting and Refining Company at Monticello, Utah, a distance of 70 miles.

There are no living facilities on or near the property. House trailers are the usual living quarters furnished for personnel engaged in exploratory work.

The nominal base rate for labor is $1.50 per hour, but actual rates run as much as $2.00 per hour in remote locations. Most exploratory work is carried on under contract, with the contractor furnishing his own camp facilities. Labor demand is high and it is often difficult to obtain experienced workmen in competition with operations closer to centers of population.

HISTORY, PRODUCTION, AND PROPERTY OWNERSHIP

Discovery of commercial uranium in Lockhart Canyon dates from 1951. Most claim locations have been made since 1953. Airborne reconnaissance by the Atomic Energy Commission was initiated in 1952. Fifteen anomalies were detected in this work and a camp was established to carry on more intensive prospecting. Exploratory drilling is planned for this year but no definite locations have been designated. The only production in the immediate area has come from the Cutler

No. 1 and 2 claims which are entirely surrounded by the applicants' Red Rock group. Barrett and O'Laurie produced a reported 175 tons of ore from this surface deposit in 1953. The Atomic Energy Commission reports a total of 130 tons of ore averaging 0.41 percent U_3O_8 and 0.15 percent V_2O_5 up to June 1953. Work had been resumed on the Cutler claims at the time of this examination.

After consultation with the examining team, the applicants decided not to include the 14 claims in the Red Rock group in the application, because assessment work must be done on them before a loan application could be processed. The proposed exploratory area is amply covered by the 72 claims listed in Appendix I. The claims were located in the period April 22, 1953, to January 12, 1954. The property conflicts in part with the following oil and gas leases, all in T. 28 S., R. 20 E.:

Oil and Gas Lease Number	Location
03340	S1/2 and NW1/4 sec. 9 and SW1/4 sec. 10
09154	N1/2 and SE1/4 sec. 10 and NE1/4 sec. 9
068012	All sec. 14
09153	N1/2 and SE1/4 sec. 13
03640	SW1/4 sec. 13
03938	All sec. 11

"Notice of lease applications" dated February 23, 1954, have been recorded at the San Juan County courthouse in Monticello, Utah, on pages 431 to 467 of Book 61. The recording date is February 26, 1954. The applicants had not filed the lease applications with the Atomic Energy Commission at the time of the examination but were planning to do so before April 26, 1954, the 60-day deadline under the provisions of the Commission's Domestic Uranium Program Circular 7.

Discovery monuments and location notices on claims near the mineralized outcrops which were designated for exploration were inspected by the examining team, and a random check of the location certificates on file at the courthouse in Monticello, Utah, made. The locations appear to satisfy Utah state law and Circular 7, except in regard to establishing claim corners or boundaries. This requirement does not seem to be generally observed in the region. No conflicting discovery monuments were found, but it was impractical to examine all claims or make a complete search of the records. Approval of the loan should be contingent on satisfactory validation of leases by the Atomic Energy Commission.

DESCRIPTION OF THE DEPOSITS

The uranium-vanadium ore deposits of the Lockhart Canyon area discovered to date are found in the Permian Cutler formation at several different horizons. On the applicants' ground, definite mineralized channels are exposed in at least 2 horizons and 12 locations where shallow canyons cut the gradually rising terrain at the base of cliffs of Triassic Moenkopi, Chinle, and Wingate sediments to the north and northeast (fig. 1 with the geologic report). The channels are lenticular in cross section, 15 to 40 feet in width as exposed, with a maximum thickness at the center of about 3 feet. At all the exposures seen, the normal reddish brown to purplish arkosic beds are bleached to a white sandstone which is, therefore, an excellent marker. There is usually a radioactive mudstone and/or conglomerate in the bed of the channel. At some points the mudstone

has been removed by erosion and shallow caves have been formed. The roofs of the caves may have sandstone pendants, representing depressions in the underlying mudstone, with a high uranium content. Both the sandstone outcrops above and below the channels will show a certain amount of radioactivity as much as 3 or 4 feet away, but sampling indicated that this was misleading, and apparently, the radiometric count was caused largely by mass effect of the deposit.

The long axis of the channels is not readily discernible from evidence at the outcrops but the direction of stream drainage appears variously to have been from east of north to west of north, judging from the relation of outcrops on opposite sides of a canyon which may work the same channel. The channel network probably represents what was a rapidly shifting drainage pattern with no easily recognized trend. The depth to the ore-bearing horizons increases gradually away from the outcrops, both because of the dip of the beds and the rising terrain. In the area to be explored it is not over 75 feet and holes to an average depth of 40 feet would penetrate the lowest of several possible ore horizons.

The uranium occurs as minerals of the copper-uranium type and the outcrops exhibit secondary copper-uranium minerals.

MINEABLE ORE RESERVES

There are no ore reserves developed on the property.

Radiometric means were used in examining the outcrops and only three samples were taken to check the uranium content of sandstone above and below the channel which, from radiometric readings, appeared

to be of ore grade. Apparently the readings from the sandstone were caused by mass effect, for the chemical analyses did not verify them (samples MRS-53 and -54). The results of these samples and of mine samples taken for the Atomic Energy Commission by DeVergie are shown in Appendix II.

PRESENT STATUS

Nothing has been done on the property except to locate the claims and investigate, briefly, favorable channel outcrops. The road to the property was not completed until March 1954.

No equipment of any kind has been brought in.

On the Range claims adjoining the applicants' ground on the southwest, a surface operation is being carried on by excavation of pits and open cuts. Uranium mineralization is showing at surface but, to date, no mineable deposit has been found there.

PROJECT PROPOSALS WITH COSTS

Originally, the applicants proposed exploration as follows:

300 feet drifts and crosscuts at $20.00 per foot	$ 6,000.00
2,000 feet core drilling at $3.00 per foot	6,000.00
1,000 feet wagon drilling at $1.00 per foot	1,000.00
200 hours bulldozer work at $8.00 per hour	1,600.00
New buildings (bunkhouse and kitchen) 400 square feet at $4.00 per square foot	1,600.00
Total	$16,200.00

In addition, geological consultation at $500.00 and accounting at $500.00 are listed on form NF-103, but not included in the total.

The applicants presented only a general plan of exploration.

