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~~2733~~	~~Effie Edward~~	~~7-22-57~~			
~~4505~~	~~[illegible]~~	~~8-6-57~~			
~~4805~~	~~[illegible]~~	~~9/25/57~~			
~~4750~~	~~[illegible]~~	~~10-25-57~~			
3924	Renewal	12/2/57			
~~4803~~	~~[illegible]~~	~~4/2/58~~			
~~4[illegible]~~	~~[illegible]~~	~~4-[illegible]-58~~			
~~4844~~		~~4-24-58~~			
~~[illegible]~~	~~[illegible]~~	~~[illegible]-58~~			
~~4[illegible]~~	~~[illegible]~~	~~5/[illegible]~~			
4145	[illegible]	6/16/58			
~~4[illegible]~~		~~[illegible]/5[illegible]~~			
~~4271~~	~~[illegible]~~	~~8/6/5[illegible]~~			
~~3543~~		~~[illegible]~~			
4489	Mr. Holt	1/6/59			

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Denver, Colorado

November 20, 1956

Memorandum

To: Executive Officer, Field Team, Region III

From: John F. Shaw
F. N. Harshman

Subject: DMEA Docket 3044 (Uranium), Contract IAm-X 655, Uranium Development Corporat U group of claims), Valencia County, New Mexico

Enclosed are the original and nine copies of a joint final report by D. F. Elston, U. S. ogical Survey, and Carl Belser, U. S. Bureau of Mines, in which results of exploration under contract IAm-X 655 are described.

The project was carried out in a workmanlike manner and the data obtained by the ling are not complete. In spite of the poor data it is believed the subject property does not contain significant deposits of ium ore.

The project was tested after the completion of 2,4 0 feet of drilling under Stage and 3,681 feet of drilling under Stage II of the contract. The Government did not participate in the cost of Stage II drilling.

A pseudo-certifica of discovery was issued on September 7, 1955.

Additional explora, with Government assistance, on the UDC group of claims is recommended.

John F. Shaw
Supervising Mining Engineer

F. N. Harshman
Member, Field Team

Enclosures (10)
FNHarshman:mp

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

DMEA 3044

Contract Ins-A 655

Uranium Development Corporation

UDC Group of Claims

Valencia County, New Mexico

Uranium

Final Joint Engineering and Geological Report

by

D. P. Elston, Geologist
Geological Survey

Carl Belser, Mining Engineer
Bureau of Mines

November 9, 1956

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DMEA 3044

Contract Idm-E 655

URANIUM DEVELOPMENT CORPORATION
UDC GROUP OF CLAIMS
VALENCIA COUNTY, NEW MEXICO

INTRODUCTION AND SUMMARY

Uranium Development Corporation, Box 587, Grants, New Mexico, in early 1953, applied to the Defense Minerals Exploration Administration for aid in an exploration project on the UDC group of mining claims in Valencia County, New Mexico. The applicant estimated the cost of the project at $11,641.

A field examination was made on June 2, 1953, by M. J. Kleing and J. F. Haynes, mining engineers, Bureau of Mines, and J. D. Strobell, geologist, Geological Survey.

The property consists of four unpatented mining claims in an area of low, rolling hills, about 8 miles north of Grants, New Mexico. Uranium deposits occur in the Todilto limestone of Jurassic age. The UDC claims are underlain by the Todilto limestone which is covered by dune sand and alluvium 30 to 150 feet in thickness.

A modified four-stage project was recommended. It consisted of 14,924 feet of drilling at an estimated cost of $11,640.72. A contract, Idm-E 655, was signed on January 8, 1954. Drilling began on January 20, 1954, and the second stage of the project was finished

in July 1954. After trying repeatedly to obtain logs, collar elevations, and other data from the operator, and because the operator requested termination, the Government terminated the contract on September 7, 1955. Eighty-two holes, totaling 6,171 feet of drilling, had been completed at a total cost to the Government of $1,747.98. No known ore deposit was found by the exploratory drilling.

