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

MAR 5 1959

Mr. A. Payne Kibbe, President
The Hidden Splendor Mining Company
P. O. Box 2306
Salt Lake City, Utah

Re: Docket No. DMEA-5036 (Uranium)
JFR Claims, et al.
San Juan County, Utah

Dear Mr. Kibbe:

Reference is made to our letter of February 4, 1959, regarding action required to make your DMEA application eligible for consideration under the OME regulations.

We wish to cooperate with you in allowing ample time to complete such action, but, if we do not hear from you within 30 days from the date of this letter, we will assume that you are no longer interested in proceeding with your application, and we will consider it as having been withdrawn.

Sincerely yours,

(signed) FRANK E. JOHNSON

Acting Director

FLKnouse/gla
3-4-59
cc to: Director's Reading File
THKillsgaard, 5224
FLKnouse
OME Field Team, Region III (2)

Form 11-103
Revised Oct. 1957

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1035.3
Approval expires June 30, 1958

APPLICATION FOR AID IN AN EXPLORATION PROJECT

PURSUANT TO DMEA ORDER I, UNDER THE DEFENSE PRODUCTION ACT OF 1950, AS AMENDED

NAME OF APPLICANT (Full legal name and mailing address as it should appear on contract if one is executed)

THE HIDDEN SPLENDOR MINING COMPANY
P.O. BOX 2306
SALT LAKE CITY
UTAH

DMEA
DEPARTMENT OF THE INTERIOR
MAY 26 1958
REGION III
DENVER, COLORADO

APPLICANT NOT TO USE THIS BLOCK

Docket Number	DMEA-5036
Date Received	5-29-58
Government Participation %	
Region	III
Division Code	700

BUSINESS ORGANIZATION (Check one)

- Individual [ ]
- Corporation [XXX]
- Partnership [ ]
- Other (Specify) [ ]

State in which firm is organized: DELAWARE

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

Name	Address	Title
A. Payne Kibbe	As shown above	President
D. I. Hayes	" " "	Vice-President & General Manager

Mineral(s) for which you wish to explore: URANIUM

Estimated Cost of Project: $ 37,465.00

LOCATION OF PROPERTY

Name	County	State
Redd Lease Group	San Juan	Utah

GENERAL INSTRUCTIONS

Before filling out this application, please read DMEA Order-I, Revised, "Government Aid in Defense Exploration Projects." To assure prompt action, your application must provide all applicable material and information specified on the back of this application form. Avoid unnecessary correspondence and delays by submitting complete and accurate information. *Please submit four copies of this application and all accompanying papers* except as otherwise noted. Place your name and address on each sheet. Each item of information, maps, and reports required as a part of this application is described on the back of this form. Identify each attached statement by the item number to which it applies. If an item does not apply to your application, show the item number on your statement and after it write "not applicable." Maps or sketches should be used to supplement narrative descriptions of the property location and boundaries in item 1, existing mine workings and geology in item 2, and the proposed exploration project in item 4. When this information is not too complex, all of it may be shown on one map or sketch. All documents and other attachments submitted as a part of this application, except those in item 2(g) which you mark to be returned, become the property of the Government and will not be returned to the applicant. Send true copies, *not originals*, of leases, contracts, and other documents which are an essential part of your business records. *File this application with the Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C., or with the nearest DMEA Field Office.*

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.

DMEA
DEPARTMENT OF THE INTERIOR
JUN 12 1958
REGION III
DENVER, COLORADO

May 22, 1958
Dated

BY (Signature)

President
Title

A wilfully false statement or certification to any Department or Agency of the United States Government is a criminal offense. U. S. Code, Title 18, Sec. 1001.

INFORMATION REQUIRED WITH THIS APPLICATION

1. *Applicant's Property Rights:*

(a) State the legal description (section, township, and range; metes and bounds; patent number of claims) of the land upon which you wish to explore and all land adjacent to the proposed project area which you own or control. Describe any part of the project land or workings which should not be subject to Government lien for royalty payments. If the land consists of unpatented claims, state the book and page number for each recorded location notice, including amended locations, and the place where recorded (courthouse, recorder's office, county, and state).

(b) State all the names by which you know the property.

(c) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise. If you are not the owner, submit with this application one exact copy of the lease, contract, or other document (with address of owner) under which you control the property.

(d) Describe all liens, mortgages, or other encumbrances on the property.

2. *Physical Description:*

(a) Describe in detail and illustrate with maps or sketches all mining or exploration operations which you know have been or are being conducted upon the lands, including existing mine workings. Describe all production facilities.

(b) State your interest, if any, in operations stated in 2*(a)*.

(c) State, as far as you know, the past and current production, supporting your statement with copies of settlement sheets, mine records, or published data if available.

(d) Describe known ore reserves on the property giving quantities and grades and sampling methods used, supporting your statement with copies of assay certificates and assay maps if available.

(e) Describe by narrative and maps or sketches the geologic features of the property, including ore minerals, geologic formations if known, and type of deposit (vein, bedded, etc.).

(f) State your reasons for expecting to find ore, and if you have sampled the area you propose to explore, show where the samples were taken, describe sampling methods used, and provide copies of assay certificates.

(g) Send with your application at least *two* copies of all geologic or engineering reports, assay maps, or technologic information which you may have, indicating on each whether you require its return to you.

3. *Accessibility of Project:*

(a) To aid DMEA representatives who may be required to examine the property, state the name and address of the person who will meet the DMEA representative; give directions for reaching the property; and describe accessibility of the property including the mine workings.

(b) Name the shipping and supply points and places where employees reside and state the distances between them and the property.

4. *The Exploration Project:*

(a) Describe fully the proposed exploration project giving individual footages and sizes of openings *for each item of work.* Use narrative, maps, plans, and longitudinal and cross sections as necessary. Show the location of the proposed work as related to geologic features such as veins, ore-bearing beds, contacts of rock formations, etc. Show also the relation of the proposed work to any existing mine workings and to *property boundaries* or to the closest identifiable corner.

(b) If an access road to the project must be built, show the location on the property map and state the length, type, and construction methods proposed.

(c) In the event that an exploration contract with DMEA is executed, how soon will the work start and how many months will be required to complete it? State your anticipated average daily or monthly rate of progress for each type of work.

5. *Experience:*

State your operating experience and background with relation to your ability to carry out this exploration project, and also that of the person or persons who will supervise the operations.

6. *Estimate of Costs:*

Furnish detailed estimates of the costs *for each item of the work proposed in 4(a)* under the headings listed below with a total for each heading and the estimated total cost of the project. Costs for any work to be performed by an independent contractor should be shown separately under category *(a)* below. Costs for any work that is not to be performed by an independent contractor should be given in detail under categories *(b)* through *(g)*.

(a) Independent contracts. State the cost of any proposed independent contract for the performance of all or any part of the work, expressed in units of work, such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved. Cost estimates should be supported by bids from three contractors if possible. *(Note* – If none of the work is to be contracted, write "none" after this item.)

(b) Personal services. For necessary supervision, engineering and geological services, and labor, include an itemized schedule of numbers, classes, rates of wages, salaries or fees, and periods of employment. State whether these technicians and employees are available.

(c) Operating materials and supplies. List items of material and supplies with their cost. Include under this heading power, water, and fuel, and units of equipment and tools costing less than $50 each.

(d) Operating equipment. List items of operating equipment to be used giving specifications and indicating how each item is to be acquired – i.e., rented, purchased, or provided by the applicant. If it is rented or purchased, state the estimated rental or purchase price. If it is to be furnished by the applicant, give its present fair market value.

(e) Initial rehabilitation and repairs. Describe the type and the cost of necessary *initial* rehabilitation or repair of existing buildings, fixtures, installations (exclusive of mine workings), and movable operating equipment now owned by the applicant, which will be used on the exploration project.

(f) New buildings, fixtures, installations. Describe each building, fixed improvement, and installation to be purchased, constructed, or installed for the exploration project stating specifications and cost including labor, materials and supervision.

(g) Miscellaneous. For the operating equipment listed in 6*(d)*, describe the type and estimate the cost of repairs and maintenance expected during project operations. Do not repeat initial repairs listed in 6*(e)*. Show also the costs of analytical work, accounting, workmen's compensation and employees' liability insurance, payroll taxes, and other required costs that do not fall within the previous categories.

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)* State whether you are prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation stated in Sec. 7 of DMEA Order–I, Revised.

(b) Explain to what extent you propose to furnish your share of the costs by providing money, by use of equipment owned by you, or otherwise.

* * * * *

FORM 602 5M 10-56

E. J. LONGYEAR
COMPANY

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COMPANY

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FORM 602 5M 10-56

E. J. LONGYEAR
COMPANY

INTRODUCTION

This report, together with Application Form MF-103, revised February, 1957, is an application for a Defense Minerals Exploration Administration Project contract of the unit cost type. A $37,465.00 exploration program is recommended for drilling in an area comprised of about 885 acres of fee land and some 40 contiguous unpatented lode mining claims. The area is situated north of the Big Indian Mining District in San Juan County, Utah. A one-stage drilling program, to be completed by independent contractors, is recommended.

NAME OF APPLICANT

The name of the applicant is THE HIDDEN SPLENDOR MINING COMPANY, a corporation organized and existing under the laws of the State of Delaware, and duly licensed and qualified to do business as a foreign corporation in the State of Utah, with principal offices in Salt Lake City, Utah.

GENERAL

This report, together with the attached completed Form MF-103, is an application for a DMEA loan under a unit form cost contract and has been prepared

in accordance with DMEA Order No. 1, Amended. It is to be submitted in quadruplicate to the Executive Officer, Region III, DMEA, 224 New Customhouse Building, Denver 2, Colorado.

Sufficient space is not available on Application Form MF-103. Therefore, the necessary information is supplied in this report with reference in each case to the number and letter of the item of required information as given in Form MF-103.

(1) APPLICANT'S PROPERTY RIGHTS

(a) Legal Description of Property

The area consists of both fee lands and unpatented lode mining claims, all contiguous, lying in Sections 7, 8, and 18, T.29 S., R.24 E., and Sections 12 and 13, T.29 S., R.23 E., Salt Lake Principal Meridian, San Juan County, Utah. (See Exhibit A.) This area is immediately north of the Big Indian Mining District.

The location notices for all mining claims are posted and copies recorded in the San Juan County Courthouse, Monticello, Utah. Book and page numbers of the recordings are tabulated and attached hereto under Appendix I. The claim outlines and the leased fee lands are shown on Exhibit B, Location Map (in Pocket).

The fee lands which are a part of this application comprise the following:

(a) All of Section 8, T.29 S., R.24 E., SLBM

(b) Lots 1 and 4, Section 7, T.29 S., R.24 E., SLBM

(c) NW 1/4 Section 18, T.29 S., R.24 E., SLBM

(d) E 1/2 of SE 1/4, Section 12, T.29 S., R.23 E., SLBM

(e) E 1/2 of NE 1/4, Section 13, T.29 S., R.23 E., SLBM

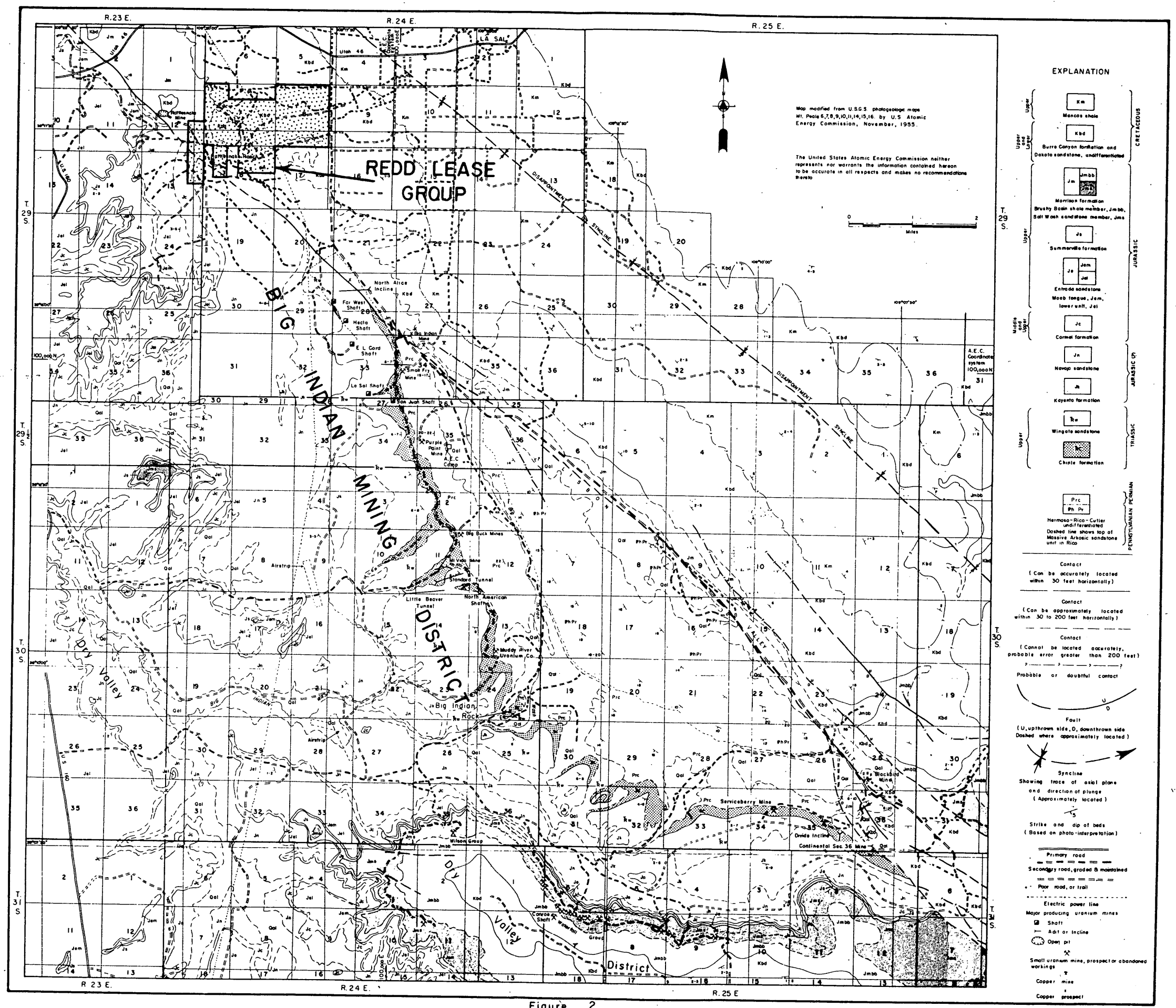

Figure 2.

Photogeologic map of the Lisbon Valley Anticline and surrounding area, San Juan County, Utah

Exhibit A

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E. J. LONGYEAR COMPANY

It is specifically understood that the lands which are to be security for this loan and subject to the government's lien for royalty payments are only those lands described and designated above, in Exhibits A and B, and Appendix I. The Hidden Splendor Mining Company holds no other lands contiguous to this block.

All other properties of The Hidden Splendor Mining Company are specifically excluded from any liens arising from loans obtained through this application.

(b) Name of Property

The area is known as the Redd Lease Group. The claims and fee lands comprising this group are listed above and in Appendix I.

(c) Interest

The applicant's interest in this group is as lessee by right of assignment from James S. Dodge to The Hidden Splendor Mining Company of a lease from Joseph F. Redd and Mabel H. Redd, owners of the fee land and mining claims.

These properties were subject to a prior lease from Joseph F. Redd to the Amuranium Corporation, a Delaware corporation. Said lease was forfeited by default and title to the properties was quieted by a quiet title action in the District Court, San Juan

FORM 602 5M 10-56

E. J. LONGYEAR COMPANY

County, Utah. A quit claim deed to Joseph F. Redd was prepared and is attached in Appendix 2.

A copy of the original lease from Joseph F. Redd and Mabel H. Redd to James S. Dodge and the Amendment and Supplement to the Lease Agreement are attached in Appendix 3.

A copy of the Agreement and Assignment between James S. Dodge, his wife, and the Hidden Splendor Mining Company is attached in Appendix 4.

Because of misunderstandings between Joseph F. Redd and Amuranium Corporation, whether or not assessment work was completed during the period of the lease to Amuranium Corporation, new locations were made July 1, 1957 covering the same ground as the JFR claims. The new claim group is known as the Bilko group. In order to insure against any contingency and for the protection of all parties, both claim groups are listed in the Amendment and Supplement to the lease document.

(d) Liens, Mortgages, or other encumbrances on the property

Under the terms of the lease agreements, there exists a royalty due Joseph F. Redd and Mabel H. Redd, his wife, of 8% of the gross ore sales F. O. B. mine.

There is further a reservation to James S. Dodge of a 10% interest in any net profits that might result from sale of uranium ores mined from the property. This net interest may be subsequently increased to 15% when The Hidden Splendor Mining Company have recovered 200% of their pre-production expenses. Details are set forth in the Assignment, Appendix 4.

There may possibly exist a government lien on the property because of a previous DMEA loan to Amuranium Corporation. Applicants have no knowledge concerning this.

The original lease agreement from Joseph F. Redd and Mabel H. Redd and the subsequent amendment thereto provides for a drilling commitment of 2000 feet in each 6-month period until March, 1960. The first 6-month period terminates August 10, 1958. Following March 1960, the drilling commitment is increased. See Appendix 3.

(2) PHYSICAL DESCRIPTION

(a) Previous Exploration

It is believed that this property was the subject of a previous DMEA exploration program designed to test for uranium mineralization in the Salt Wash member of the Jurassic Morrison formation. This project is believed to have been carried out by Amuranium Corporation. The results are unknown to the present applicants.

Because the Salt Wash member of the Morrison formation lies above the Chinle and Cutler formations, this previous exploration cannot indicate the presence or absence of ore or favorable structural conditions in the Chinle and Cutler formations which are the targets for the drilling proposed in this application.

(b) Interest in Previous Operations

None of the previous exploration on the property was done by the applicant.

(c) Production

There has been no production from the property.

(d) Ore Reserves

There are no known ore reserves on the property.

(e) and (f) General Geologic Features & Favorability

The knowledge gained regarding the Big Indian

uranium deposits during the past several years of operation is basic to an understanding of the geology underlying the subject properties of this application. Detailed geologic mapping has brought out important factors which have controlled ore deposition. These critical factors can be utilized in exploration for similar deposits on the Redd Lease Group east of the Lisbon Valley fault. For this reason, the geology of the Big Indian ore deposits is reviewed below.

Ore bodies of the Big Indian District are contained in the basal part of the Triassic Chinle formation and immediately overlie the Cutler formation of Permian age. Known ore reserves of and past production from deposits in the north end of the Big Indian District are expected to exceed 3,000,000 tons of ore at an average grade of 0.40 - 0.45% U_3O_8.

The Cutler consists of a series of red siltstones interbedded with broad sandstone lenses at several stratigraphic horizons. It has been found in the Big Indian District that immediately underlying the ore-bearing portions of the Chinle is an arkosic sandstone of the Cutler. Adjacent to ore-bearing areas, the Cutler sandstone is bleached to a buff, friable sandstone, distinguished by its biotite content. Outside ore-bearing areas this sandstone is red in color and tightly cemented with calcite. Cross-bedding indicates

a source to the east and a westerly direction of deposition.

The Chinle formation, which overlies the Cutler, with a slight angular unconformity, is 400 feet thick, the upper half red and the lower, green. It consists mainly of siltstones, massive and bentonitic near the base. In the lower part are thin beds of fine mud pellet-limestone pebble conglomerate and some sandstone beds. In west-trending braided scours cut into the Cutler surface, the basal Chinle consists of a coarse, buff-colored, slightly arkosic sand with pebbles of smoky quartz. Immediately overlying the scour deposits, or separated by an inch of siltstone, is a finer sand bed which extends sheet-like across several scours. This bed, where well cemented by pink calcite, forms a major ore horizon. Up dip this horizon may become tightly cemented by fine-grained gray limey cement and be barren. In such an area, the underlying scour sands form the ore horizon. Both scour and sheet sands diminish in grain size westerly, grading into siltstone.

The uranium deposits of the Big Indian District lie on the west flank of the Lisbon Valley anticline. The Triassic rocks dip westerly at about 10°, the Cutler beds approximately 3° steeper. The anticline, an elongate dome trending northwest, is cut by the Lisbon Valley fault. The fault dips northeast at 50° to 60° and the

hanging wall has dropped about 2000 feet, bringing Cretaceous Dakota sandstone east of the fault into contact with the Triassic Chinle formation, west of the fault.

Several small faults branch from the main Lisbon Valley fault, and have been found in the mine workings in the Big Indian Mining District.

The angular unconformity between the Chinle and Cutler formations indicates that, prior to the time of erosion and deposition of the overlying Chinle, the Cutler formation was warped upward by the beginnings of the Lisbon Valley anticline. This bulging and subsequent truncation by erosion caused the Cutler sandstone units to outcrop as broad parallel bands.

Geologic mapping in the mines of the Big Indian District has demonstrated a remarkable correlation of the ore bodies with the pre-Chinle outcrop pattern of the Cutler sandstone. (See Exhibit C)

The continuous belt of ore from the Cord mine northward to the North Alice mine immediately overlies one of these paleo-outcrops of Cutler sandstone. Similarly, ore bodies south of the area in which the Cutler sandstones are shown in detail (LaSal, Columbia, Ike, Mi Vida and Standard mines) are known to overlie similar Cutler sandstones.

The relationship of Chinle ore bodies to these Cutler sandstones is made even more strikingly apparent

by the easternmost ore body at the Far West and North Alice mines. This easterly ore body overlies a parallel Cutler sandstone lower in the stratigraphic sequence which abuts the Chinle farther up dip. In the area between the main ore occurrence and the easterly ore body, the Cutler underlying the Chinle is siltstone, and, though favorable Chinle sands are present at the contact, this intervening area is barren. Exhibit D, a cross section, illustrates these relationships.

Basal Chinle sands either of the scour or sheet type provide a second major control for ore deposition. The better grade and thicker ores occur in these sands. However, ore does occur in Chinle siltstones immediately overlying Cutler sandstone in areas adjacent to basal Chinle sands but where such sands are locally missing. This enlarges the drilling target.

Doming of the Cutler formation and subsequent pre-Chinle erosion was responsible for the pattern of repeated broad bands of Cutler sandstone which have been a major factor in the localization of ore bodies in the Big Indian District. A similar pattern of buried Cutler sandstone outcrops should exist on the nose of the Cutler age structure, and thus be present on the east side of the Lisbon Valley fault, in the area of the Redd Lease group.