After consultation with the examining team, a revised program incorporating a definite drilling plan acceptable to them was agreed upon. A base map showing proposed drill sites, claim boundaries, and conflicting oil and gas leases was prepared (fig. 1 with the geologic report). The Red Rock group, which was originally included in the application, has been withdrawn, and the revised program on the other claims can be carried out at a lower cost than in the original estimate.

Present limited geological data indicates that individual ore deposits in this area may be small, containing perhaps only a few hundred tons or less. The exploratory program is designed to determine at a moderate cost if any of the best exposures on the property are minable. Planned in 2 phases, the first phase calls for 80 wagon drill holes averaging 40 feet each, or a maximum of 3,200 feet of drilling at 6 locations where the channel exposures on the rim appear to be the best. Two rows of holes on 25-foot centers would be drilled, 25 feet and 50 feet back from the rim, with 6 to 18 holes at each location (fig. 1 with the geologic report). Work under this phase would establish whether mineralization in those channels explored extends back from the rim and perhaps indicate the long axis of the deposits. It would not necessarily prove conclusively the occurrence of minable ore bodies. If, in the opinion of the Region IV Field Team, the results of Phase I drilling justify further exploration, Phase II would be carried out, consisting of a maximum of 100 feet of drifting or crosscutting from an adit portal on one or more of the best channel outcrops, as indicated by drilling. Underground

exploration is recommended as a pilot operation, in preference to more drilling. It should demonstrate more fully the ore occurrence and grade in at least one of the channels, and other similar deposits might be evaluated in the light of the results without the need for more than the preliminary drilling. This would be particularly valuable in a new area such as Lockhart Canyon, where exploration has been very limited to date.

Wagon drilling would be satisfactory for the shallow holes in dry formations, provided a competent driller and suitable sampling procedures are used. Supervision would be required to spot drill holes and oversee sampling procedures, but geological consultation during Phase I should not be necessary, inasmuch as no hole locations are dependent on interpretation of results from previous work. A close watch on collection and disposition of samples of cuttings would be advisable to insure reliable results. Samples should be subjected to radiometric tests, and when any mineralization is indicated, they should be split, one portion saved for the Government and the other analyzed for U_3O_8, V_2O_5, and lime. With proper control of these procedures, gamma-ray logging of the holes is not considered necessary.

Estimated Cost

The cost estimate is based on contract work for bulldozing and drilling, and either contract or an operation carried on by the applicants for the drifting. The contract rates are comparable to established rates in the region. The cost of clearing access roads

and drill sites is dependent on the availability of a bulldozer in the vicinity of the property. If the machine must be moved in from Monticello, approximately $400.00 will be added to the cost. The actual time on the job should not exceed 24 hours. The estimated time for completion is 12 weeks or 3 months.

Following is an itemized cost estimate:

Phase I (estimated time for completion 6 weeks)

Contracts		
Move in and move out of D-6 tractor from Monticello (if necessary)	$ 400.00	
Clearing access roads and drill sites 24 hours bulldozing at $8.00 per hour D-6 tractor or equivalent	192.00	
Wagon drilling of 80 holes to average depth of 40 feet, or a maximum of 3,200 feet at $1.00 per foot (includes moving in and out)	1,200.00	
Total contracts		$3,792.00
Labor		None
Supervision		
1 foreman, 1-1/2 months at $500.00 per month	$750.00	
Total supervision		750.00
Technical services		None
Operating materials and supplies		
Fuel, lubricating oil, grease, and repairs on truck, 1-1/2 months at $75.00 per month	$112.50	
Total operating materials and supplies		112.50

Operating equipment

Rental

1 house trailer at $75.00 per month, 1-1/2 months	$112.50		
Total rental		$112.50	
Depreciation			
1 used pickup truck valued at $1,200.00 depreciated at $20.00 per month, 1-1/2 months	$30.00		
Total depreciation		30.00	
Total operating equipment			$ 142.50

Miscellaneous

Bookkeeping (To be done by supervisor)		None	
Compensation Insurance, Social Security, unemployment tax on supervision 8 percent of $750.00		60.00	
Sampling Estimated 75 samples of drill cuttings analysed for U_3O_8, V_2O_5, and lime at $5.00 each		375.00	
Hauling charges on tractor Maximum if necessary to haul from Monticello (See under contracts)		---	
Total miscellaneous			435.00
Total cost of Phase I, 3,200 feet of wagon drilling			$5,232.00
Over-all cost, per foot of drilling 5232/3200			$1.64
Cost per foot of drilling, less sampling and hauling 5232-775/3200			$1.36

Phase II (estimated time 6 weeks)

Contracts				None
Labor and supervision				
Labor				
1 miner at $16.00 per day with time-and-one-half for over 40 hours per week--6 weeks at $104.00 per week	$624.00			
1 mucker at $14.00 per day with time-and-one-half for over 40 hours per week--6 weeks at $91.00 per week	546.00			
Total labor		$1,170.00		
Supervision				
1 foreman, 1-1/2 months at $500.00 per month	750.00			
Total supervision		750.00		
Technical services		None		
Total labor and supervision			$1,920.00	
Operating materials and supplies				
Pipe		15.00		
Truck		100.00		
Explosives		165.00		
Drill bits and rods		75.00		
Fuel, lubricating oil, and grease for compressor		225.00		
Fuel, lubricating oil, grease, and repairs on truck, 1-1/2 months at $75.00 per month		112.50		
Other		50.00		
Total operating materials and supplies				742.50
Operating equipment				
Rental				
1 - 160 c.f.m. compressor at $225.00 per month, 1-1/2 months	337.50			
1 - mine car at $26.00 per month, 1-1/2 months	39.00			

1 - jackleg drifting outfit at $75.00 per month, 1-1/2 months	$112.50		
1 - house trailer at $75.00 per month, 1-1/2 months	112.50		
Total rentals		$601.50	
Depreciation			
1 used pickup truck valued at $1,200.00. Depreciated at $20.00 per month, 1-1/2 months	30.00		
Total depreciation		30.00	
Total operating equipment			$ 631.50
Miscellaneous			
Sampling and analyses			
Estimated 25 samples analyzed for U_3O_8, V_2O_5, and lime at $5.00 each		125.00	
Bookkeeping (To be done by supervisor)		None	
Compensation Insurance, Social Security, and unemployment tax			
8 percent of $1,170.00 labor	93.60		
8 percent of $750.00 supervision	60.00		
Total Compensation Insurance, etc.		153.60	
Hauling compressor in and out of Lockhart Canyon		100.00	
Total miscellaneous			378.60
Total cost Phase II, 100 feet of drifting			$3,672.60
Over-all cost per foot of drifting 3672.60/100			$36.73
Cost per foot of drifting, less sampling 3672.60-125.00/100			$35.48