RECOMMENDATION:

A certificate of discovery was issued on September 7, 1955. No additional exploration with Government assistance is recommended.

LOCATION AND ACCESSIBILITY

The UDC claims are in the Mount Taylor section of the Grants mining district, sec. 4, T. 12 N., R. 9 W., N. M. P. M., Valencia County, New Mexico (fig. 1). The property is approximately 15 miles northwest of Grants and is reached by traveling west from Grants on U. S. Highway 66 for 3.2 miles, thence north on the San Mateo road for 7.7 miles to a gate, thence east for 4.2 miles to the Gay Eagle and UDC claim groups. The property is in an area of low rolling hills just west of a sandstone escarpment. The surface is covered by sand and alluvium. The climate is semi-arid and vegetation is sparse.

OWNERSHIP AND EXTENT

The property comprises four unpatented lode mining claims. The claims are recorded in the County Clerk's Office at Las Lunas as follows:

Claim	Book	Page
UDC No. 1	A-5	88
UDC No. 2	A-5	89
UDC No. 3	A-5	86
UDC No. 4	A-5	87

The claims are owned by William G. Coffey and were leased on January 13, 1953, to Uranium Development Corporation. Surface rights belong to Henry Elkins. An agreement exists by which Coffey will compensate Elkins for all surface damage.

HISTORY AND PRODUCTION

Mining activity in this section of the Grants district commenced at the time of the establishment of a Government uranium-ore buying program. No ore production has been made from the UDC claims, and the only work done on the claims prior to DMEA participation was the drilling of three churn-drill holes. There are several producing mines 200 to 1,500 feet west, northwest, and north of the UDC claims. These are the Gay Eagle, Black Hawk, Hummy, UDC-5, Red Bluff group, and Christmas Day group of mines. Production from these mines to June 1, 1956, totals 41,399 tons of ore averaging 0.20 percent U_3O_8.

GENERAL GEOLOGY

The Grants mining district is on the north flank of the Zuni uplift. This uplift, which is possibly of early Tertiary age, is a broad, elongate northwesterly-trending asymmetrical dome about 65 miles long and 40 miles wide. The Zuni uplift apparently has been instrumental in the gentle structural deformation of the Grants area and may have produced conditions which led to the localization of uranium ore bodies.1/

The strata in the Grants area dip gently to the northeast from the Zuni uplift. On and near the subject claims the dip is about 2 degrees northeast. Erosion has carved the strata in the area into a series of step-like cliffs and intervening benches. The Todilto limestone of late Jurassic age is resistant in the semi-arid climate of northwestern New Mexico and forms a broad bench where the less resistant overlying strata have been stripped from it. This bench is commonly covered by a veneer of dune sand and alluvium which conceals bed rock except along the brink of the cliffs.

1/ Rapaport, Irving, Radfield, J. P., and Olson, Richard H., Jurassic Rocks of the Zuni Uplift, N. M.: U. S. Atomic Energy Commission, RMO-642, March 1952.

STRATIGRAPHY

The generalized stratigraphic section 2/ for the Grants area is given below:

Age	Group	Formation	Gen. Lithology	Thickness
Upper and Middle Jurassic	San Rafael	(Bluff sandstone	Sandstone	220-250
		(Summerville formation	Sandstone, siltstone, shale, limestone	0-190
		Todilto limestone	Limestone	0-30
		Entrada sandstone	Sandstone	130-280
		Carmel formation	Siltstone, sandstone	55-260

The Todilto limestone, which is the principal uranium-bearing unit in the area, is not exposed on the subject claims but is exposed just west of the claims. On the claims, it is overlain by about 40 to 80 feet of unconsolidated dune sand, alluvium and, in places, remnants of the Summerville formation. Thicknesses of the Todilto limestone penetrated by the drill commonly were about 20 feet. Possible maximum thickness encountered was about 28 feet. Erosion which preceded deposition of alluvium and dune sand apparently did not remove parts of the Todilto limestone on the property.

2/ Rapaport, Irving, op. cit.

The upper 2 to 10 feet of the Entrada sandstone was penetrated by the drill.

