March 29, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Geologic Report, Docket DMEA 3775 (Uranium), Skyline Engineering Company, Inc., (Arrowhead claims), Eagle County, Colorado

Enclosed are the original and three copies of a geologic report by E. H. Harshman, U. S. Geological Survey, in which denial of the subject application is recommended. There will be no Bureau of Mines Report.

The AEC drilling program has adequately explored the Shinarump ore horizon on the most favorable part of the claims, and no ore or favorable ground was discovered by the work.

We concur with the conclusions in the geologic report and recommend that the application be denied without a field examination.

DMEA Field Team, Region III

By W. M. Traver
Executive Officer

Enclosures

HMC:ab

cc: Sec. Op. Comm. (4)
Docket 3775
Harshman
Mining Div.
Shaw
Everhart
Chron.

IN REPLY REFER TO:
DMEA
Date Rec'd.
MAR 29 1956
BUREAU OF MINES
Denver, Colorado

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Defense Minerals Exploration Administration
Denver Federal Center
Denver, Colorado

March 28, 1956

Memorandum

TRANSMITTED
MAR 29 1956

To: Executive Officer, DMEA Field Team, Region III

From: E. N. Harshman
John F. Shaw

Subject: DMEA Docket 3775 (Uranium) Skyline Engineering Company, (Arrowhead claims) Eagle County, Colorado

Enclosed are the original and nine copies of a geologic report by E. N. Harshman, U. S. Geological Survey, in which denial of the subject application for exploration assistance is recommended.

In the original application the Skyline Engineering Company proposed to explore the Arrowhead claim group by a program of drilling and drifting at an estimated total cost of $10,663. After the AEC completed their exploration in the area, the applicant, by letter of November 17, 1955, revised the proposed program to a single line of shallow holes along the southern edge of the claim group at an estimated cost of $2,000.

The AEC program has adequately explored the Shinarump ore horizon on the most favorable part of the claims by 3,047 feet of rotary non-core drilling. No ore or favorable ground was discovered by this work; the highest radioactivity found by probing the holes was 0.008 percent eU_3O_8.

Although the applicant has found one small lens of carnotite impregnated sandstone containing 3-1/2 tons of ore with 0.33 percent U_3O_8, it is concluded that the AEC work has shown the area to be unfavorable for the occurrence of significant uranium ore bodies.

We concur with the conclusions in the geologic report and recommend that the application for exploration assistance, DMEA Docket 3775, be denied without a field examination.

John F. Shaw
John F. Shaw
Supervising Mining Engineer

E. N. Harshman
E. N. Harshman
Member, Field Team

Enclosures (10)

DMEA
Date Rec'd
MAR 20 1956
BUREAU OF MINES
Denver, Colorado

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

TRANSMITTED
MAR 29 1956

DMEA 3775

Skyline Engineering Company, Inc.

Arrowhead Group

Eagle County, Colorado

Uranium

Memorandum Report

by

E. N. Harshman
Geological Survey

March 28, 1956

CONTENTS

	Page
Introduction.	1
Location and Accessibility.	2
Drainage, Climate, and Vegetation	2
Mining and Milling Facilities	3
Geology	3
Ore deposits	5
Completed Exploration	5
Conclusions and Recommendations	6

ILLUSTRATIONS

Figure	Follows page
1. Location map, Skyline Engineering Company - Arrowhead claims, Eagle County, Colorado, DMEA 3775 .	2
2. Geologic sirface map, Arrowhead claims area, Skyline Engineering Company, Eagle County, Colorado	Last page
3. Map of Skyline Engineering Company - Arrowhead claims, Eagle County, Colorado, showing location of holes drilled by the A.E.C..	Last page

DMEA 3775

SKYLINE ENGINEERING COMPANY, INC.
ARROWHEAD GROUP
EAGLE COUNTY, COLORADO

INTRODUCTION

On April 29, 1955, the subject application for exploration assistance was referred to the Executive Officer, Region III Field Team, for investigation, a field examination, if warranted, and recommendations.