If the rising anticline in Cutler time plunged

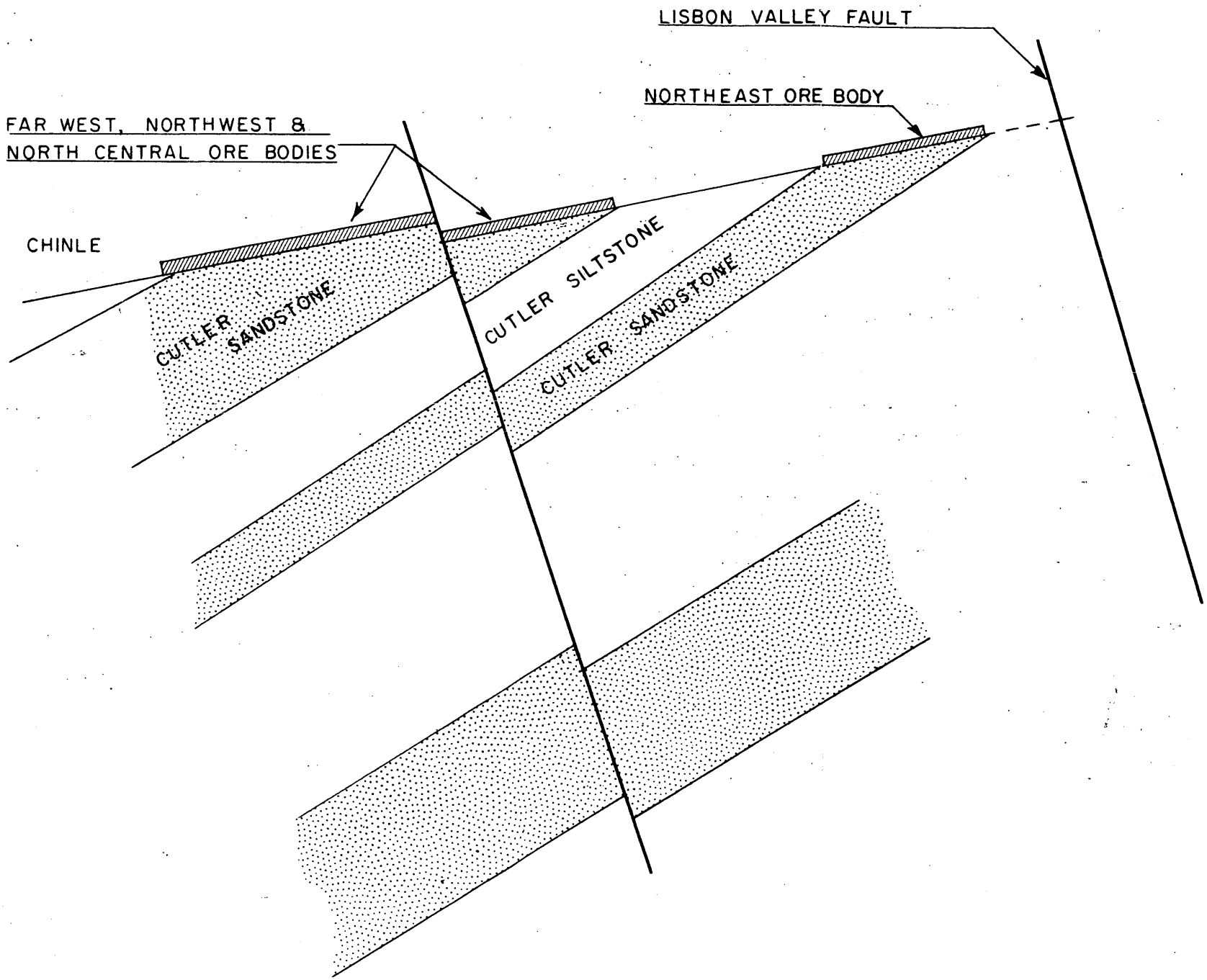

EXHIBIT D

CROSS SECTION OF FAR WEST MINE

SHOWING RELATIONSHIP OF

OREBODIES

TO

CUTLER SANDSTONE

NOT TO SCALE

TO ACCOMPANY THE HIDDEN SPLENDOR MINING COMPANY
APPLICATION TO DMEA, MAY, 1958

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northward similar to the present Lisbon Valley anticline, the paleo-outcrop pattern (after erosion) would show the various sandstone beds as a series of nested horseshoes opening southward. (See Exhibit E.) On the nose of the structure the width of buried Cutler sandstone outcrops would be wider than on the flanks and thus present a broad target.

Limited knowledge of the depositional, structural, and erosional history in Cutler times prior to Chinle deposition makes an accurate projection of the probable position of the Cutler sandstone units east of the Lisbon Valley fault difficult. The projection is further complicated by the fault itself, the plunge of the Cutler-age anticline, continuity of the Cutler sandstones, and their distribution in the stratigraphic sequence.

Structure contour data relative to the Cutler surface is given by Messrs. M. A. Lekas and H. M. Dahl of the Atomic Energy Commission,[1] and has been used in part in projecting the possible trends east of the Lisbon Valley fault.

(1) The Geology and Uranium Deposits of the Lisbon Valley Anticline, San Juan County, Utah; in Geology and Economic Deposits of East Central Utah, I. A. P. G., Field Conference, 1956.

From drilling, mine development, and a deep drilling test of the Cutler, there are known at least five thick sandstone sections in the Cutler. Two of these are associated with the ore deposits of the north end of the Big Indian District. As erosion did not cut deep enough to expose the deepest known sandstone lens in pre-Chinle time, it does not abut the Chinle west of the Lisbon Valley fault.

Two stratigraphically higher Cutler sandstone horizons are known to occur down dip from the Big Indian uranium deposits. Their limits have not been fully determined. Only slight mineralization has been found above these sandstones. Ore deposits were missing probably because of the lack of favorable basal Chinle sands.

The Cutler sandstone lenses have dimensions strike-wise of at least two miles judging from the known sand belt underlying the north end of the Big Indian district. Their extension can logically be presumed.

The existence of favorable basal Chinle sands east of the Lisbon Valley fault appears likely. The source for such sands certainly lies east of the present Big Indian ore bodies as these sands grade into siltstone west of present ore deposits.

No evidence is available to ascertain the amount of horizontal displacement along the Lisbon Valley fault. The probable origin of the fault as the result of salt intrusion suggests such horizontal movement would be minor. Certainly it would be considerably less than the width of the Cutler sandstone lenses, and thus not seriously interfere with postulated projections.

The projected Cutler sandstone bands and overlying Chinle sands present a broad target for exploration and are the target for the drilling proposed in this application. By determining the stratigraphic relations of the Cutler sandstones to the base of the Chinle, evidence will be available to predict the area in which such sandstones abut the Chinle. Exploration along the zones of abutment may be rewarded by the location of large high-grade uranium ore reserves.

(g) Supplemental Data

All available data and supporting illustrations are referred to above in sections (2)(e) and (2)(f) and need not be returned.

(3) ACCESSIBILITY OF PROJECT

(a) Location and Accessibility

The Redd Lease Group lies in T.29S., R.23E. and R.24E., San Juan County, Utah. The center of the Group area lies about 3 miles north of the north end of the main Big Indian District ore Zone. This is approximately 40 road miles southeast of Moab, Utah. The area can be reached by following U. S. Highway 160 south from Moab to the junction with Utah State Highway 46; east on Highway 46 to the paved road leading south to the Big Indian Mining District; and then by a secondary road westerly through the center of the property.

A member of the staff of Hidden Splendor Mining Company will meet the DMEA representative. This staff representative is located at the Far West Shaft of the Hidden Splendor Mining Company in the Big Indian Mining District.

(b) Operating Headquarters

Manpower, materials, and equipment are available in Moab, Utah, 40 miles distant. Office facilities are maintained at the Far West Shaft in the Big Indian Mining District. All operating personnel reside in Moab.

(4) THE EXPLORATION PROJECT

(a) Proposed Work

It is the purpose of the proposed exploration program to locate paleo-outcrops of Cutler sandstone lenses under the Redd Lease Group. By determining the stratigraphic relationships of such sandstones to the base of the Chinle, it will be possible to orient further drilling along the favorable zone of abutment. In the proposed exploration program, drill holes will be of sufficient depth to penetrate 150 feet into the Cutler formation. The holes will be plug-drilled except for a 50-foot section (including the lower 30 feet of the Chinle formation) which will be cored. All drill holes will be tied into the public land survey, including elevations.

It is recommended that 4 holes be drilled, averaging 2600 feet deep, for a total of 10,400 feet. Of this total, 10,200 feet will be plug-drilled and 200 feet cored.

It is proposed that the locations given for holes 1 and 2 be considered firm and that subsequent drill sites be chosen by The Hidden Splendor Mining Company geologist in cooperation and with the consent of the DMEA field team in order to take advantage of the information secured in holes 1 and 2.

All holes will be collared in the Dakota and Burro Canyon formations (undifferentiated) and will penetrate in succession the Morrison, Summerville, Entrada, Carmel, Navajo, Kayenta, Wingate, and Chinle formations and continue 150 feet into the underlying Cutler formation.

It is understood that no holes will be drilled which would be construed as "blocking out" ore, and a hole spacing of greater than 200 feet will be used in off-setting ore or mineralized holes.

It is expected that one Joy 225 truck-mounted drill rig will be used for the job. Sludge samples will be collected for every 10-foot interval and logged by the geologist. Samples collected through the Salt Wash Member of the Morrison formation and in the uncored portion of the lower Chinle formation will be bagged and saved for further study. All core recovered will be studied, logged, boxed, and saved. Drilling operations will be closely supervised by geologists on the staff of Hidden Splendor Mining Company.

All holes will be probed, and geophysical strip logs will be provided with gamma ray, resistivity, and self-potential readings recorded. In addition, a continuous drift survey will be made of all holes.

(b) Access Roads and Drill Site Preparation

Access roads now exist on the Redd Lease Group and only minor maintenance will be necessary. The area is relatively flat and open so no major road work will be required.

Each drill hole location will require bulldozer work to prepare slush pits and to level off an area for the drill rig.

D-7 (or equivalent) bulldozers are available for rent for these uses locally.

(c) Time Required for Project

The work can be started within 30 days and be completed about two months from the date of an exploration project contract. This estimate is based on a 1-rig, 2-shift operation. Advance per day is estimated at 250 feet for plug-drilling and 30 feet for core-drilling.

(5) EXPERIENCE

The Hidden Splendor Mining Company was organized in 1954. The Company has been engaged in acquisition, exploration, development and mining of uranium properties since that time. They have conducted exploration, development and mining of properties in the North end of the Big Indian Mining District since December, 1955. The Company maintains a complete staff with wide experience in exploration, evaluation, development and operation of mining properties.

The E. J. Longyear Company has no interests in the property for which this loan application is made, and, in preparing this report, has acted solely as consultants to The Hidden Splendor Mining Company.

FORM 602 5M 10-56

E. J. LONGYEAR COMPANY

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(6) ESTIMATE OF COSTS

(a) Independent Contracts

All drilling, bulldozer work necessary in preparation of drill sites, road maintenance, etc., and probing, will be performed by independent contractors.

Schedule 1 shows proposed drill hole locations.

Cost estimates for drilling, bulldozer work, and probing are summarized in Schedule 2.

Contractor's bids for this work are submitted in Exhibit F.

(b) Personal Services

The Hidden Splendor Mining Company will supervise this program and furnish geological and engineering services. An estimate of costs is included in Schedule 3.

(c) Operating Materials and Supplies

Estimated costs of office supplies incidental to this project; map and drill log reproductions; and field supplies such as flagging, location stakes, core boxes, etc., are listed on Schedule 4.

(d) Operating Equipment

To be furnished by independent contractors.

(e) Initial Rehabilitation and Repairs

Not applicable.

(f) New Buildings, Fixtures, Installations

Not applicable.

(g) Miscellaneous

Payroll charges, accounting costs, and assay costs are estimated in Schedule 5.

Total estimated project costs are given in Schedule 6.

(7) APPLICANT'S SHARE OF COSTS

(a) and (b) Meeting the Costs

The Hidden Splendor Mining Company will complete this exploration project for uranium and make such payments as will be required to allow completion and will be reimbursed by DMEA. Total cost of this project is estimated at $37,465.00, as summarized in Schedule 6, Summary of Costs. Reimbursement by DMEA will be at the rate of 50% of the allowable costs as stated in DMEA Order No. 1, Amended. The Hidden Splendor Mining Company will contribute $18,732.50 which is 50% of the estimated cost of the project.

Respectfully submitted,

Edwin T. Wood

Edwin T. Wood
Chief Geological Engineer
The Hidden Splendor Mining Company

Louis C. Rove, Jr., Geologist
E. J. Longyear Company

Distribution:	Copies
DMEA-Denver	4
DMEA-Grand Junction	1
Hidden Splendor	4
Longyear-Minneapolis	1
Longyear-New York	1
Longyear-Denver	1

SCHEDULE 1

Drill Hole Locations

Hole No.	Location[1]
1	2600' N 52°W from SW corner of Sec. 8
2	1400' N 11°E from SW corner of Sec. 8
3	2200' N 76°E from SW corner of Sec. 8[2]
4	2900' N 69°W from SW corner of Sec. 8[2]

(1) All locations in T.29 S., R.24 E., San Juan County, Utah.

(2) Tentative locations. Final locations to be determined by Hidden Splendor geologist in cooperation and with the consent of DMEA field team. See text, 4(a).