Summary of Costs

	Phase I	Phase II
Contracts	$3,792.00	---
Labor and supervision	750.00	$1,920.00
Operating materials and supplies	112.50	742.50
Operating equipment	142.50	631.50
Initial rehabilitation and repairs, new buildings, and improvements	None	None
Miscellaneous	435.00	378.60
Totals	$5,232.00	$3,672.60
Total cost of project	$8,904.60	
Cost of drilling 3,200 feet of wagon drill holes, less hauling of tractor and sample cost, per foot	$1.39	
Cost of drifting 100 feet, less sampling, per foot	$35.48	

CONCLUSIONS

The proposed project would explore a completely undeveloped property in an area where the limited geological knowledge to date indicates it to be one of narrow uranium-bearing Permian stream channels in several horizons of the Cutler formation. Some of the 12 or more known mineralized outcrops may be exposures of significant uranium deposits, the continuity of which can be investigated at a reasonable cost by wagon drilling to moderate depths. Because there has been no actual underground mining experience on any of these channels, it is believed that, if preliminary drilling should indicate any channels in which mineralization is likely to continue back from the rim, more information would be gained from a limited amount of drifting on one or more of the more promising channels, than from further drilling.

The principals of the applicant company include reputable businessmen of Monticello, Utah. George M. Palmer, one of the partners who accompanied the examining team, would be responsible for supervising the operation. He appears to have a good understanding of exploratory procedures and should be competent to supervise the work without technical assistance. Supervision would be a full-time job while drilling is in progress to insure good sampling procedures.

RECOMMENDATIONS

It is recommended that a Government-assisted exploration loan in the amount of $8,930.00--Government participation 75 percent, or $6,697.50--be approved, and a short-form contract be prepared for a two-phased program consisting of:

Phase I	
Wagon drilling 80 holes, 3,200 feet maximum as shown on figure 1 with the geologic report. The recommended cost is $1.40 per foot, or	$4,480.00
Phase II	
Drifting or crosscutting a maximum of 100 feet from adit portals on one or more channel outcrops as determined by results of Phase I. Prior approval of this work by the Region IV Field Team should be required. The recommended cost is $35.50 per foot, or	3,550.00
Hauling tractor in and out of Lockhart Canyon from Monticello, Utah. To be allowed if a machine is not available at a closer point. Maximum recommended cost	400.00
Chemical analyses of a maximum of 100 samples for U_3O_8, V_2O_5, and lime. The recommended cost is $5.00 each, or	500.00
Total maximum amount of contract	$8,930.00
Government participation, 75 percent	$6,697.50

The estimated costs are somewhat higher than average costs for comparable work on the Colorado Plateau, but are not out of line, considering the relatively small amounts of drilling and underground exploration allowed and the remote location.

Suggested Contract Provisions

The method of all sampling, of all determinations, and of recovering drill-hole cuttings are subject to Government approval.

All drill-hole cuttings of suspected mineralized material are to be sampled at not more than 1-foot intervals. Wagon-drill cuttings are to be recovered by a Duclone dust collector. Each mineralized sample is to be checked for equivalent U_3O_8 by radiometric means, and splits of such samples are to be analyzed chemically for U_3O_8, V_2O_5, and lime if the equivalent U_3O_8 determination indicates the material contains significant uranium.

Splits of drill-hole cuttings representing the entire length of all holes, taken at intervals of not more than 5 feet in barren material, and not more than 1 foot in suspected mineralized material, shall be retained for inspection by Defense Minerals Exploration Administration representatives.

When more than one horizon appears to be present at the rim, holes shall be drilled deep enough to insure penetration of the lower horizon.

A supervisor approved by the Government will be employed on a full-time basis to direct the operation, including hole spotting, collection, examination, and storing of samples, and preparation of maps and reports.

/fkp

APPENDIX I

List of Claims Owned by Lockhart Mining Company Included in [redacted] 3245 Application

Name of Claim	Book	Page
Ann	17	306
Nancy Ann	23	372
Lindalee	23	373
Julie Ann	23	372
Christine	25	11
Carolee	25	10
Stephanie	25	74
Emily	17	307
Inogene	25	74
Alice Marie	25	75
Maude Agatha	39	434
Hattie Josephine	39	434
Alene	39	433
Emily No. 2	39	433
Wyman N.	39	432
A. Jay	39	435
Philip K.	39	435
Jay Whitney	39	436
Amasa M.	39	436
George M.	39	437
Benjamin K.	39	437
High Boy	17	307
Buckskin No. 1	39	430
Lockhart Uranium No. 5	45	48
" " 6	45	49
" " 7	45	49
" " 8	45	50
" " 9	45	50
" " 10	45	51
" " 11	45	51
" " 12	45	52
" " 13	45	52
" " 14	45	53
" " 15	45	53
" " 16	45	54
" " 17	45	54

Name of Claim	Book	Page
Lockhart Uranium No. 18	45	55
" " 19	45	55
" " 20	45	56
" " 21	45	56
" " 22	45	57
" " 23	45	57
" " 24	45	58
" " 25	45	58
" " 26	45	59
" " 27	45	59
" " 28	45	60
" " 29	45	60
" " 30	45	61
" " 31	45	61
" " 32	45	62
" " 33	45	62
" " 34	45	63
" " 35	45	63
" " 36	47	7
" " 37	47	7
" " 38	47	8
" " 39	47	8
" " 40	47	9
" " 41	47	9
" " 42	47	217
" " 43	47	218
" " 44	47	218
" " 45	47	219
" " 46	47	219
" " 47	47	220
" " 48	47	220
" " 49	47	221
" " 50	47	221
" " 51	47	222
" " 52	47	333
" " 53	47	333