As a preliminary step in processing this application, discussions were held with representatives of the Denver Exploration Branch of the AEC. It was learned that the AEC was in the process of advertising for bids on drilling the subject property and the H. Warren claims to the east.

In a memorandum of May 18, 1955, it was recommended that action on the Skyline Engineering Company application be deferred until the results of the AEC work were known. On June 6, 1955, the Administrator notified the applicant of the proposed delay.

On November 17, 1955, the applicant notified DMEA that the AEC drilling had been completed and, based on that work, he revised his original exploration to include a line of holes 50 feet deep and spaced on 200-foot centers. The line is to extend from an outcrop on the Arrowhead No. 1 claim southeasterly along a prominent ridge toward a "hot" AEC hole drilled on the Lucky Strike claim, which adjoins the applicant's property on the east. The cost of this proposed exploration is estimated, by the applicant, to be about $2,000.

On December 2, 1955, the application was again referred to the field for action. Upon contacting the AEC regarding the results of their program, it was learned that a report on what is known as the Piney No. 1 exploration project was in preparation, and a rough draft of the report would be made available to DMEA when completed. The draft was made available for DMEA use on March 14, 1956, and the following discussions and recommendations are based entirely on data in that report or in the application.

LOCATION AND ACCESSIBILITY

The Skyline Engineering Company property consists of 23 claims located 6-1/2 miles northeast of Wolcott, Colorado (fig. 1) in secs. 11 and 12, T. 4 S., R. 82 W., 6th P. M. During the summer months the claims are accessible from Wolcott over local dirt roads. The claims are at an altitude of about 10,700 feet in a transition zone between the Gore Range to the east and the Central Colorado Basin to the south and west.

DRAINAGE, CLIMATE, AND VEGETATION

The area is drained by June and Berry Creeks which flow southwesterly to the Eagle River.

Annual precipitation is about 30 inches, much of it in the form of winter snow.

The claims are covered with a moderate to heavy growth of spruce, lodge-pole pine, and cedar.