The Todilto limestone can be divided into two and locally three units: 3/ (1) a lower dark gray to black, fine-grained, medium-bedded limestone called the "platy"; (2) an intermediate light gray, coarse-ly-crystalline, thin-bedded limestone called the "crinkly"; and (3) locally an upper, gray, dense, beddingless, contorted limestone called the "massive" which interfingers with the Summerville formation.

STRUCTURE

There are no known faults on the subject property, but minor east-west jointing, like that exposed on the Gay Eagle claim to the west, may be present.

The structure contours on the applicant's map are from early generalized contours constructed by the AEC. In the northern part of the property, depths to the base of the Todilto limestone were found by drilling to be shallower than indicated by the map. No corrections and no structure contour map based on the drill hole information has been attempted because of the lack of collar elevations

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3/ Rapaport, Irving, Interim report on the ore deposits of the Grants district, N. M.; U. S. Atomic Energy Commission, RMO-1031, November 1952.

Rapaport, Irving; unpublished report, Four Corners Exploration Co., July 1954.

for the holes. In addition, there is no accurate map of hole locations.

Geologic mapping of the Gay Eagle mine about 1,200 feet west of the claims shows that there are several small northerly-trending anticlinal flexures coincident with the ore in the Todilto limestone. 4/ As uranium deposits in the Todilto limestone commonly occur and are aligned with somewhat larger but yet areally restricted folds, the presence of the northerly-trending Gay Eagle-Black Hawk mineralized trend suggests that a fold is present in the general area.

ORE DEPOSITS

There are no known ore deposits on the subject claims. The ground was tested rather thoroughly and results were negative. Only the western and northwestern parts of the claims remain relatively unexplored. Although there is space for one or more ore bodies the size of the Gay Eagle, 30 by 200 to 300 feet, it is unlikely that one is present (L. S. Hilpert, personal communication). The ore bodies in the general area are localized mainly on the west

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4/ Gabelman, John W., U. S. Atomic Energy Commission, 1956, Uranium Deposits in Limestone: U. S. Geol. Survey prof. paper no. 300, p. 397-399.

side of northerly-trending anticlinal folds. Although the exact structural location of the Gay Eagle ore body is not known, the northerly-striking mineralized trend on the Gay Eagle and Black Hawk claims is about 1,200 feet west of the UDC claims, and it is not likely to extend to the subject property. Because of the narrowness of the structures, any ore bodies on the claims probably would be localized in a structure independent of the Gay Eagle-Black Hawk trend. As the geologic and engineering data derived from drilling are essentially non-existent, the presence or absence of a structure favorable for the localization of ore minerals is unknown. The negative results based on radiometric inspection of cuttings during drilling and on the probing of the uncased holes by Government hole-probing instruments suggests that no ore-localizing structure is present.

ORE RESERVES

There are no known ore reserves on the property but several holes penetrated mineralized rock which might contain as much as 0.13 to 0.17 percent U_3O_8. J. R. Soule, Bureau of Mines engineer, believes that holes 35, 35-4, and 35-7 contain appreciable radioactivity. This radioactivity furnished the basis for a certification of discovery which was issued September 7, 1955.

THE PROJECT

The object of drilling was to explore for uranium ore in the Todilto limestone of Jurassic age, which is overlain on the subject claims by about 40 to 80 feet of unconsolidated dune sand and, in places, strata of the Summerville formation of Jurassic age. The Todilto limestone on the claims is about 20 feet thick but locally may be as much as 30 feet thick.

Original program and modifications

The original program recommended consisted of four stages of exploratory drilling. Stage I consisted of a maximum of 33 primary holes (2,706 feet), Stage II, 49 offset holes (4,018 feet), Stage III, 60 primary holes (4,920 feet), and Stage IV, 40 offset holes (3,280 feet). The locations and depths of Stage II, III, and IV holes were to have had prior approval by the Field Team. The total estimated cost was $11,640.72.