APPENDIX II

DMEA 3245 Lockhart Uranium Company, Grand County, Utah
Sampling Results

Sample No.	Claim	Sample Width	Percent Eu	U_3O_8	V_2O_5	CaO	Description
Atomic Energy Commission samples							
30514	Lockhart No. 5	grab	0.41	0.22	0.03	14.0	
15	Baily No. 2	grab	0.74	0.64	0.06	--	
16	Lockhart No. 38	1.5-ft. cut	0.16	0.14	0.05	15.0	
17	Lockhart No. 36	grab	0.22	0.23	0.26	--	
21	Baily No. 2	3.0-ft. cut	0.05	0.06	0.23	8.0	
22	Baily No. 2	3.0-ft. cut	0.08	0.06	0.17	9.5	Above channel
23	Baily No. 2	2.5-ft. cut	0.05	0.05	0.15	13.0	Below channel
24	Baily No. 2	2.0-ft. cut	0.11	0.08	0.10	9.0	Above channel
25	Baily No. 2	1.0-ft. cut	0.26	0.07	0.03	17.0	"Hot"(?) streak E. side canyon
Samples by Bureau of Mines							
MMS-53	Lockhart No. 37	4.0-ft. chip	--	0.066	0.03	11.0	E. side canyon sandstone above channel. 1.0 to 1.5 Mr per hour
-54	Lockhart No. 36	3.0-ft. chip	--	0.051	0.02	10.8	W. side canyon--mudstone below high-grade pendants in roof.
-55	Baily No. 2	2.5-ft. cut	--	0.136	0.02	8.0	Cut across sandstone below mudstone in channel

8-26-54
a.u.

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

[illegible] New Customhouse
Denver 2, Colorado

August 19, 1954.

Mr. George M. Palmer
Lockhart Uranium Company
Monticello, Utah

Re: Docket No. DMEA-3245, Lockhart Uranium Company, San Juan County, Utah

Dear Mr. Palmer:

Reference is made to your application for exploration assistance, Docket No. DMEA-3245.

A field examination by the Defense Minerals Exploration Administration engineers and geologists and subsequent drilling by the Atomic Energy Commission indicate that the proposed exploration will not disclose a significant amount of uranium.

We regret that we must deny your application for exploration assistance.

Very truly yours,

W H King

W. H. King
DMEA Field Team
Region IV

E H Koschmann
for A. H. Koschmann
DMEA Field Team
Region IV

JFS:cwm

cc: Docket
Administrator, DMEA
AHKoschmann
WMTraver
Chron.

Reviewed by
DMEA OPERATING COMMITTEE
8-25-54
(date)

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

224 New Customhouse
Denver 2, Colorado

August 13, 1954.

Mr. George M. Palmer
Lockhart Uranium Company
Monticello, Utah

Re: Docket No. DMEA-3245, Lockhart Uranium Company, San Juan County, Utah

Dear Mr. Palmer:

Reference is made to your application for exploration assistance, Docket No. DMEA-3245.

A field examination by the Defense Minerals Exploration Administration engineers and geologists and subsequent drilling by the Atomic Energy Commission indicate that the proposed exploration will not disclose a significant amount of uranium.

We regret that we must deny your application for exploration assistance.

Very truly yours,

W H King

W. H. King
DMEA Field Team
Region IV

E. N. Koschmann
for A. H. Koschmann
DMEA Field Team
Region IV

JFS:cwm

cc: Docket
Administrator, DMEA
AHKoschmann
WMTraver
Chron.

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

224 New Customhouse
Denver 2, Colorado

May 12, 1954

Memorandum

To: C. O. Mittendorf

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA 3245 (Uranium), Lockhart Uranium Company, San Juan County, Utah.

Enclosed for your records are two copies of the following material relevant to the subject application:

1. Memorandum from H. S. Johnson, Geologist, Colorado Plateau District Office, U. S. Geological Survey, dated May 10, 1954.

2. Memorandum from W. P. Williams, Geologist, Colorado Plateau District, U. S. Geological Survey, dated May 10, 1954, transmitting the memorandum under Item 1 from H. S. Johnson.

3. Memorandum from this office dated May 11 to W. P. Williams acknowledging receipt of material under Items 1 and 2.

4. Letter to the operators from this office dated May 11, advising them that further processing of their application would be deferred until results of the AEC drilling are known.

As it may be some time before all results of the AEC drilling are known to enable us to continue processing the application, we are, as of this date, placing the application in inactive status.

John F. Shaw
John F. Shaw
For W. H. King

Enclosures

224 New Customhouse
Denver 2, Colorado

May 11, 1954

Messrs. George M. Palmer,
A.J. Redd, B.K. Hess,
and Wyman H. Redd
Lockhart Uranion Co.
Monticello, Utah

Re: Docket DMEA 3245 (Uranium)
Lockhart Uranium Company
San Juan County, Utah

Gentlemen:

Reference is made to your application as referenced above for Government assistance in exploration under the Defense Minerals Exploration Administration program.

We have been informed that the Atomic Energy Commission is conducting exploratory drilling in three of the four areas proposed for Government assistance under the DMEA program as a modification of your original application. Further processing of your application for Government assistance under the DMEA program will be deferred until the results of the AEC drilling are known.

You will be advised of the action taken on your application when all facts are made known to this office.

Very truly yours,

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

JWT:jp

cc: Docket
Chron
WPWilliams
AHKoschmann
WMTraver
JWTownsend
COMittendorf (2)

224 New Customhouse
Denver 2, Colorado

May 11, 1954

Memorandum

To: W. P. Williams

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 3245 (Uranium), Lockhart Uranium Co., San Juan County, Utah

Receipt is acknowledged of your memorandum of May 10, 1954 to which you attached a memorandum from H. S. Johnson of the same date relative to exploratory drilling being performed by the AEC in areas the subject of a modified exploration program under Docket DMEA 3245.

Your prompt forwarding of the information is greatly appreciated. It appears that a supplemental report from you forwarded through the usual channels will be in order when the results of the AEC drilling are known.

Enclosed is a copy of a letter to the applicants advising them of such a deferment in the further processing of their application.

W. H. King

Enclosure

JWT:jp

cc: Docket
Chron
AHKoschmann)
WMTraver)
JWTownsend)
COMittendorf (2))
w/copy Williams' memo & attachment

UNITED STATES
DEPARTMENT OF THE INTERIOR
Geological Survey
P. O. Box 360
Grand Junction, Colo.

C
O
P
Y

May 10, 1954

Memorandum

To: W. H. King, Executive Officer, Field Team, Region IV

From: W. P. Williams, Colorado Plateau District

Subject: DMEA 3245, Lockhart Uranium Company, San Juan County, Utah

Because the AEC is now doing exploration drilling on the above-referenced property, we strongly recommend not processing the application any further at this time.