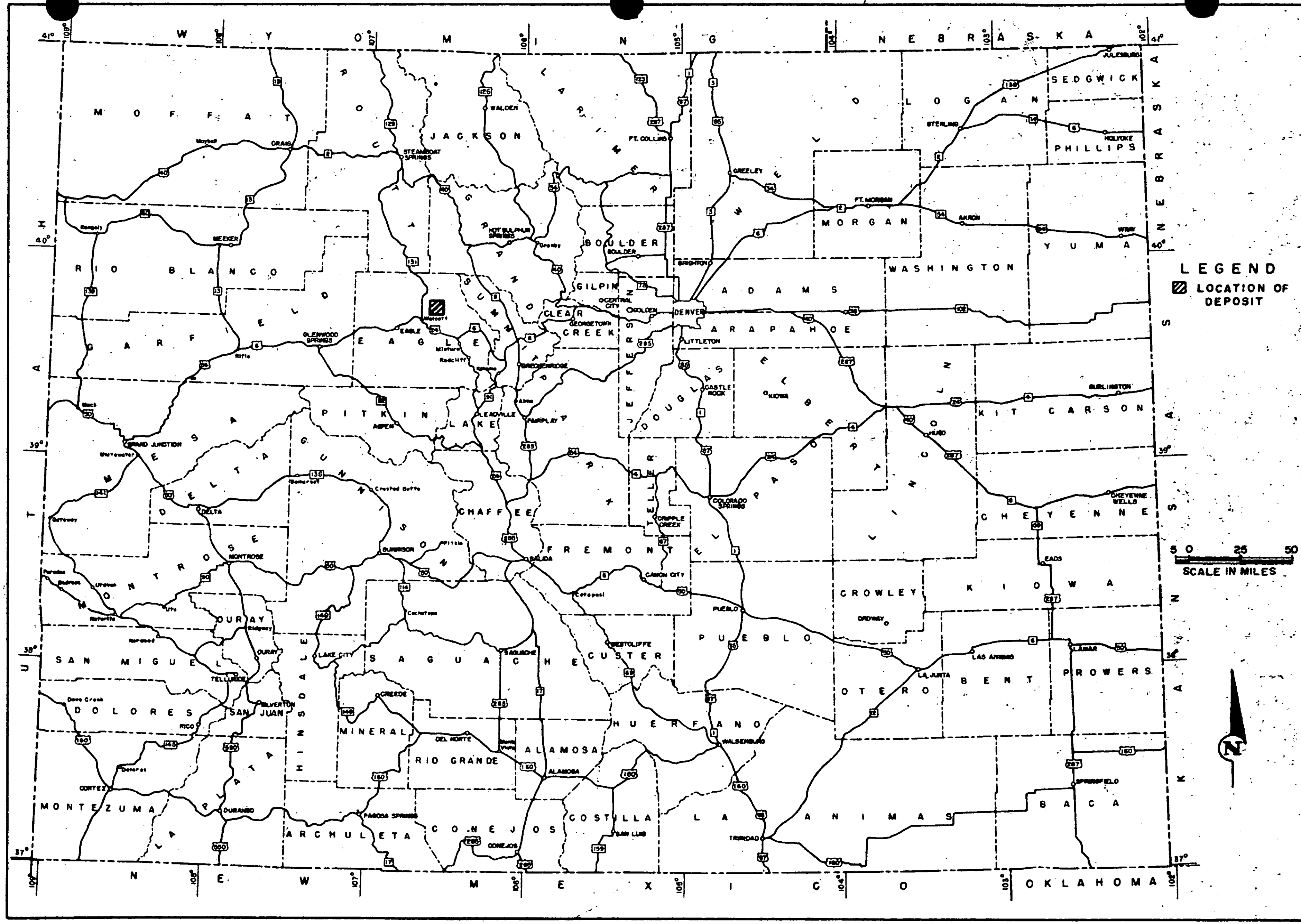

FIGURE 1. - LOCATION MAP, SKYLINE ENGINEERING COMPANY - ARROWHEAD CLAIMS, EAGLE COUNTY, COLORADO - DMEA 3775

MINING AND MILLING FACILITIES

None.

GEOLOGY

Rocks in the Wolcott area range from Carboniferous to Cretaceous in age and consist of the Maroon formation, Shinarump conglomerate, Chinle formation, Entrada sandstone, Morrison formation, Dakota sandstone, Benton shale, Niobrara formation, and Pierre shale. In the claim area only the Maroon formation, the Shinarump conglomerate, and the Chinle formation are present.

The Maroon formation, of Pennsylvanian?-Permian age, is exposed in a steep bluff along the south border of the claims (fig. 2). It is a coarse arkose and non-fossiliferous arkosic sandstone or sandy shale, characteristically deep red. The formation may be as much as 4,000 feet thick, but only the upper few hundred feet are exposed in the claim area. A persistent limestone bed is present about 50 feet below the top of the Maroon formation. A prominent disconformity is present between the Maroon and the overlying Triassic rocks.

The Triassic rocks in the area are similar to those mapped to the north and east as Shinarump and Chinle; for the purpose of this report these terms will be used to describe the two formations overlying the Maroon formation.

The Shinarump conglomerate, as exposed on the claims, is a lenticular, poorly sorted detrital, stream bed deposit, generally light pink to white. The sediments consist of medium- to coarse-grained

sands interbedded with coarse-grained, conglomeratic, quartzose sandstone. Silicious cement predominates. Deposition appears to have been by streams flowing from east to west with much reworking and redistribution of the material. The Shinarump weathers to mounds of soft clayey sandstone and generally exposures are poor.

The Chinle formation conformably overlies the Shinarump conglomerate and consists of about 125 feet of reddish-brown, limey shale, siltstone and limestone conglomerate in 1- to 3-foot thick beds. Solution cavities are abundant, and lenticular beds of conglomerate occur at intervals throughout the entire thickness of the formation.