SCHEDULE 2

Cost Estimates - Independent Contractors

10,200 feet non-core drilling, 0-2600 feet depths @ $2.85/ft	$29,070.00
200 feet core drilling @ $20.00/hr., estimated rate 1.25 ft/hr., total 160 hrs	3,200.00
8 hours drill crew standby or washout time @ $12.50/hr	100.00
10,400 feet probing and logging @ $0.115/ft	1,196.00
10,400 feet continuous drift survey @ $0.075/ft plus $25.00/set up (4)	880.00
32 hours logging crew driving time @ $10.00/hr	320.00
8 hours logging crew standby time @ $10.00/hr	80.00
32 hours bulldozing (D7 or equivalent) time @ $14.00/hr	448.00
4 holes @ $50.00/hole for cost of lost circulation materials in excess of $200.00	200.00
4 holes @ $100.00/hole for cost of diamond core heads	400.00
Independent Contractors Total Cost . . .	$ 35,894.00

FORM 602 5M 10-56

E. J. LONGYEAR
COMPANY

SCHEDULE 3

Cost Estimates - Personal Services

Service	
Geologist - $750/month, ½ time	$750.00
Surveyor - $650/month, 2 days/month	120.00
Transportation (operating costs for 1 unit)	360.00
Drafting - 8 hrs/month @ $3.00	48.00
Personal Services Total Cost	$1,278.00

FORM 602 5M 10-56

E. J. LONGYEAR
COMPANY

SCHEDULE 4

Cost Estimates - Operating Materials & Supplies

Office supplies, map and log reproduction	$66.00
Field supplies (core boxes, stakes, flagging, sample sacks, etc)	40.00
Operating Supplies Total Cost	$106.00

FORM 602 5M 10-56

E. J. LONGYEAR COMPANY

SCHEDULE 5

Cost Estimates - Miscellaneous Expenses

Payroll charges and accounting costs (estimated at 10% of wages)	$ 87.00
Assays (chemical), 30 assays at $5.00 each	100.00
Miscellaneous Expenses Total Cost	$187.00

SCHEDULE 6

SUMMARY OF COSTS

(a)	Independent Contractors	$ 35,894.00
(b)	Personal Services	1,278.00
(c)	Operating Materials & Supplies . . .	106.00
(d), (e), (f)	. . . . .	---
(g)	Miscellaneous Expenses	187.00
Total Project Cost	. . . . .	$ 37,465.00

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XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
OFFICE OF MINERALS EXPLORATION
22h New Customhouse
Denver 2, Colorado
October 31, 1958

Memorandum

To: Secretary to the Operating Committee, OME

From: OME Field Team, Region III

Subject: Docket No. MMMA 5036 (Uranium), Hidden Splendor Mining Company (Redd Lease group of claims) San Juan County, Utah
Joint Report of Examination

Enclosed are the original and two copies of a joint report of examination by J. W. Hasler, U. S. Geological Survey, and M. F. Robertson, U. S. Bureau of Mines, in which approval of a 4 hole program of exploration on the subject property is recommended.

This request for exploration on the Redd Lease group of claims, (MMMA-5036) is based on the identical assumptions used in the request for exploration on the Coyote Wash claim group (MMMA 5035). Both exploration programs are recommended for approval by our Grand Junction staff.

In our transmittal letter for Docket No. MMMA-5035, the Coyote Wash claim group, we pointed out the hypothetical nature of the evidence of the presence of significant ore deposits on the property, the difficulty of locating the target areas, and the large rewards of a successful exploration program. We concluded that the proposed program (6 holes) was much too limited to accomplish the objectives. With tongue in cheek we recommended an expanded program of exploration, at the same time admitting that a denial of that request without prejudice would be appropriate.

Our comments on the technical aspects of this program are identical to those made for MMMA Docket 5035. However, in this case we do not hesitate to recommend denial without prejudice, for in our opinion concurrent exploration of the two properties cannot be justified. Discussions with members of the Geological Survey familiar with the area, and with our Grand Junction staff suggest that exploration of the Coyote Wash claim group is slightly preferable to exploration of the Redd Lease.

If you approve exploration on the Coyote Wash claim group (DMEA-5035) and if that exploration proves the favorability of the Cutler-Chinle ore horizon north of the Lisbon Valley fault, reconsideration of a request for exploration on the Reed Lease claim group (DMEA-5036) would be appropriate.

Also enclosed are nine extra copies of Figure 4 for possible use by your office.

Original signed by
J. W. TOWNSEND

J. W. Townsend

Original signed by
E. N. HARSHMAN

E. N. Harshman

Encls.

HMC:bh

cc: Harshman) with
OME/DFC) copy
Robertson, OME/GJ) of
Hasler) subject
Baker, AEC (2)) report
Docket DMEA-5036)
Chron.

TRANSMITTED NOV 6 1958

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. Box 360
Grand Junction, Colorado

OME
DEPARTMENT OF THE INTERIOR
OCT 28 1958
REGION III
DENVER, COLORADO

IN REPLY REFER TO:
MINERAL DEPOSITS
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RECEIVED
OCT 27 1958
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

October 23, 1958

Memorandum

To: Acting Executive Officer, OME Field Team, Region III

Through: E. N. Harshman

From: J. W. Hasler
H. F. Robertson

Subject: Transmittal of a joint report of examination on DMEA Docket 5036, Hidden Splendor Mining Company (Uranium), Redd Lease group of claims, San Juan County, Utah

Enclosed are 11 copies of a report of examination on the Redd Lease group of claims, Big Indian Mining district, San Juan County, Utah, by J. W. Hasler, U. S. Geological Survey and H. F. Robertson, U. S. Bureau of Mines. The figures to accompany the report are being sent under separate cover, some of which must be duplicated in Denver due to the present lack of facilities in Grand Junction, Colorado. The application was received in Grand Junction too late to be completely processed before June 30, 1958 (the expiration of the DMEA program). A field examination was made by J. W. Hasler and H. F. Robertson on May 28, 1958, but the report has been held up pending completion of other DMEA work having a higher priority.

The Hidden Splendor Mining Company proposes to explore the deeply buried basal Chinle formation of Triassic age immediately overlying the Cutler formation of Permian age on the northeast side of the Lisbon Valley fault. The purpose of the proposed exploration work is to locate paleo-outcrops of Cutler sandstone lenses under the Redd Lease group of claims and thereby find possible ore bodies that may lie associated with them; as is the case of the ore bodies that were discovered on the hangingwall side of the Lisbon Valley fault. footwall

A thorough study of the proposal has been made by the examining team. Much knowledge has been gained regarding the Big Indian Wash uranium deposits during the past several years of active mining operations. Detailed mapping and exploratory work by the Government and private interests has determined several important factors which have controlled ore deposition. Many different theories have been propounded regarding the possible occurrence of ore bodies of similar magnitude on the northeast or downthrown side of the Lisbon Valley fault. Information from recent drilling the the immediate area indicate the presence of deeply buried basal Chinle sandstone as well as some mineralized material.

Reviewed by
OME OPERATING COMMITTEE

(date)

It is the opinion of the examining team that the proposed program has merit and even though the program itself, or rather the target, is one of a wildcat nature, there is still a probability of discovering ore bodies of significant size and grade on the northeast side of the Lisbon Valley fault. It is, therefore, recommended that the proposed exploration program outlined in this report of examination be approved and that the Office of Minerals Exploration enter into a contract with the applicant to complete the work herein suggested.

J. William Hasler

J. William Hasler
Geologist

H. F. Robertson by JWH

H. F. Robertson
Mining Engineer

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MINERAL DEPOSITS
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GEOLOGICAL SURVEY
DENVER, COLORADO

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY EXAMINING TEAM
REGION XII

DMEA 5036

HIDDEN SPLENDOR MINING COMPANY

REED IRASE GROUP

SAN JUAN COUNTY, UTAH

Uranium

Joint Engineering and Geologic Report

by

J. William Hesler
U. S. Geological Survey

H. F. Robertson
U. S. Bureau of Mines

October 1958

(Code)

DMRA 9036
HIDDEN SPLENDOR MINING COMPANY
REED LEASE GROUP
SAN JUAN COUNTY, UTAH

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ILLUSTRATIONS

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4.	Claim map of the Redd Lease group of claims, San Juan County, Utah, showing proposed exploration drilling. (This figure to be used in contract only.)	23

DMEA 5036
HIDDEN SPLENDOR MINING COMPANY
REDD LEASE GROUP
SAN JUAN COUNTY, UTAH

INTRODUCTION AND SUMMARY

The Hidden Splendor Mining Company, P. O. Box 2306, Salt Lake City, Utah, submitted an application for Government assistance on May 22, 1958, to explore for uranium ore on their property known as the Redd lease group of claims in T. 29 S., R. 24 E., and T. 29 S., R. 23 E., Big Indian Wash district, San Juan County, Utah. The proposed project would consist of adits and core drilling to explore for uranium deposits in the basal Chinle formation of Triassic age. The estimated total cost of the exploration program proposed by the applicant is $37,465.00 with DMEA participation at 50 percent of the total or $18,732.50.

The application was received too late to be completely processed before June 30, 1958 (the expiration date of the DMEA program), but a field examination was scheduled for May 28, 1958. The examining team consisted of R. W. Robertson, U. S. Bureau of Mines and J. W. Hasler, U. S. Geological Survey and was accompanied by Edwin T. Wood, William B. Loring, and Ed. Beyer, representing the Hidden Splendor Mining Company.

The applicant proposes to explore the deeply buried basal Chinle formation of Triassic age immediately overlying the Cutler formation of Permian age on the northeast side of the Lisbon Valley fault. The purpose of the exploration is to locate paleocontacts of Cutler sandstone lenses under the Redd lease group of claims. By determining the stratigraphic relationships of such sandstones to the base of the Chinle, further drilling would be oriented along the favorable zone of abutment.

The applicant's proposed one-stage exploration program consists of four holes averaging 2,600 feet deep, for a total of 10,400 feet. The average drill holes would be noncore drilled for 2,480 feet, then core drilled for 90 feet (includes the lower 30 feet of the Chinle formation and the upper 60 feet of the Cutler formation), then noncore drilled for the remaining 130 feet. The locations of the first 2 holes would be fixed and subsequent drill sites for the remaining 2 holes would be determined by the applicant subject to the approval of the Government.

Much knowledge has been gained regarding the Big Indian Wash uranium deposits during the past several years of active mining operations and attendant exploration. Detailed geologic mapping by both Government and private interests has determined several important factors which have controlled ore deposition. With regard to the subject proposed project, these factors can be utilized in exploration for uranium deposits at depth on the northeast side of the Lisbon Valley fault.

Accordingly, the examining team recommends that the Government participate in a program designed to explore for uranium in the Chinle-Cutler contact zone at depths averaging 2,600 feet. The recommended program would cost an estimated $35,386.00, with Government participation at 50 percent of the total or $17,693.00.

ACKNOWLEDGMENTS

The applicant's consultant, the E. J. Longyear Company, submitted a very well prepared brochure concerning the proposed exploration project.

Pertinent information regarding the Big Indian Wash area was obtained from work done by both the U. S. Atomic Energy Commission and U. S. Geological Survey personnel. All private companies in the general area were very willing to cooperate with Government personnel by allowing access to any data which might be used in evaluating the proposed exploration program.

Memoranda of review by James Pappas, U. S. Bureau of Mines and W. P. Williams, U. S. Geological Survey were noted and their comments considered by the examining team.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The Redd Lease group of claims is located in secs. 7, 8, and 18, T. 29 S., R. 24 E., and secs. 12 and 13, T. 29 S., R. 23 E., Salt Lake Meridian, San Juan County, Utah (fig. 1). This area is about 2 miles northwest of the applicant's Coyote Wash group (IMEA 5035) and about 3 miles north of the north end of main Big Indian Wash district. This is about 40 road miles southeast of Moab, Utah. The area can be reached by following U. S. Highway 160 south from Moab to the junction with Utah State Highway 46; east on Highway 46 to the paved road leading south to the Big Indian Wash area; and then by a secondary road (Rattlesnake Ranch and Rattlesnake mine access road) westerly through the center of the property. The Hidden Splendor Mining Company staff is headquartered at the Far West shaft, one of the mines operated by the applicant.

The Redd Lease group lies in a broad northwesterly trending valley at an average altitude of about 6,600 feet. The vegetation is mostly desert grasses and sagebrush with the higher areas sparsely covered with pinyon pines and cedars. The southern part of the group is under cultivation, mainly for pasture use. Drill-site preparation would be no problem since several access roads crossing the area were previously constructed for other purposes.

The climate of the subject area is semiarid, however, due to its proximity to the La Sal Mountains, it is subject to occasional rain and snowstorms. Mining operations, though, are carried on year-round.

Ore produced from the area is almost entirely shipped to the uranium processing plant at Moab, Utah. There are no unusual problems of supply, labor, power, or marketing. Water is available from nearby streams and springs.

The proposed drilling would be done by an independent contractor who would furnish equipment, housing, and most supplies for his own personnel. The applicant would furnish technical and supervisory personnel for the proposed work.