A memorandum attached hereto, from H. S. Johnson, gives more detailed information on the subject application.

/s/ W. P. Williams
Geologist

WPW/mlr

Enclosure

UNITED STATES
DEPARTMENT OF THE INTERIOR
Geological Survey
P. O. Box 360
Grand Junction, Colo.

C
O
P
Y

May 10, 1954

Memorandum

To: W. H. King, Executive Officer, Field Team, Region IV

From: H. S. Johnson, Colorado Plateau District Office

Subject: DMEA 3245, Lockhart Uranium Company, San Juan County, Utah

It has just come to our attention that the AEC has begun wagon drilling of several of the uranium occurrences in Lockhart Canyon area. About 36 holes have been divided among three of the four localities which Salsbury and Johnson recommended for exploration in their engineering and geologic reports. The holes are spaced 25 to 50 feet apart and are spotted so as to test the ground behind the mineralized outcrops on the Nancy Ann, Lindalee, Emily No. 2, and Lockhart Uranium Nos. 36, 37, and 38 claims (see Fig. 1 accompanying Johnson's geologic report). A few more holes may be drilled on Lockhart Uranium No. 37 and No. 38, but work to date indicates the deposits are sub-ore grade and do not extend for any appreciable distance behind the mineralized outcrops. Apparently this drilling on Lockhart Uranium Company claims has been done on the strength of a verbal agreement between company officials and the AEC project geologist in the Lockhart Canyon area. Y. W. Isachsen of the AEC informs us that they now consider the deposits in the Cutler formation in this area to have little or no potential for production.

Because the AEC has now tested three of the four localities proposed for exploration on the Lockhart Uranium Company claims, we do not see how we can proceed with any DMEA exploration program on these claims. As yet we have no information as to whether Lockhart Uranium Company plans to retract its application or whether they will try to push it through in spite of the unfavorable results of AEC drilling.

H. S. Johnson,
Geologist

HSJ/mlr

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

224 New Customhouse
Denver 2, Colorado

May 12, 1954

Memorandum

To: C. [illegible]. Mittendorf

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA 3245 (Uranium), Lockhart Uranium Company, San Juan County, Utah.

Enclosed for your records are two copies of the following material relevant to the subject application:

1. Memorandum from H. S. Johnson, Geologist, Colorado Plateau District Office, U. S. Geological Survey, dated May 10, 1954.

2. Memorandum from W. P. Williams, Geologist, Colorado Plateau District, U. S. Geological Survey, dated May 10, 1954, transmitting the memorandum under Item 1 from H. S. Johnson.

3. Memorandum from this office dated May 11 to W. P. Williams acknowledging receipt of material under Items 1 and 2.

4. Letter to the operators from this office dated May 11, advising them that further processing of their application would be deferred until results of the AEC drilling are known.

As it may be some time before all results of the AEC drilling are known to enable us to continue processing the application, we are, as of this date, placing the application in inactive status.

John F. Shaw
John F. Shaw
For W. H. King

Enclosures

224 New Customhouse
Denver 2, Colorado

May 11, 1954

Messrs. George M. Palmer,
A.J. Redd, B.K. Hess,
and Wyman H. Redd
Lockhart Uranion Co.
Monticello, Utah

Re: Docket DMEA 3245 (Uranium)
Lockhart Uranium Company
San Juan County, Utah

Gentlemen:

Reference is made to your application as referenced above for Government assistance in exploration under the Defense Minerals Exploration Administration program.

We have been informed that the Atomic Energy Commission is conducting exploratory drilling in three of the four areas proposed for Government assistance under the DMEA program as a modification of your original application. Further processing of your application for Government assistance under the DMEA program will be deferred until the results of the AEC drilling are known.

You will be advised of the action taken on your application when all facts are made known to this office.

Very truly yours,

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

JWT:jp

cc: Docket
Chron
WPWilliams
AHKoschmann
WMTraver
JWTownsend
COMittendorf (2)

224 New Customhouse
Denver 2, Colorado

May 11, 1954

Memorandum

To: W. P. Williams

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 3245 (Uranium), Lockhart Uranium Co., San Juan County, Utah

Receipt is acknowledged of your memorandum of May 10, 1954 to which you attached a memorandum from H. S. Johnson of the same date relative to exploratory drilling being performed by the AEC in areas the subject of a modified exploration program under Docket DMEA 3245.

Your prompt forwarding of the information is greatly appreciated. It appears that a supplemental report from you forwarded through the usual channels will be in order when the results of the AEC drilling are known.

Enclosed is a copy of a letter to the applicants advising them of such a deferment in the further processing of their application.

W. H. King

Enclosure

JWT:jp

cc: Docket
Chron
AHKoschmann)
WMTraver) w/copy Williams' memo & attachment
JWTownsend)
COMittendorf (2))

UNITED STATES
DEPARTMENT OF THE INTERIOR
Geological Survey
P. O. Box 360
Grand Junction, Colo.

C
O
P
Y

May 10, 1954

Memorandum

To: W. H. King, Executive Officer, Field Team, Region IV

From: W. P. Williams, Colorado Plateau District

Subject: DMEA 3245, Lockhart Uranium Company, San Juan County, Utah

Because the AEC is now doing exploration drilling on the above-referenced property, we strongly recommend not processing the application any further at this time.

A memorandum attached hereto, from H. S. Johnson, gives more detailed information on the subject application.

/s/ W. P. Williams
Geologist

WPW/mlr

Enclosure

UNITED STATES
DEPARTMENT OF THE INTERIOR
Geological Survey
P. O. Box 360
Grand Junction, Colo.

C
O
P
Y

May 10, 1954

Memorandum

To: W. H. King, Executive Officer, Field Team, Region IV

From: H. S. Johnson, Colorado Plateau District Office

Subject: DMEA 3245, Lockhart Uranium Company, San Juan County, Utah

It has just come to our attention that the AEC has begun wagon drilling of several of the uranium occurrences in Lockhart Canyon area. About 36 holes have been divided among three of the four localities which Salsbury and Johnson recommended for exploration in their engineering and geologic reports. The holes are spaced 25 to 50 feet apart and are spotted so as to test the ground behind the mineralized outcrops on the Nancy Ann, Lindalee, Emily No. 2, and Lockhart Uranium Nos. 36, 37, and 38 claims (see Fig. 1 accompanying Johnson's geologic report). A few more holes may be drilled on Lockhart Uranium No. 37 and No. 38, but work to date indicates the deposits are sub-ore grade and do not extend for any appreciable distance behind the mineralized outcrops. Apparently this drilling on Lockhart Uranium Company claims has been done on the strength of a verbal agreement between company officials and the AEC project geologist in the Lockhart Canyon area. Y. W. Isachsen of the AEC informs us that they now consider the deposits in the Cutler formation in this area to have little or no potential for production.