There is considerable folding and faulting in the general area, and north of the claims the sedimentary rocks are buried under Tertiary lava flows. The Arrowhead claim group is on the southern flank of a symmetrical, northeast-trending syncline.

The potential ore horizon on the Arrowhead claims, and the horizon explored by the AEC Piney No. 1 project, is the Shinarump conglomerate. On the claims the Shinarump conglomerate is a blanket-like deposit dipping from 16 to 20 degrees north. It is 20 to 30 feet thick at the south edge of the claim group, but it rapidly thins from south to north and has almost pinched out along the north side of the claim group. Drilling indicated the presence of a persistent basal conglomerate bed, the thickness of which varied greatly from hole to hole. The conglomerate is overlain by thin shale beds. Radioactivity in the basal conglomerate is low.

Ore deposits

The only known deposit of uranium ore on the property was the small pod originally discovered on the Arrowhead No. 1 claim and subsequently mined by the applicant. This pod was found in a sandstone bed in the basal part of the Shinarump conglomerate. It consisted of carnotite impregnated sandstone associated with carbonized trash. The pod, as mined, contained 3-1/2 tons of ore assaying 0.33 percent U_3O_8. No carnotite or carbon trash remains in the outcrop.

COMPLETED EXPLORATION

The AEC Piney No. 1 exploration project started on July 27, 1955, and was completed on September 14, 1955. It consisted of 3,047 feet of rotary non-core holes drilled on the Arrowhead claims and the adjacent H. Warren property. The locations of the holes drilled on the applicant's Arrowhead claims are shown on figure 3. All holes were sampled at 1-foot intervals and were surveyed with a scintillation-type probe. All completed holes were drilled deep enough to explore the entire thickness of the Shinarump conglomerate and several of them were drilled approximately 100 feet into the underlying Maroon formation. Very slight radioactivity anomalies were recorded in some of the shaly lenses of the Maroon formation; the maximum eU_3O_8 was 0.008 percent. The radiometric analysis of the radioactive areas showed that they were too low to warrant chemical assay. No visible uranium minerals were found.

No carbon trash was found in any of the holes drilled by the AEC, nor was there the slightest indication of the presence of a Shinarump channel.

The applicant has drilled a number of close-spaced holes immediately north of the outcrop containing the small ore lens. This work failed to disclose additional ore, mineralized sandstone, or carbon trash.

CONCLUSIONS AND RECOMMENDATIONS

It is concluded that exploration by the AEC has adequately explored the most favorable part of the Skyline Engineering Company's Arrowhead claim group. The results of the drilling indicate that the Shinarump conglomerate in the area drilled is unfavorable for the occurrence of significant uranium ore deposits. The one ore deposit discovered, and subsequently mined by the applicant, is small, and the search for similar pods on the applicant's claims by drilling methods is impractical.

Contrary to the applicant's belief that one "hot hole" was drilled on the H. Warren claims to the east of the Arrowhead group, the highest eU_3O_8 found by probing the five holes drilled on that property was 0.008 percent.

It is recommended that the application of the Skyline Engineering Company, DMEA Docket 3775, for Government assistance to explore for uranium on the Arrowhead group of claims be denied without a field examination.

Representatives of the Denver Exploration Branch of the AEC have reviewed this report and concur with the recommendations made on the basis of their work in the area.