The contract was signed on January 8, 1954. Drilling commenced on January 20, 1954, and the second stage was finished in July 1954. After trying repeatedly to obtain logs, collar elevations, and other data from the operator, and because of the operator's request for termination brought on by impending sale of the property, the Government terminated the contract on September 7, 1955.

Description of work completed

Thirty-two Stage I holes, totaling 2,490 feet of drilling, and 50 Stage II holes, totaling 4,203 feet of drilling, were completed. The Stage I drilling was done on 200-foot centers and approximately in the proper locations (fig. 1). The Stage II drilling of offsets around Stage I holes Nos. 1, 12, 16, 18, 22, 28, and 35 were carelessly done. Logs, elevations, and other data were not obtainable. Holes were not drilled at the proper locations and were drilled too far past the limestone heat rock. Of the 50 holes and 4,203 feet of drilling in Stage II, 49 holes and 3,681 feet of drilling were allowed by the inspecting engineer. Sampling, logging, and other data were unreliable.

Data obtained by exploration

During drilling of the limestone the coarser cuttings were collected every two feet and were sacked. The finer cuttings were not collected because of contamination from the overlying alluvial and eolian sand. The holes were plug-bit drilled by rotary air methods, and the cuttings were scanned radiometrically with a Geiger counter by the driller as drilling progressed. Twenty-four of the 32 first-stage holes which had not caved and which could be reached by the logging vehicle were probed by a U. S. Atomic Energy Commission

scintillator. After completion of Stage II drilling, a Geological Survey Barnsby instrument was able to probe about one-half of the 50 holes drilled.

Nearly all of the holes were barren in the Todilto limestone. Only a few very weak anomalies were detected. Several holes penetrated mineralized rock which might contain as much as 0.15 to 0.17 percent U_3O_8 in what is likely a gradational zone near the base of the Summerville formation. This zone contains lenses of limestone intercalated with sandstone, and known ore bodies localized within it are small and commonly are uneconomical to mine, except where they are near the surface or where they overlie ore in the Todilto limestone.

Geological data obtained from this drilling program are very poor. There is no accurate map, no collar elevations of holes, and stratigraphic descriptions of the rocks penetrated are restricted to some driller's logs. As indicated previously, not all of the holes were probed; of those which were probed, some were probed by an AEC scintillator, the control on which is not known, and some were probed by a Geological Survey Geiger instrument which had been calibrated for sandstone ore. Mr. Irving Rapaport, formerly with the AEC, also probed some of the holes with a Babbel instrument which had been calibrated with the AEC instrument. Although the data are incomplete and are varied in reliability, it is unlikely

that any significant ore deposits were missed in the area drilled. However, as pointed out by L. S. Hilpert, U. S. Geological Survey (August 1954), the unexplored 300-foot-wide strip of ground in the western part of the claims is potentially favorable for ore. It is close to the northerly-trending ore and mineralized ground on the Gay Eagle, Black Hawk, and Sunny claims to the west and northwest. Some workings are about 200 feet west of the claims. Expected ore bodies 15 by 300 feet that are found on the Gay Eagle are narrow and elongate, and could well be hidden on the unexplored strip. However, Mr. Hilpert now is of the opinion that chance of finding ore on this strip of ground is poor (personal communication).

Summary of factual data

The contract called for a maximum of 14,924 feet of non-core drilling to be done in four stages at the following stipulated costs:

Stage I

33 primary holes - 2,706 feet of drilling at $0.78/ft.	$ 2,110.68

Stage II

49 offset holes - 4,018 feet of drilling at $0.78/ft.	$ 3,134.04

Stage III

60 primary holes - 4,920 feet of drilling at $0.78/ft.	$ 3,837.60

Stage IV

40 offset holes - 3,200 feet of drilling at $0.78/ft.	$ 2,598.40
Total estimated cost of project	$11,640.72
Government participation 90 percent, or	$10,474.65

Actual costs

Because of the unsuitable quality of the work, the contract was terminated following the completion of the second stage. Only Stage I work was paid for, and a pseudo-certification of discovery made to partially protect the Government against loss of the expenditures incurred. Actual costs follow:

Stage I

2,490 feet of non-core drilling at $0.78/ft.	$ 1,942.20

Stage II (not allowable)

3,681 feet of non-core drilling at $0.78/ft.	$ 2,871.18
Total cost of project	$ 1,942.20
Government participation at 90 percent, or	$ 1,747.98

Drilling equipment was furnished by the contractor, Coffey Drilling Company, and the holes were logged in part by the AEC.