HISTORY AND PRODUCTION

Vanadium and some high-grade uranium were produced from Morrison formation deposits near Lisbon Valley during both World Wars. The earliest uranium production from the Chinle formation was in 1917, from the Serviceberry and Divide mines. No important uranium discoveries, other than in the Salt Wash member of the Morrison formation, was made until 1952 when a deposit in the base of the Chinle formation was found in Big Indian Wash (Mi Vida and Standard mines). Since 1952, other discoveries along Big Indian Wash have resulted in the development of the largest uranium reserves and current production in Utah.

The Redd Lease group, comprising the proposed project area, consists of plots leased from the State of Utah and unpatented mining claims. The JFR claims were located during December 1953 and January 1954. There has been no uranium production from any of the property included in the proposed project.

OWNERSHIP

The property included in the subject application consists of 38 full and fractional mining claims and certain fee lands located in secs. 7, 8, and 18, T. 29 S., R. 24 E., and secs. 12 and 13, T. 29 S., R. 23 E., Salt Lake Meridian, San Juan County, Utah (fig. 1). The fee lands which are included for subordination are as follows:

(a) All of sec. 8, T. 29 S., R. 24 E., SLM.

(b) Lots 1 and 4, sec. 7, T. 29 S., R. 24 E., SLM.

(c) Lots 1 and 4, sec. 18, T. 29 S., R. 24 E., SLM.

(d) E-1/2 of NE-1/4, sec. 12, T. 29 S., R. 23 E.,SLM.

(e) E-1/2 of NE-1/4, sec. 13, T. 29 S., R. 23 E., SLM.

The unpatented mining claim locations are recorded at the San Juan County Courthouse, Monticello, Utah, as follows. The 38 claims are taken from the claim map (Exhibit B) included with the application and cover the ground within the boundaries shown thereon.

	Original Location			Amended Location		
Claim Name	Date	Book	Page	Date	Book	Page
JFR 1- 8 incl.	1-2-54	45	413-417 incl.	Not amended		
JFR 9-18 incl.	1-2-54	45	418-423 incl.	8-15-54	149	99-108 incl.
JFR 19-20	1-1-54	45	423-424	8-15-54	149	109-110
JFR 21-22	1-2-54	45	424-425	8-15-54	149	111-112
JFR 30-38 incl.	1-2-54	45	425-429 incl.	8-15-54	149	113-121 incl.
JFR 130-136 incl.	1-2-54	45	433-436 incl.	8-15-54	149	123-129 incl.

The area covered by the above claims was restaked as the "Bilko" group of claims by the applicant as a protective measure since there was some question as to whether or not the assessment work for the period ending July 1, 1957, had been done. The counting engineer was unable to find any pertinent information in the San Juan County records to resolve the question. Since the applicant was having abstracts prepared about June-July 1958, the situation, with respect to the validity of the JFK and the Bilko claim groups may now have changed. In any event, both claim groups are shown on Figure 4 and the recording data for the Bilko claims (somewhat deflatant) is shown below.

Claim Name	Recording Data		
	Date	Book	Page
Bilko 1- 8 incl.	Apparently not recorded		
Bilko 9	7-30-57	188	41
Bilko 10	Apparently not recorded		
Bilko 11-14 incl.	7-30-57	188	42- 43 incl.
Bilko 15-20 incl.	7- 8-57	182	358-354 incl.
Bilko 21	7-30-57	188	44
Bilko 22	7- 8-57	182	355
Bilko 23-24	7-30-57	188	44- 45
Bilko 25-32 incl.	7- 8-57	182	355-359 incl.
Bilko 33-34	Apparently not recorded		
Bilko 35-40 incl.	7- 8-57	182	359-362 incl.
Bilko 41-42	7-30-57	188	45- 46

As with the JFR claims, the Milko claims are taken from the map submitted by the applicant on June 20, 1958, in answer to a request from the Washington office, DMMA.

The property concerned by the subject application is owned by Joseph F. Rudd and Mabel M. Rudd (address: c/o Allen B. Sorenson, 287 North University Avenue, Provo, Utah) and was part of a tract of land leased to the Amarantum Corporation (DMMA 3475) during the period from 1954 to 1957. Amarantum Corporation, in 1957, quit claimed the property to Joseph M. Rudd. On January 10, 1958, Rudd and his wife leased the property concerned by the subject application to James S. Dodge (address: 4446 N. 28th Street, Phoenix, Ariz.) who, in May 1958, assigned the lease to the Hidden Splendor Mining Company, the subject applicant.

If acceptable proof of the validity of the unpatented mining claims can be furnished by the applicant, it appears that its interest in the property is satisfactory.

PRESENT STATUS

Exploration and Development

The Ammerman Corporation (RMRA 3475, Contract Lbm-X 760) drilled 16 holes in the vicinity of the Redd Lease group during 1955. At least 4 of the holes drilled under the above contract were located within the boundaries of the applicant's property. These holes were, however, testing for uranium mineralization in the Salt Wash member of the Jurassic-Morrison formation and all proved to be barren. The applicant has recently completed a hole on the Redd Lease group (to fulfill lease requirements) which penetrated favorable basal Chinle sandstone showing some indications of uranium mineralization in the ore horizon. Other private interests were drilling in the general vicinity of the property during June and July 1958 with encouraging results.

Mining Equipment and Other Facilities

There is no mining or exploration equipment on the property at the present time. The applicant, however, operates other active properties nearby which are fully equipped with all the necessary mining machinery and accessories. The proposed exploration work would be done by independent contractors furnishing their own equipment and operating personnel. The applicant would provide personnel for the technical direction, evaluation, and supervision of the project work.

The applicant's present facilities at the operating mines would serve as an engineering office and living quarters for company personnel.

GEOLOGY

The property concerned in the application, from the Hidden Splendor Mining Company, known as the Redd Lease group, lies on the northwest flank of the Lisbon Valley anticline in secs. 7, 8, and 18, T. 29 S., R. 24 E., and secs. 12 and 13, T. 29 S., R. 23 E., San Juan County, Utah (fig. 2).

The claims included in this application were a part of the same group of claims that were included in DMEA Docket 3475, Ammerman Corporation, Contract DMA-2 760, designed to explore for uranium in the Chinle formation on the southwest side of the Lisbon Valley fault as well as to explore for uranium in the Morrison formation on the northwest side of the fault.

Lisbon Valley is a northwest-trending collapsed salt anticline that has been transected longitudinally by a normal fault known locally as the Lisbon Valley fault. The fault which strikes N. 65° W. and dips about 55° northeast brings the Hermosa formation of Pennsylvanian age in contact with the Morrison formation of Jurassic age. Maximum displacement on the fault is about 4,500 feet in the southern end of Lisbon Valley, but on and near the Redd Lease group the throw ranges from about 1,500 feet to less than 250 feet.

Rocks exposed on the Redd Lease group range in age from the Wingate formation of upper Triassic age to the Burro Canyon formation of lower Cretaceous age. The Moss Back member of the Chinle formation of upper Triassic age is the main ore-bearing formation in the Big Indian Wash area, however, it is not exposed in the property. The Chinle formation is about 400 feet thick and rests unconformably on the Cutler formation of Permian age. The Moss Back member of the Chinle formation ranges from 25 to 60 feet in thickness and has an average thickness of about 50 feet. Uranium deposits are found in the lowermost 20 to 30 feet of the Moss Back member, and occur in a thickened portion of the Moss Back indicating a channeling of the sediments.

ORE DEPOSITS

Major uranium deposits in the Lisbon Valley area occur at the base of the Chinle formation. Locally, the deposits extend for a short distance across the unconformity at the base of the Chinle formation and into the Cutler formation. The deposits form a northerly trending belt along the southwest flank of the Lisbon Valley anticline. This belt coincides closely with the area where the "sugar sand" of the Cutler formation is in contact with the overlying Chinle. Deposits within this belt may contain up to several hundred thousand tons of ore with an average grade ranging from 0.50 to 0.60 percent U_3O_8 as it is mined, lower grade deposits occur off to the sides of the main belt and these deposits contain up to 500,000 tons of ore with an average grade ranging from 0.15 to 0.20 percent U_3O_8 (fig. 3).

Uranium deposits in the base of the Chinle formation in the Lisbon Valley area occur as flat-lying irregularly shaped bodies up to 1,000 feet across and 15 feet thick with poorly defined edges. The deposits are commonly associated with basal arkosic sandstone lenses and with bleaching in the underlying Cutler formation.

Although there are no deposits in the Morrison formation of Jurassic age known on the property, that formation contains significant deposits in the Rattlesnake area to the northwest. The Rattlesnake ore is in a highly faulted and fractured zone adjacent to the Lisbon Valley fault, and some 80,600 tons of ore has been produced from an open-pit operation as well as an incline. The ore averaged about 0.26 percent U_3O_8. Recent company figures quote the value of ore as being worth $23.25 per ton or a grade of ore equalling 0.275 percent U_3O_8.

Production from mines in the Shinle formation throughout the district, on the upthrown side or southwest side of the Lisbon Valley fault, total 1,665,640 tons of ore averaging 0.38 percent U_3O_8 as of January 1, 1958. The ore worth $33.10 per ton will gross some $55,132,583.00, and it is for such deposits that the applicant plans to explore at depth.

These are considered as favorable criteria for the occurrence of uranium ore. It has not been shown to date that deposits in the Lisbon Valley area are localized in paleostream channels. On the contrary, the main belt of deposits appear to trend normal to the direction of known sedimentary trends.

Ore minerals are relatively unoxidized and uranium occurs principally in the minerals uraninite and coffinite. The minerals are disseminated throughout the host rock and commonly replace calcite and coalified plant fragments as well as quartz and feldspar grains.

PROPOSED EXPLORATION

The applicant proposed a single stage drilling program designed to locate paleocontorps of Cutler sandstone lenses under the Redd Lease group. By determining the stratigraphic relationships of such sandstones to the base of the Chinle, further drilling will then be located along the favorable zone of abutment.

The proposed exploration program would consist of four drill holes averaging 2,600 feet per hole. The average hole would be noncore drilled for 2,400 feet, then core drilled for 50 feet (includes the lower 30 feet of the Chinle formation and the upper 20 feet of the Cutler formation), then noncore drilled for the remaining 150 feet. The four holes would require an estimated total of 10,200 feet of noncore drilling and 200 feet of core drilling.

The locations of the four holes are shown on figure 4. The applicant proposed that the locations given for holes 1 and 2 be considered firm and that subsequent drill sites be chosen by the Company geologist, subject to the approval of the BMEA, basing the locations on the information obtained by holes 1 and 2.

All holes would be collared in Dakota and Burro Canyon formations (undifferentiated) and will penetrate in succession the Morrison, Summerville, Entrada, Carmel, Navajo, Kayenta, Wingate, and Chinle formations and continue 150 feet into the underlying Cutler formation. Sludge samples would be collected for every 10-foot interval and logged. Those through the Salt Wash member and the uncored portion of the lower Chinle would be logged and saved for further study. All core recovered would be logged, boxed, and stored. Drilling operations would be closely supervised by geologists on the staff of the Hidden Splendor Mining Company.

All project drill holes would be probed and geophysical strip logs would be provided with gamma-ray, resistivity, and self-potential readings recorded. In addition a continuous drift survey would be made to determine the actual locations of the lower parts of the holes.

The total cost of the applicant's proposed project is estimated to be $37,465.00 with the Government participation at 50 percent or a maximum of $18,732.50.

The BMEA examining team considers the applicant's proposed project feasible and recommend approval of the request for Government assistance. The recommended program is essentially the same as that proposed by the applicant.

Estimated Cost of the Proposed Project

The applicant submitted three bids from independent contractors as a basis for the estimated cost of the proposed drilling. The low bid appears to be that of Scott Brothers Drilling Company and is outlined below.

Rancore drilling	$ 2.85 per foot
-plus the cost of lost circulation materials in excess of $600.00 per hole	
Core drilling	$20.00 per hour
-plus the cost of lost circulation materials in excess of $200.00 per hole -plus the cost of diamond core heads	
Standby time	$12.50 per hour

It is noted that coring bid is at an hourly rate per foot instead of "price per foot." However, when a realistic estimate of the probable coring rate per hour is used, this method of charging becomes as acceptable as the

other. The applicant's estimated rate of 1-1/4 feet per hour is considered too low by the examining team and is doubled to an estimated rate of 2-1/2 per hour.