Because the AEC has now tested three of the four localities proposed for exploration on the Lockhart Uranium Company claims, we do not see how we can proceed with any DMEA exploration program on these claims. As yet we have no information as to whether Lockhart Uranium Company plans to retract its application or whether they will try to push it through in spite of the unfavorable results of AEC drilling.

H. S. Johnson,
Geologist

HSJ/mlr

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

224 New Customhouse
Denver 2, Colorado

May 12, 1954

Memorandum

To: T. A. Christensen

From: Executive Officer, DMEA Field Team, Region IV

Subject: Royalty-Clarence Louis Neilson, Docket No. 3117, Contract No. E633, Colorado

Enclosed is copy of settlement sheet covering ore shipped during 2-26/4-15-54 by Clarence Louis Neilson to the Vanadium Corporation of America.

Also enclosed is check in the amount of $19.49 in payment of royalty on this settlement sheet.

John F. Shaw
John F. Shaw
For W. H. King

Enclosures

es

cc: Royalty File
Sec. to the Oper. Comm. (2) w/enc. settlement sheet
Traver w/enc. settlement sheet
Chron.

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

824 New Customhouse
Denver 2, Colorado

May 12, 1954

Memorandum

To: T. A. Christopson

From: Executive Officer, DMEA Field Team, Region IV

Subject: Royalty-Clarence Louis Neilson, Docket No. 3117, Contract No. D633, Colorado

Enclosed is copy of settlement sheet covering ore shipped during 2-26/4-19-54 by Clarence Louis Neilson to the Vanadium Corporation of America.

Also enclosed is check in the amount of $19.49 in payment of royalty on this settlement sheet.

John F. Shaw
John F. Shaw
For W. H. King

Enclosures

es

cc: Royalty File
Sec. to the Oper. Comm. (2) w/enc. settlement sheet
Traver w/enc. settlement sheet
Chron.

VANADIUM CORPORATION

VANADIUM CORPORA[illegible]

SETTLEMENT [illegible]

[illegible] LICENSE NO. [illegible]

[illegible] BY [illegible]

[illegible]DRESS [illegible]

[illegible]ASED TO [illegible] LEASED FROM [illegible]

[illegible]DDRESS [illegible] ADDRESS [illegible]

Lot No.	Gross Wt.	% H_2O	Net Weight	% [illegible]	% V_2O_5	Lbs. V_2O_5	Per M. V_2O_5	[illegible]
[illegible]	[illegible]	5.7	[illegible]	5.24	.87	186		
[illegible]	[illegible]	5.1	19891	4.73	1.34	267		
[illegible]	[illegible]	4.7	13841	7.15	1.40	278		
[illegible]	20270	4.8	19287	4.95	1.23	237		
	[illegible]		[illegible]		1.20	[illegible]	[illegible]	[illegible]

	5572	5-20-54	$ 23.86
[illegible]ECK NO.	5571	5-20-54	$ 16.49
[illegible]ECK NO.			$
[illegible]ECK NO.			$
[illegible]ECK NO.			$
[illegible]ECK NO.	[illegible]	[illegible]	$ 12.49
[illegible]ECK NO.			$

[illegible]hereby certify that the ore described above and sold is from the [illegible]
[illegible] the same, that said ore is not encumbered by any liens or attachments [illegible]

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

January 25, 1954

Memorandum

To: Executive Officer, DMEA Field Team, Region IV

From: Chief, Operation's Control and Statistics Division

Subject: Assignment of Docket Number

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

DMEA -3245 Lockhart Uranium Company.

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

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

224 New Customhouse
Denver 2, Colorado

January 22, 1954.

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: Code 200

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docketing for Exploration Assistance

Enclosed herewith in duplicate is DMA Form 3a and MF-103 and supporting data pertaining to the following application for Government assistance in exploration work:

Lockhart Uranium Company (Uranium)
Box 387
Monticello, Utah

W. H. King

W. H. King

Enclosures

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

224 New Customhouse
Denver 2, Colorado

January 22, 1954.

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: Code 200

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docketing for Exploration Assistance

Enclosed herewith in duplicate is DMA Form 3a and MF-103 and supporting data pertaining to the following application for Government assistance in exploration work:

Lockhart Uranium Company (Uranium)
Box 387
Monticello, Utah

W. H. King

W. H. King

Enclosures

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

APPLICATION FOR AID IN AN EXPLORATION PROJECT, PURSUANT TO DMEA ORDER 1, UNDER THE DEFENSE PRODUCTION ACT OF 1950, AS AMENDED

Not to be filled in by applicant

Docket No. 3245
Metal or Mineral Uranium
Date Received
Estimated Cost $16,200
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: Lockhart Uranium Company, Monticello, Utah, Partnership George M. Palmer, A. J. Redd, B. K. Hess, Wyman H. Redd, Monticello, Utah

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

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

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

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 Mining claims located in Sections 3, 4 9, 10, 11, 12, 13 and 14 Twp. 28 So., Range 20 E., SLM and mining claims located in Sections 22 and 27, Twp. 29 So., Range 20 E., SLM, San Juan County, Utah

(*b*) State any mine name by which the property is known. None

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

(*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

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

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

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

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

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

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

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

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

(*c*) The work will start within 60 days and be completed within 12 months from the date of an exploration project contract.