CONCLUSIONS

Very little geologic information was obtained from this exploration program. There was an over-all lack of descriptive geological data, a complete absence of vertical control on collar elevations and naught but an "eyeball" map of hole locations. Economically, there apparently is no ore on the property. The interrelationships of structure to the few mineralized holes on the claims are unknown.

The contract was terminated and a certificate of discovery was issued on September 7, 1955. Additional exploration on the U.D.C. group of claims is not recommended.

ANNEX I

STAGE I

Table showing holes drilled under the contract

Hole No.	Peak count per second	Depth of peak count	Depth of limestone (ft.)	Peak count above L. S.	Total depth
1	309	58 ft.	71-91	13 feet	92
2		unfavorable	64-82		82
3	201	58 ft.	54-66		
4	165	30 ft.	42-60		
5		not logged	40-58		
6		unfavorable	43-55		
7		caved	53-65		
8		unfavorable	60-76		
9		unfavorable	40-56		
12	282	58 ft.	43-58		
13		unfavorable	68-94		
14		unfavorable	57-73		
15		unfavorable	51-71		
16	276	48 ft.	39-55		
17		unfavorable	47-73		
18	279	78 ft.	67-85		
19	225	74 ft.	83-103	9 feet	
20	240	58 ft.	66-86	8 feet	
21		not logged	66-88		
22	570	37 feet	50-66	13 feet	
23		not logged	41-61		
24	240	47 feet	69-85	22 feet	
25		not logged	67-89		
26		partly caved	55-81		
27		not logged	38-52		
28	360	65 ft.	71-77	6 feet	
29		not logged	88-106		
31		not logged	71-91		
32		unfavorable	57-70		
33		not logged	78-108		
34	267	94 feet	82-100		
35	1,920	68 feet	80-100	12 feet	

The above holes were spaced 200 feet apart (fig. 1).

ANNEX I

STAGE II

Table showing holes drilled under the contract

Hole No.	Depth of Limestone (feet)	Total Depth
1-1	78-94	100
1-2	67-83	90
1-3	68-84	90
1-4	75-93	100
12-1	53-69	75
12-2	49-63	67
12-3	39-59	60
12-4	40-56	58
12-5	38-54	60
12-6	47-61	85
12-7	74-90	95
12-8	62-72	75
16-1	47-65	70
16-2	42-58	60
16-3	31-49	50
16-4	25-47	50
16-5	29-53	60
16-6	43-57	60
16-7	39-67	75
16-8	62-72	75
18-1	66-84	90
18-2	60-80	90
18-3	56-76	85
18-4	56-72	75
18-5	43-71	75
18-6	62-86	90
18-7	75-95	100
18-7A		34 not completed
18-8	80-94	100
22-1	57-73	75

Hole No.	Depth of Limestone (feet)	Total Depth
22-2	52-72	75
22-3	47-63	65
22-4	51-69	75
22-5	38-62	65
28-1	68-86	90
28-2	63-79	85
28-3	63-79	85 not completed
28-4	87-94	94 not completed
28-4A	86-104	105
28-5	56-76	80
28-6	44-72	75
28-7	87-107	110
28-8	59-86	90
35-1	82-100	105
35-2	82-102	105
35-3	82-102	105
35-4	95-115	120
35-5	88-108	115
35-6	74-90	95
35-7	77-93	100
35-8	79-99	105

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEFENSE MINERALS EXPLORATION ADMINISTRATION
AUGUST 1956 Idm-E 655 DOCKET 3044