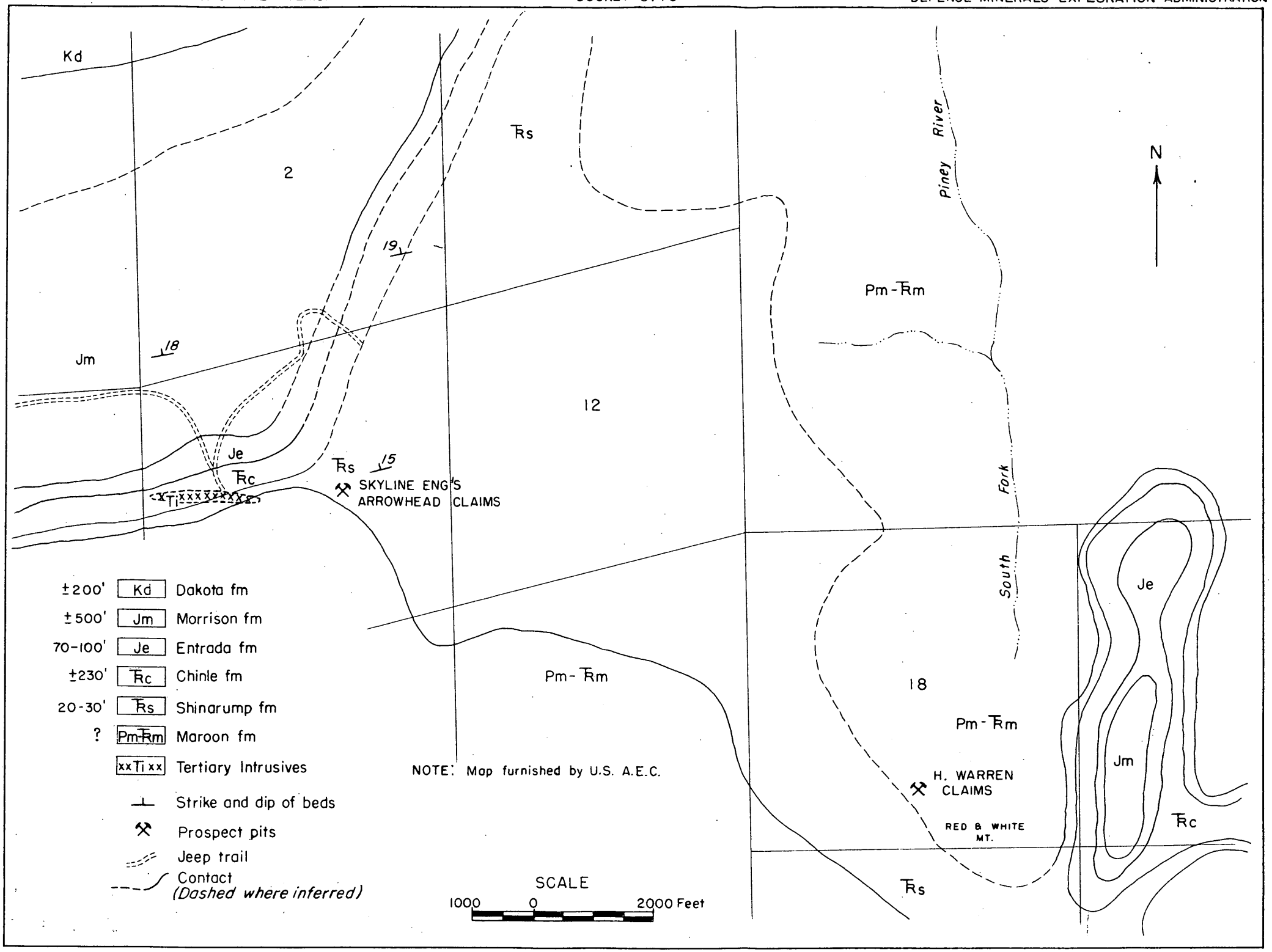

FIGURE 2. – GEOLOGIC SURFACE MAP, ARROWHEAD CLAIMS AREA, SKYLINE ENGINEERING COMPANY
EAGLE COUNTY, COLORADO

U.S. Department of the Interior
Geological Survey

DMEA Docket 3775
Initial Report