The in-hole probing and surveying prices quoted by Century Geophysical Corporation are considered acceptable and are equivalent or lower than the usual prices paid for such services in the Big Indian Wash area. The prices quoted for the logging services are as follows:

1. Gamma-ray and resistance curves	$ 0.10/ft.
2. Self-potential curve	0.015/ft.
3. Continuous drift survey (plus $25.00 setup charge per hole)	0.075/ft.
4. Driving time to and from project	10.00/hr.
5. Standby time at project	10.00/hr.

The unit prices for drilling and related services outlined above are used by the examiners as the basis for computation of the estimated cost of the proposed project. This estimate is based on a 1-rig, 2-shift operation. Advance per day is estimated at 250 feet for accessoe drilling and 40 feet for core drilling. At this rate, each hole will require about 8 days for completion but, to allow for evaluation and unexpected difficulties, an estimate of 10 days per hole is considered more realistic. Thus, the project should be completed in a maximum of 2 months.

The estimated cost of the recommended project is shown below. Some revisions have been made where the applicant's estimate was considered excessive.

(1) Independent Contracts

Drilling, noncore 10,200 feet at $2.85/ft.	$ 29,070.00	
Drilling, core 200 feet at $80.00/hr.; estimated rate 2½ ft./hr.; total 80 hours	1,600.00	
Standby time (drill crew) 8 hours at $12.50/hr.	100.00	
Radiometric probing and logging 10,400 feet at $0.115/ft.	1,196.00	
Continuous drift survey 10,400 feet at $0.075/ft. plus $85.00/setup (4)	880.00	
Driving time (logging crew - 380 miles/trip) 32 hours at $10.00/hr. (4 trips)	320.00	
Standby time (logging crew - 2 hours/hole) 8 hours at $10.00/hr. (4 holes)	80.00	
Bulldozing 12 hours at $14.00/hr.	168.00	
Total independent contracts		$ 33,414.00

(2) Supervision and Technical Services

1 geologist, 1/2 time		
1 month at $750/mo.	$ 750.00	
1 surveyor, 2 days/mo. 4 days at $30.00/day	120.00	
1 draftsman, 8 hours/month 16 hours at $3.00/hr.	48.00	
Total supervision and technical service		$ 918.00

(3) Operating Materials and Supplies

Office supplies, map and log reproduction 2 months at $30.00/mo.	$ 60.00	
Field supplies (surveying and sampling) 2 months at $20.00/mo.	40.00	
Fuel and repairs on field vehicle 2 months at $50.00/mo.	100.00	
Lost circulation materials in excess of $500.00/hole 4 holes at $50.00/hole	200.00	
Diamond core heads 4 holes at $100.00/hole	400.00	
Total operating materials and supplies		$ 800.00

(4) Operating Equipment

1 Jeep or pickup valued at $1,800 and depreciated at $30.00/mo. 2 months at $30.00/mo.	$ 60.00	
Total operating equipment		$ 60.00

(5) and (6) Rehabilitation, Repairs, New Construction, etc.

None

(7) Miscellaneous

Payroll changes and accounting costs 10 percent of $918.00	$ 91.80	
Sampling and analysis, maximum of 20 samples assayed chemically for U_3O_8 and V_2O_5 at $5.00/sample	100.00	
Total miscellaneous		$ 191.80
Total estimated cost of project		$ 35,383.80

Overall cost per foot of drilling	$ 35,383.80 / 10,400 ft.	=	$ 3.40
Incidental allowance per foot (Total cost less independent contracts and chemical analyses)	$ 1,869.80 / 10,400 ft.	=	$ 0.18

Summary of Costs Suggested for Contract Use

Project - 4 holes - Estimated time for completion - 2 months

Actual Cost Items

Independent Contracts

Nonacore drilling 10,200 feet at $2.85/ft.	$ 29,070.00	
Core drilling (200 feet) 80 hours at $20.00/hr.	1,600.00	
Standby time (drill crew) 8 hours at $12.50/hr.	100.00	
Radiometric probing and logging 10,400 feet at $0.115/ft.	1,196.00	
Continuous drift survey 10,400 feet at $0.075/ft. plus $25.00/setup (4)	880.00	
Driving time (logging crew) 32 hours at $10.00/hr.	320.00	
Standby time (logging crew) 8 hours at $10.00/hr.	80.00	
Bulldozing (D-7 Cat or equiv.) 12 hours at $14.00/hr.	168.00	
Total actual cost items		$ 33,414.00

Fixed Unit Cost Items

Chemical analyses for U_3O_8 and V_2O_5 20 samples at $5.00/sample	$ 100.00	
Incidental allowance 10,400 feet at $0.18/ft.	1,872.00	
Total fixed unit cost items		$ 1,972.00
Total for Project		$ 35,386.00
Government participation at 50 percent		$ 17,693.00

CONCLUSIONS AND RECOMMENDATIONS

Numerous geologists in Government service as well as company and consulting geologists have entertained the idea of drilling for uranium ore bodies on the downthrown side of the Lisbon Valley fault with the hope of discovering ore bodies of comparable size to those found on the southwest, or upthrown side of the fault.

Obviously, such exploration is extremely long shot and even possibly sheer wildcat drilling, however, several companies have recently attempted to drill at these depths (1,500 - 3,000 feet) to explore the ground most likely to contain a possible continuation of the Lisbon Valley ore bodies.

The Ammonium Corporation (DMEA Docket 3475) completed drilling 16 holes in both the hangingwall and footwall sides of the fault near the Redd Lease group (about 2 miles northwest of the Coyote Wash group) under Contract IAm-2 760 for a total of 10,572 feet of core and noncore drilling costing $28,227.84 of which the Government paid 75 percent or $21,170.43. Results of this contract were essentially negative and no further work was recommended at that time. However, the Ammonium Corporation was principally a stock promoting company and the project was very poorly managed. Throughout the course of the contract many difficulties were encountered because of inexperienced drillers and inefficient operators. These factors led to the poor results obtained under the contract.

Only a limited amount of geology was known about the immediate area at the time of the field examination and the U. S. Geological Survey geologists working in the area felt that even then a long shot exploration project was worth the expenditures required to possibly discover added uranium reserves. Since that time much more drilling has been done and various geological studies throughout the district have been made upon which to base additional work.

The Beale Mining Company is currently drilling on the downthrown side of the Lisbon Valley fault as is the Hidden Splendor Mining Company, and P. G. Mansfelder. The Superior Oil Company also are either drilling or intend to drill out an area on the downthrown side of the Lisbon Valley fault.

The Hidden Splendor Mining Company has recently completed a hole on the Redd Lease group for the purpose of fulfilling their lease agreement. The hole was drilled to a depth of 2,700 feet of which the lower 80 feet was in the Cutler formation. M. A. Lohns and N. N. Sale (verbal communications), U. S. Atomic Energy Commission geologists, reported that there was from 4 to 5 feet of basal Chinle sandstone that appeared favorable for the deposition of ore minerals. A hole drilled by F. G. Ferrefelder also attained a depth of 2,700 feet and penetrated the Cutler formation of Permian age. The basal Chinle sandstone (the ore-bearing sandstone) also appeared favorable. The two holes were completed since the date of the field examination.

Numerous theories prevail relative to the justification of the presence of ore on the downthrown side of the Lisbon Valley fault. Some propose a continued paleochannel, such as the channel containing the present major ore bodies that are now being mined on the upthrown side of the Lisbon Valley fault in the Cord, Hecla, Far West, North Alice mines. Others propose the theory of continuing Cutler sandstone beds around the nose of the uplifted anticlinal structure, as is proposed in the subject application. There is both support and nonsupport attendant to every geological theory and the ultimate judgment, at least in this case, lies in the fact that regardless of the many theories proposed, one is about as geologically sound as another. The possibilities of finding an extension of ore bodies at depth, on the downthrown side of the Lisbon Valley fault are in the realm of a very long range bet, but it is a geological possibility. The problem is more than one of merely prospecting because of the vast amount of data now known and used in proposing such a program as is included in the present application.

It is recommended, therefore, that the program as outlined in the present application be completed essentially as proposed on the applicant's Rudd Lease group. The program, as recommended by the examiners, would cost an estimated $35,386.00 with Government participation at 50 percent of the total or $17,693.00.

The usual provisions governing operations, including a minimum size of BX for casing, should be incorporated in the contract. Prior written Government approval of locations for holes 3 and 4 should probably be required.

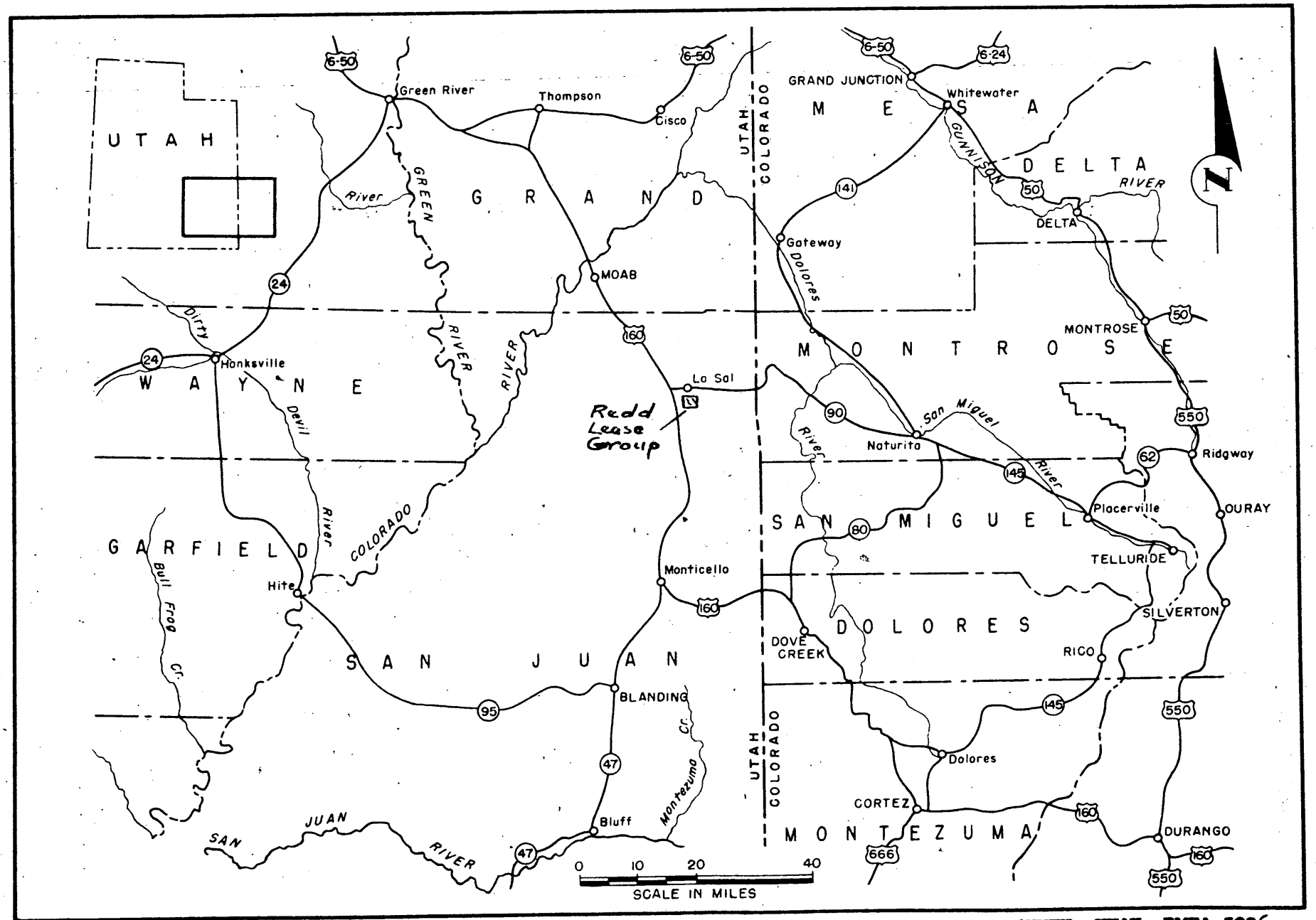


FIGURE 1 - LOCATION MAP, HIDDEN SPLENDOR MINING COMPANY, REDD LEASE GROUP, SAN JUAN COUNTY, UTAH, DMEA 5036

ORE ____ ✓ FAV.
MIN. ✓ ____ UNFAV.
BARREN ____

U.S.A.E.C.