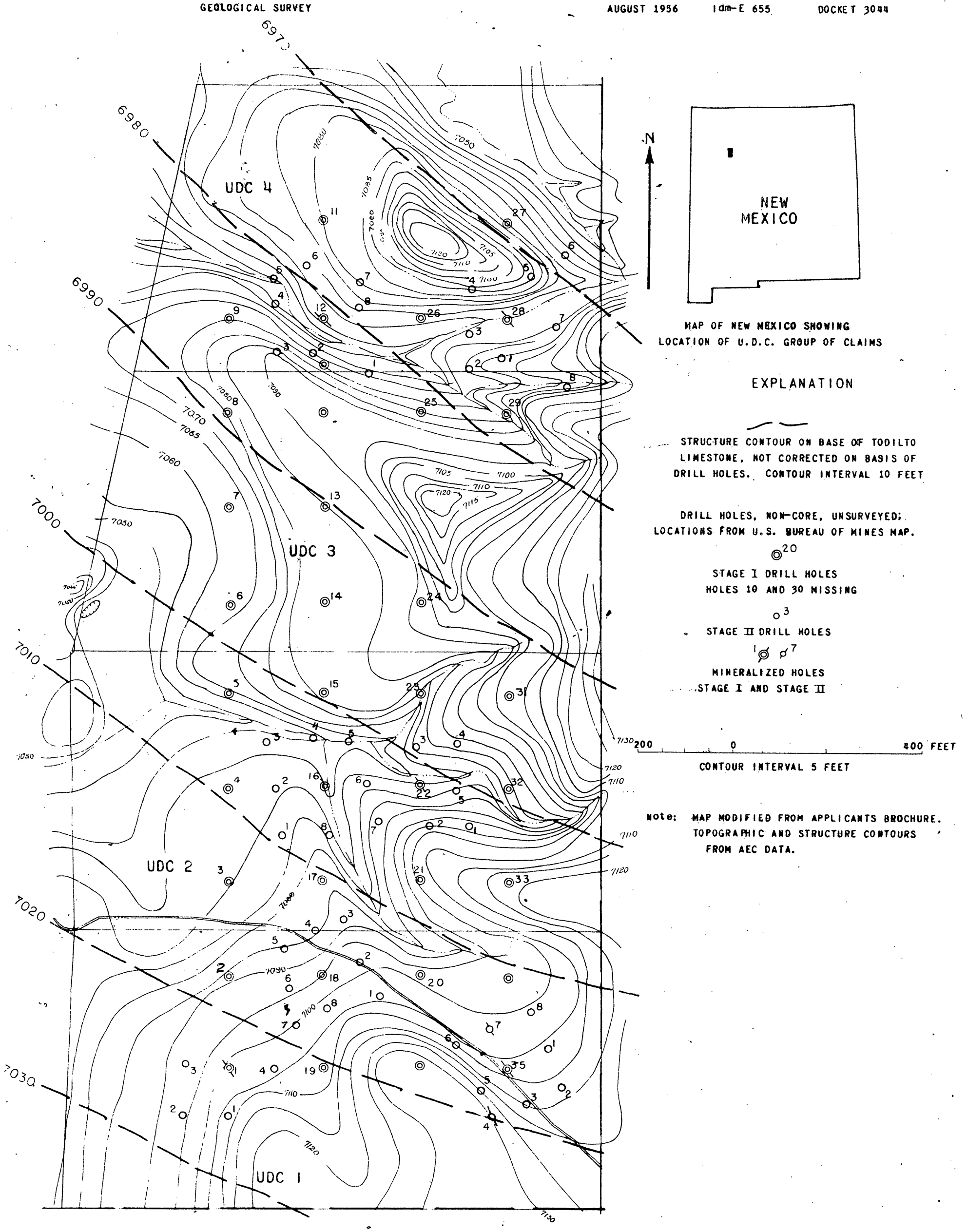

FIGURE 1.--U.D.C. GROUP OF CLAIMS, SECTION 4, T.12 N., R.9 W., N.M.P.M., VALENCIA COUNTY, NEW MEXICO.