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

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. Geological Consultant $500.00

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel. None

(*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. None

(*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. None

(*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. attached 11s

(*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. refer to 6 (a) accounting $500.00

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

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

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

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

[X] Money [ ] 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 January 15, 1954

Lockhart Uranium Company
(Applicant)

By [signature]

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

Lockhart Uranium Company
Monticello, Utah

3.
(f)

Name of Claim	Book	Page	Name of Claim	Book	Page
Red Rock No. 1	25	32	Lockhart Uranium No. 11	45	51
" " 2	23	305	" " 12	45	52
" " 3	23	305	" " 13	45	52
" " 4	23	306	" " 14	45	53
" " 5	23	306	" " 15	45	53
" " 6	23	307	" " 16	45	54
" " 7	23	307	" " 17	45	54
" " 8	25	29	" " 18	45	55
" " 9	25	29	" " 19	45	55
" " 10	25	30	" " 20	45	56
" " 11	25	30	" " 21	45	56
" " 12	25	31	" " 22	45	56
" " 13	25	31	" " 23	45	57
" " 14	45	245	" " 24	45	58
Ann	17	306	" " 25	45	58
Nancy Ann	23	372	" " 26	45	59
Lindalee	23	373	" " 27	45	59
Julie Ann	23	372	" " 28	45	60
Christine	25	11	" " 29	45	60
Carolee	25	10	" " 30	45	61
Stephanie	25	74	" " 31	45	61
Emily	17	307	" " 32	45	62
Imogene	25	74	" " 33	45	62
Alice Marie	25	75	" " 34	45	63
Maude Agatha	39	434	" " 35	45	63
Hattie Josephine	39	434	" " 36	47	7
Alene	39	433	" " 37	47	7
Emily No. 2	39	433	" " 38	47	8
Wyman H.	39	432	" " 39	47	8
A. Jay	39	435	" " 40	47	9
Philip K.	39	435	" " 41	47	9
Jay Whitney	39	436	" " 42	47	217
Amasa M.	39	436	" " 43	47	218
George M.	39	437	" " 44	47	218
Benjamin K.	39	437	" " 45	47	219
High Boy	17	307	" " 46	47	219
Buckskin No. 1	39	430	" " 47	47	220
Lockhart Uranium No. 5	45	48	" " 48	47	220
" " 6	45	49	" " 49	47	221
" " 7	45	49	" " 50	47	221
" " 8	45	50	" " 51	47	222
" " 9	45	50	" " 52	47	333
" " 10	45	51	" " 53	47	333

4. (a) There are no existing mine workings or production at present time. Existing roads extend to within 2 miles of property at the present time and will be completed by March 1, 1954.

(b) Assays taken at various points along 300 ft. outcroping on Nancy Ann and Lindalee claims show Uranium content of 0.112, 0.112, 0.147 0.185, 0.477. On the Alice Marie and Imogene claims, 0.636. on the Emily No. 2 claim, 0.252 and on the Uranium No. 36, 0.198. Veins wi average between 5 ft. and 7 ft. in thickness.

Lockhart Uranium Company
Monticello, Utah

4. (c) Mineralization is found in 3 seperate lenses of the Cutler formation seperated by a red salt stone or clay varying in thickness from 1 ft. to 2 ft. and is constant along the outcroping for a distance of some 300 ft. on the Nancy Ann and Lindalee claims, some 150 ft. on the Alice Marie and Imogene claims, some 100 ft. on the Emily No. 2 claim, some 100 ft. on the Lockhart Uranium No. 36 claim and is apparent in smaller outcropings throughout the area. The reason for exploring is to determine if commercial mineralization extends beyond the outcropings.

(d) State and County highways extend to within 20 miles of the property and a road has been built from the state and county highway to within 2 miles of the claims and will be completed to the property by approx. March 1, 1954. The distance to the Uranium mill at Monticello, Utah is approximately 60 mi.

(e) Manpower and Contractors are available at Monticello, Utah and surrounding communities. Adequate materials, supplies and equipment are also available from supply houses at Monticello. Little water will be needed for the initial phase of the project. Necessary water will be hauled by tank truck from existing sources in creeks and natural tanks in the area. No power other than gasoline compressor, etc., will be required.

5. (b) Proposed work consists of running drifts, cross-cuts and open cuts in exposed veins and core and/or wagon drilling in area not exposed. The average depth of drill holes will be approximately 50 ft.

(d) Proposed work will be let to competent contractors on a per foot basis for drilling and drifting and on an hourly basis for bulldozer work, under the supervision of a consulting geologist.

6. (a)	300 ft. drifts and cross-cuts @ $20.00	$6,000.00
	2000 ft. core drilling @ $3.00	6,000.00
	1000 ft. wagon drilling @$1.00	1,000.00
	200 hrs. bulldozer work @ $8.00	1,600.00
	sub-total	14,600.00
(f)	New building, bunk-house and kitchen 400 sq. ft. @ $4.00	1,600.00
	Total	$16,200.00