HOLE NO. #1

PROJECT Redd Lease - Hidden Splendor Mining Co.

LOCALITY Big Indian CLAIM

COLLAR ELEV. DEPTH

COORDINATES

DATE COMPLETED Approx. 8-15-58

LOGGED BY N.E. Salo DATE 9-8-58

RECOVERY %

Location: Sec 8, T 29S, R 24E, SLM

GEOLOGIC COLUMN	COLOR	BEDDING	TEXTURE	CEMENT	SORTING	ORE MINERALS	MISCELLANEOUS	DEPTH
							NX core Plug bit to 2570'	2570
	M-gy	mass	f ss w/ gls	$CaCO_3$ well	poor	none	sts, ms, ls pbls s cbn flks	
	gy-gn mott w/r	mass	ms	fair		none	sp cbn	
					poor		m-c SS w/ ms-ls gls Rc	2580
	DK R-bn w/ gn mott	mass	sts to vf ss to m ss	fair	fair		Pc Contains Abundant seams & flakes of micaceous mudstone Bleached gn at Top 2 inches	2590
	DK-R bn w/ s gn mott	cren	sts w/ m ss	$CaCO_3$ veinlets	fair		seams of limestone ← limestone w/ slylotite	
	DK R	mass	vf-f ss	$CaCO_3$	good			2600
	DK R Bn w/ gn spots	cren	sts w/ m-c ark beds	$CaCO_3$	fair			2610 2620
	DK R w/ gn spots	mass to thn	vf ss to f ss	poor	good		Note: lost 50% of core from 2610'-2629' ← zone of ms flakes Abundant muscovite & biotite on bedding	2630 2640
	DK R-pp	mass	m-c ark grade into ms	poor	fair		occ. ms gls Abundant near base A biotite	2650 2660
	DK R-pp w/ bn ms	mass	m-c ark	poor $CaCO_3$	fair		A biotite sp gn mottling $CaCO_3$ veinlets occ ms pbls	2670
							Bottom @ 2670' Note: Gamma-ray log shows mineralized zone approx one foot above top of this core.	

Js / JE 905

JE / JC ?

JG / JN ?

JN / JK 1650 ?

JK / TRW 1795 ±

TRW / TRC 2177 ±

June 3, 1958

Memorandum

To: E. W. Ellis, Defense Minerals Exploration Administration

From: W. P. Williams, U. S. Geological Survey

Subject: Review of application, DMEA 5036 (Uranium) Hidden Splendor Mining Company, Redd Lease, San Juan County, Utah

The applicant proposes to explore for uranium ore deposits on leased lands located in the north part of the productive Big Indian district of Utah. The proposed project would consist of 10,400 feet of drilling at a total estimated cost of $37,475.

The western part of the property described in the application was partly explored by drilling under the terms of DMEA 3475, Anaconda Corporation; DMEA 3475 was unsuccessful.

The proposed project appears to have many aspects of a 'long-shot' proposition. The locations of only four proposed holes is based on a geological hypothesis; and the primary target would be geological formations that may be folded into the nose of an anticline. The drill holes would be very deep—averaging 2,600 feet deep. The Cutler Formation has not been a consistent and large ore producer in the past. I wonder about the advisability of drilling holes through the Cutler.

All in all, the proposed project does not appear suitable for DMEA participation. The principal reason being that the four proposed deep holes would not be likely to result in a significant discovery. I recommend, nevertheless, that the Field Team be asked for further comment on the application. Information about the property is already in Government files through Geological Survey mapping in the area and the previous, adjacent DMEA 3475.

W. P. Williams

cc: DMEA (3)
James Bacon
C.I. Gardner
Director's reading
Branch reading
Chron. file
Docket file

WPWilliams/mm
0-MD-6-3-58

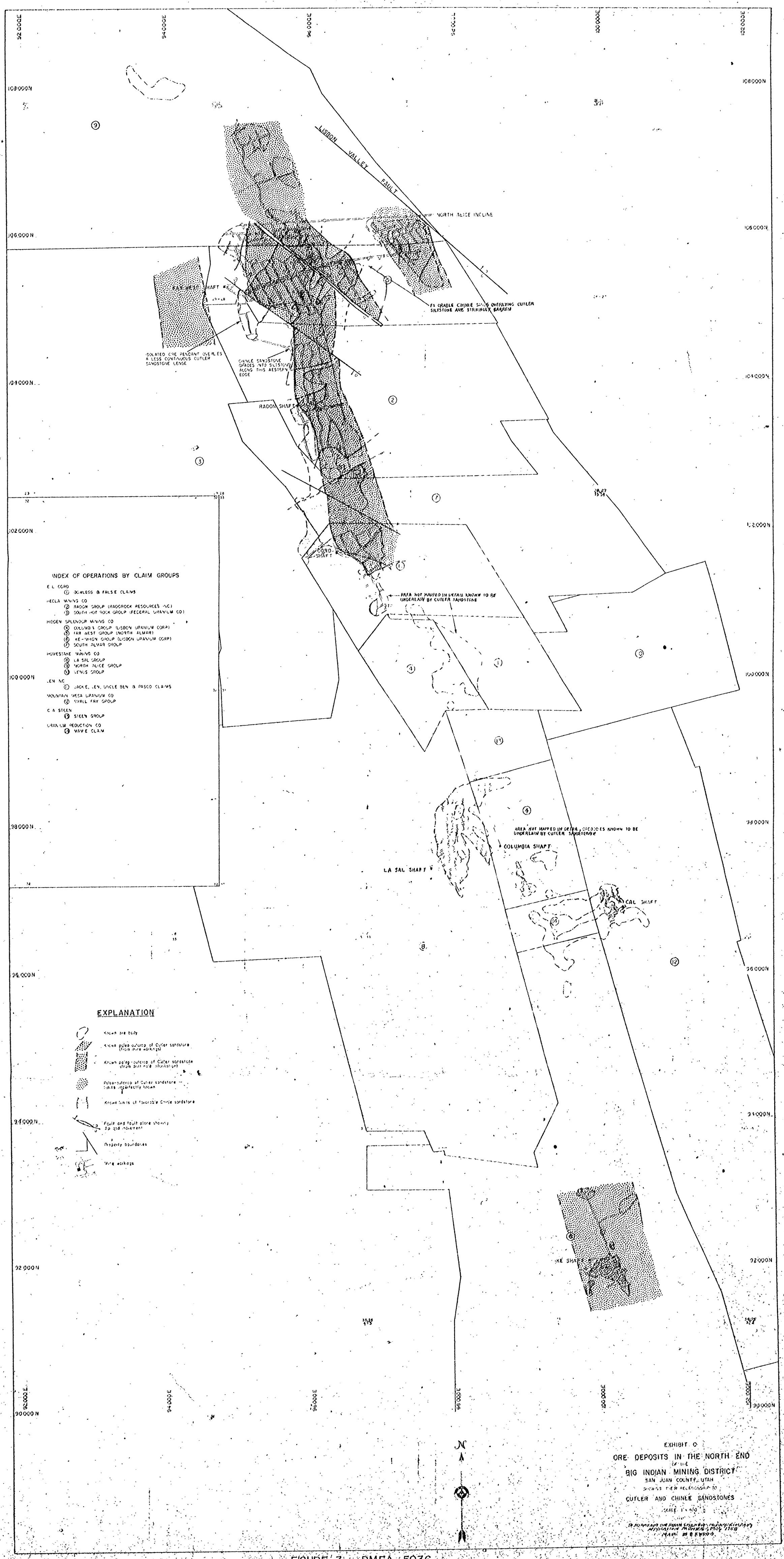
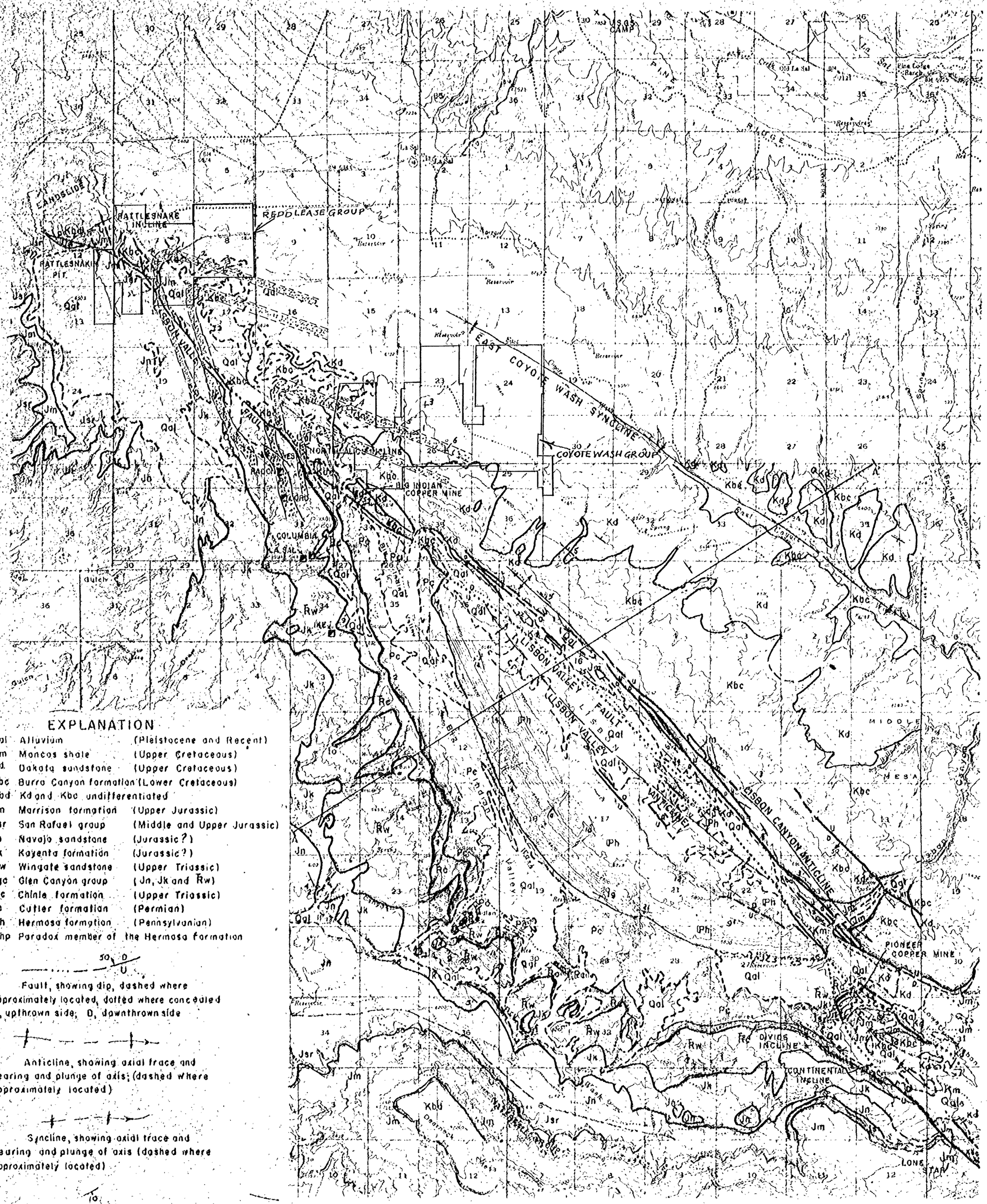


FIGURE 3.- DMEA 5036

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

OFFICE OF MINERALS EXPLORATION
OCTOBER, 1956 DOCKET 5036



PRELIMINARY GEOLOGIC MAP OF THE BIG INDIAN MINING DISTRICT SAN JUAN COUNTY, UTAH

Scale 1:62,500

SCALE 3000 0 3000 6000 9000 12000 15000 18000 FEET

CONTOUR INTERVAL 40 FEET AND 80 FEET
DATUM IS MEAN SEA LEVEL

GEOLOGY BY G.W. WEIR, C.L. DODSON, W.R. PUFFETT
1956-56-57
COMPILED BY W.R. PUFFETT, 1958
ADAPTED FOR OME BY J.W. HASLER 1958