Prepared for
Defense Minerals Exploration Administration

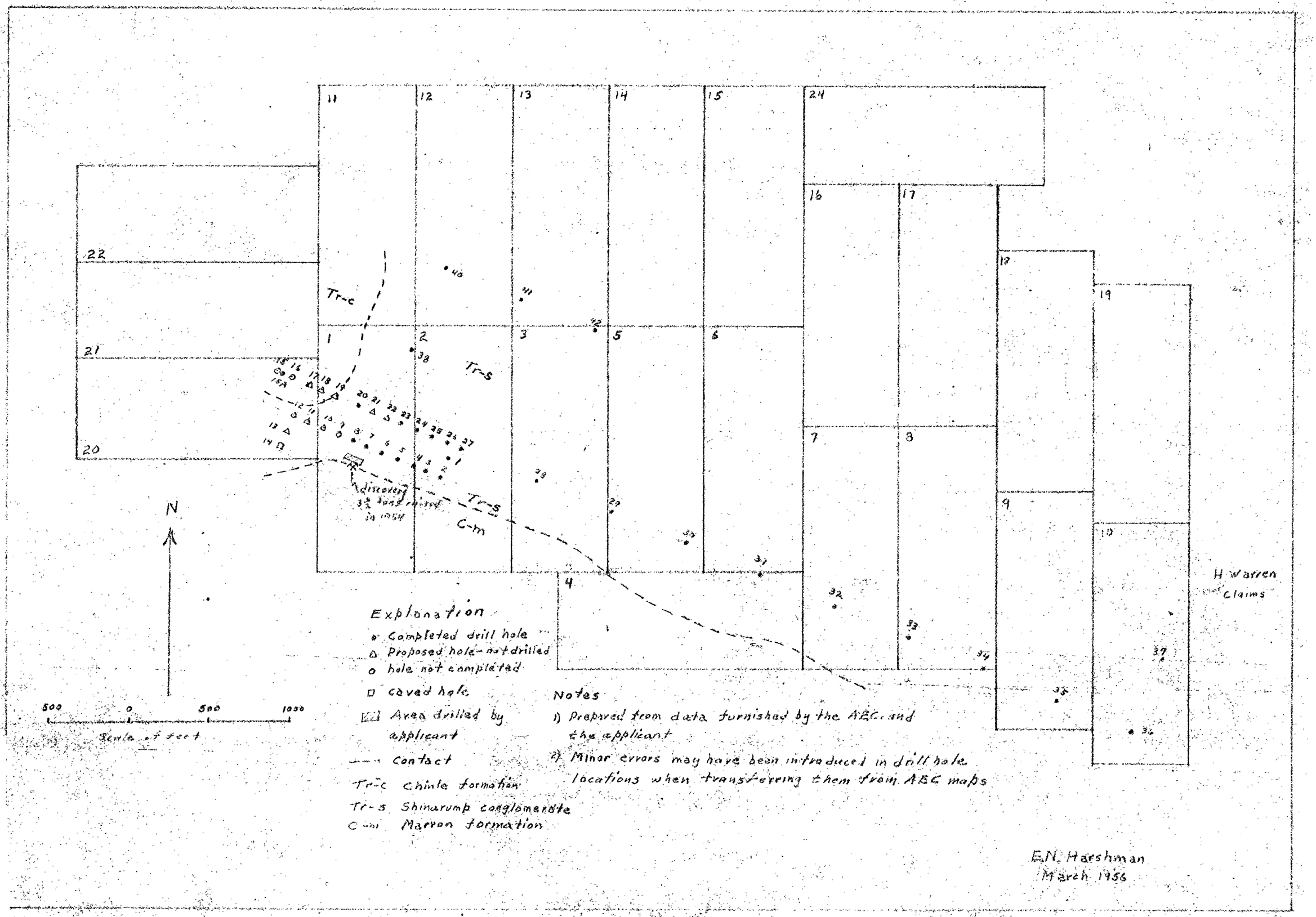

Fig 3 Map of Skyline Engineering Company – Arrowhead Claims, Eagle County, Colorado showing location of holes drilled by the A.E.C.