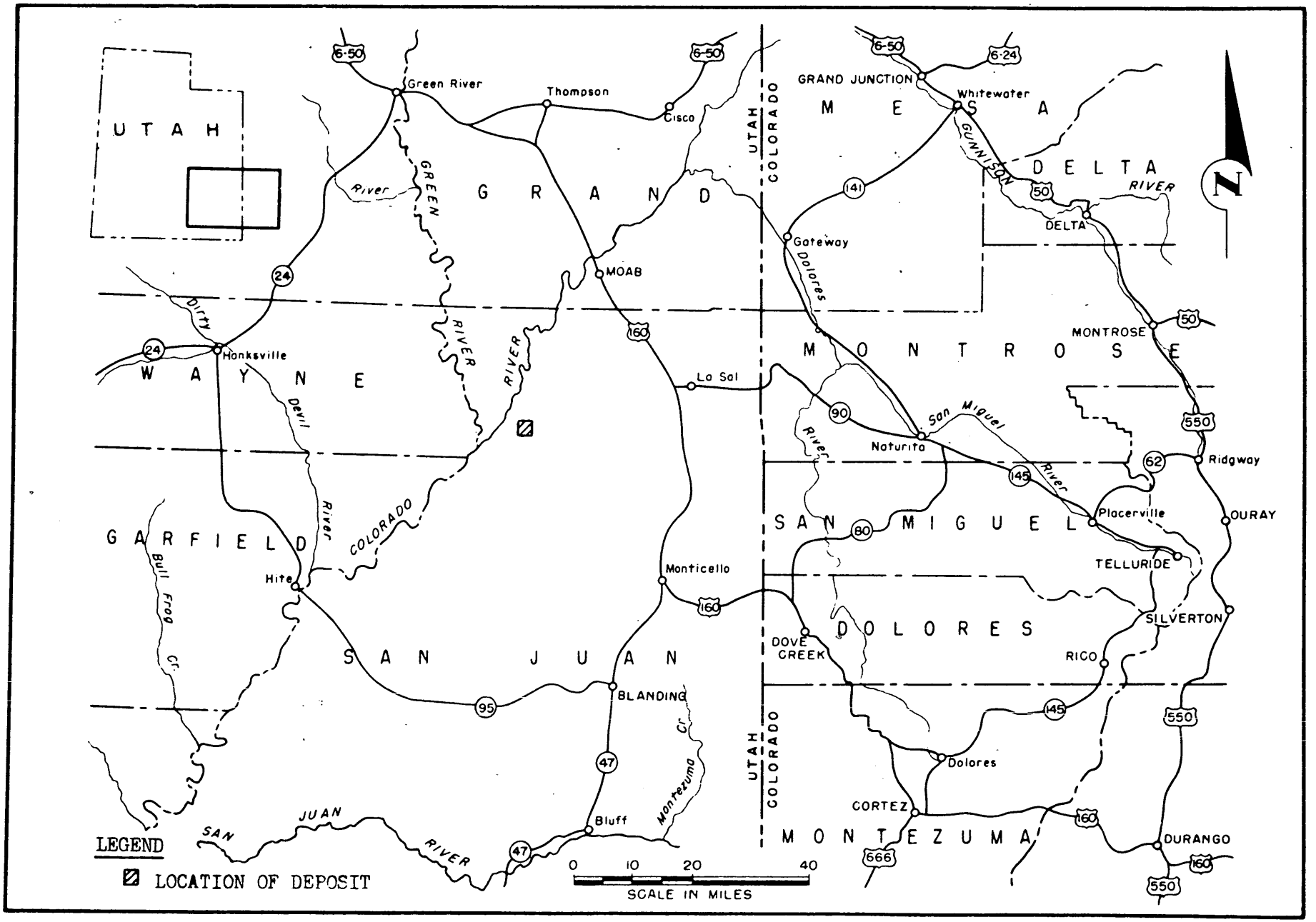

FIGURE 1(A). - LOCKHART MINING COMPANY, LOCKHART CANYON CLAIMS, SAN JUAN COUNTY, UTAH (DMEA 3245)

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEFENSE MINERALS EXPLORATION ADMINISTRATION
DOCKET 3245

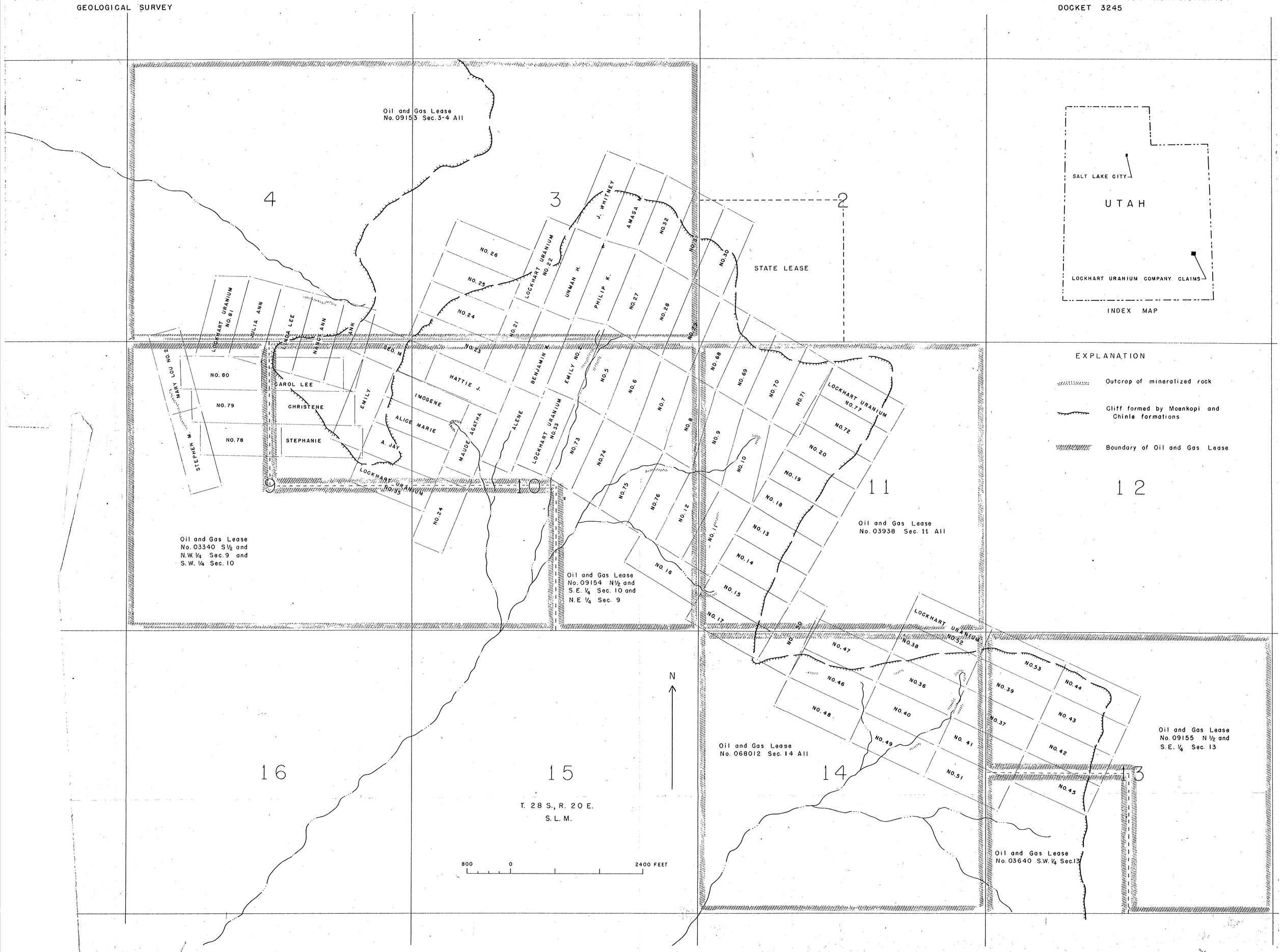

Figure 1. CLAIM MAP ADAPTED FROM INFORMATION SUBMITTED BY LOCKHART URANIUM COMPANY, MONTICELLO, UTAH