FIGURE 2

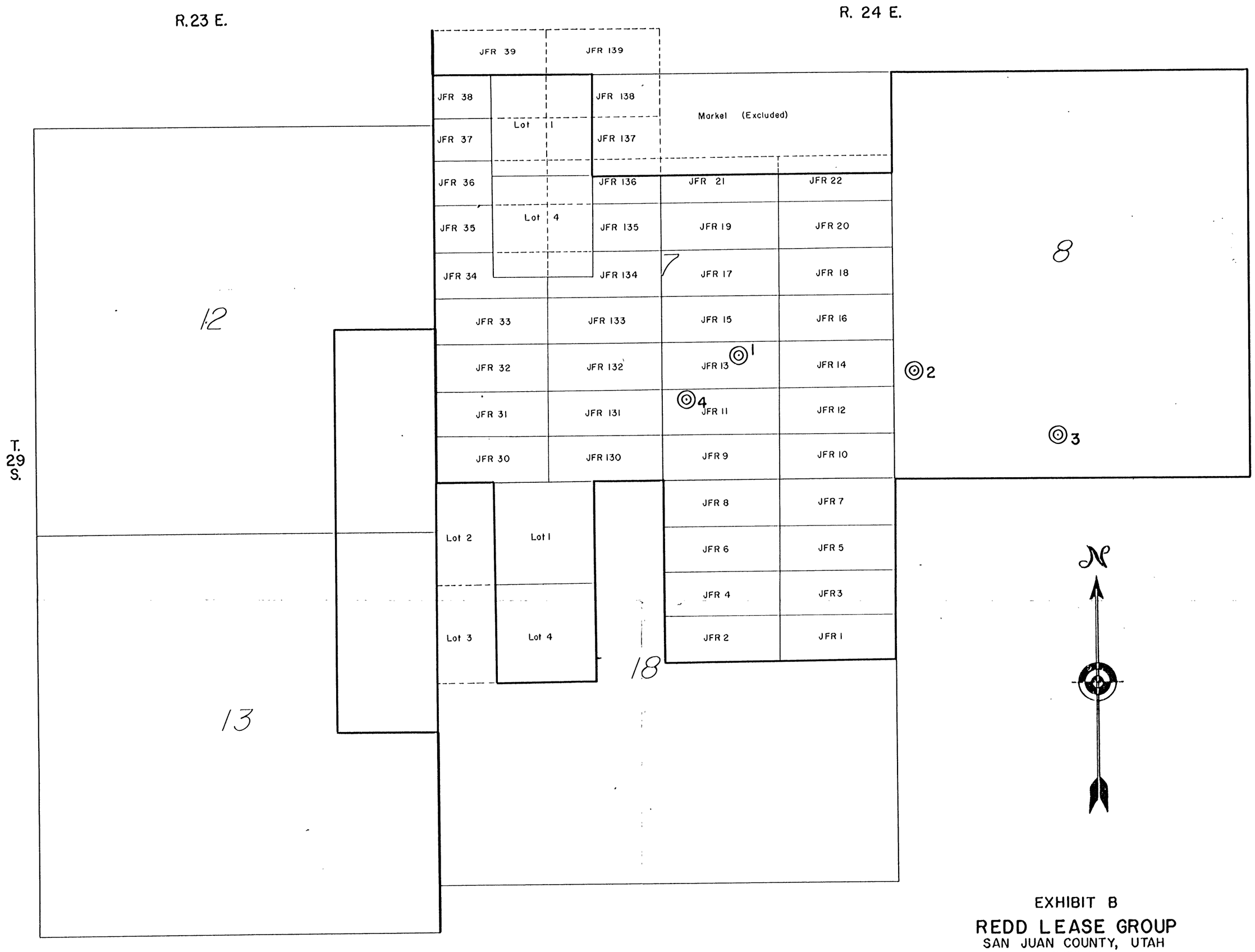


EXHIBIT B

REDD LEASE GROUP

SAN JUAN COUNTY, UTAH

SHOWING

PROPOSED DRILL HOLE LOCATIONS

SCALE: 1" = 1000'

1000 500 0 1000 2000

FEET

TO ACCOMPANY THE HIDDEN SPLENDOR MINING COMPANY APPLICATION TO DMEA, MAY, 1958.

MAP PREPARED BY E. T. WOOD

EXPLANATION

Proposed drill hole location

Group boundary

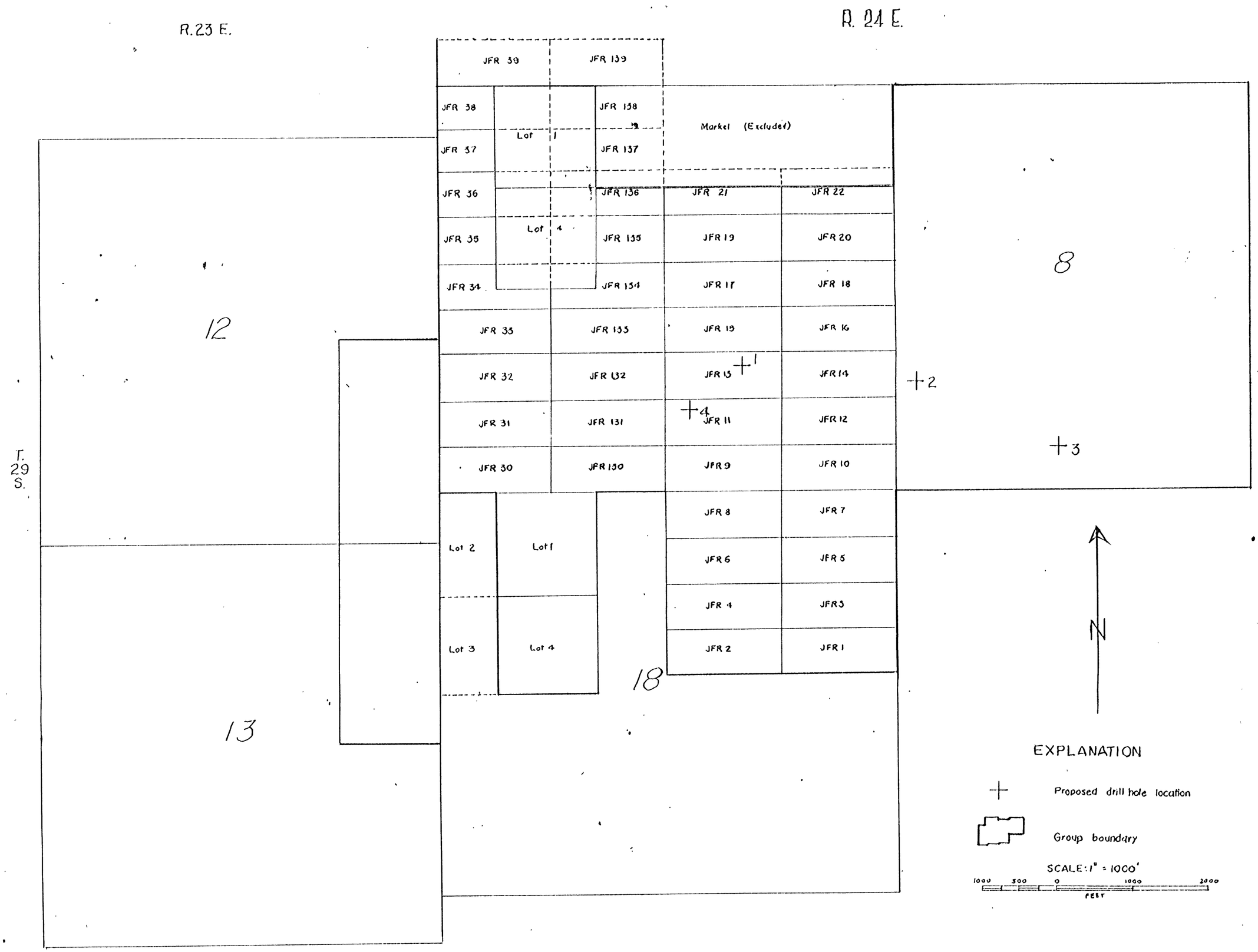
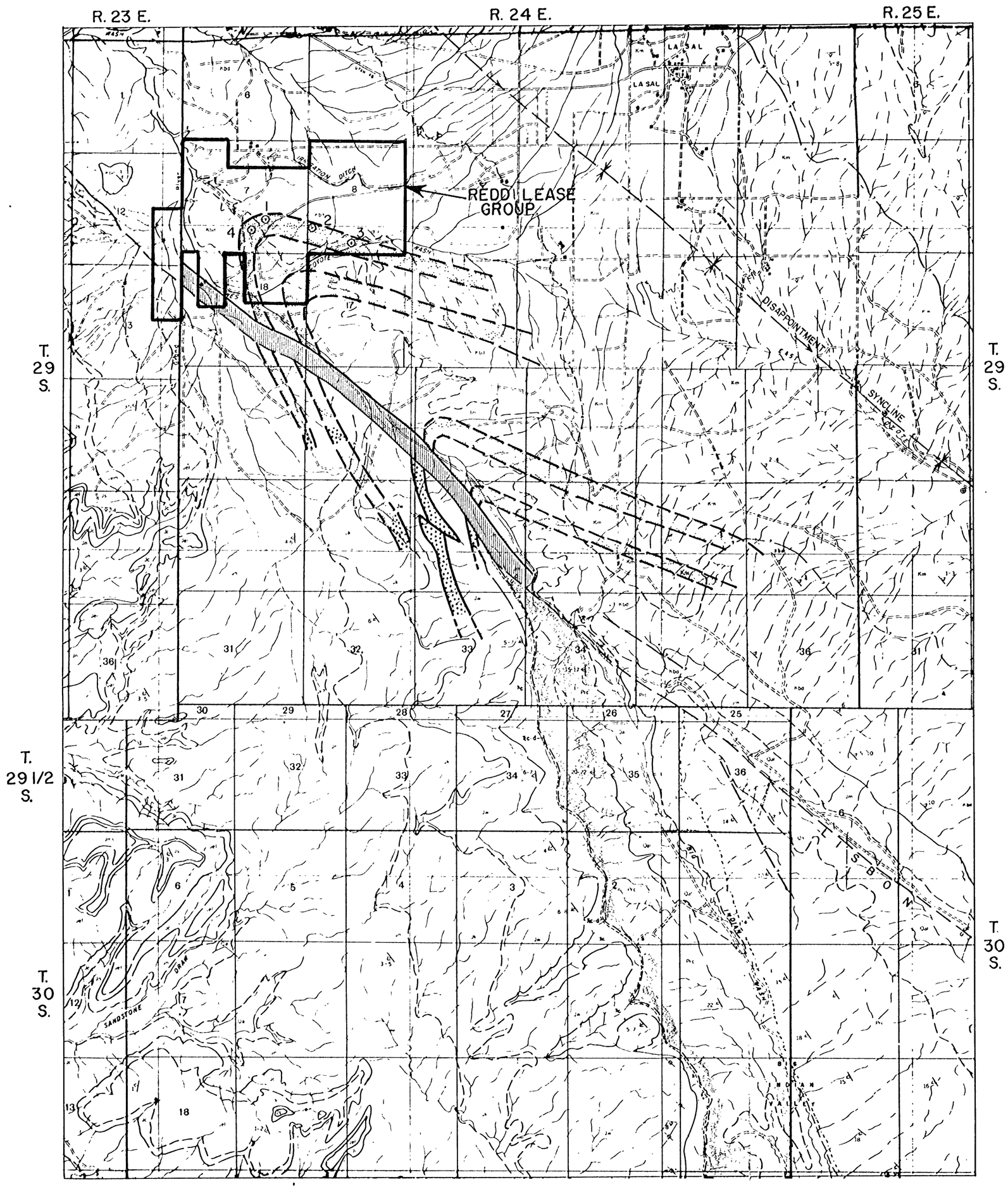


Figure 4. CLAIM MAP OF REDD LEASE GROUP SHOWING LOCATION OF PROPOSED DRILL HOLES HIDDEN SPLENDOR MINING COMPANY SECTIONS 7, 8, AND 18, T. 29 S., R. 24 E., AND SECTIONS 12 AND 13, T. 29 S., R 23 E., SAN JUAN COUNTY, UTAH



EXPLANATION

Plane of Lisbon Valley Fault

Known paleo-outcrops of Cutler sandstone

Projected paleo-outcrops of Cutler sandstone

Group boundary

○ 2 Proposed drill hole location

EXHIBIT E

SHOWING

PROJECTED PALEO-OUTCROPS OF CUTLER SANDSTONE BEDS

IN RELATION TO

REDD LEASE GROUP

AND

PROPOSED DRILL HOLES

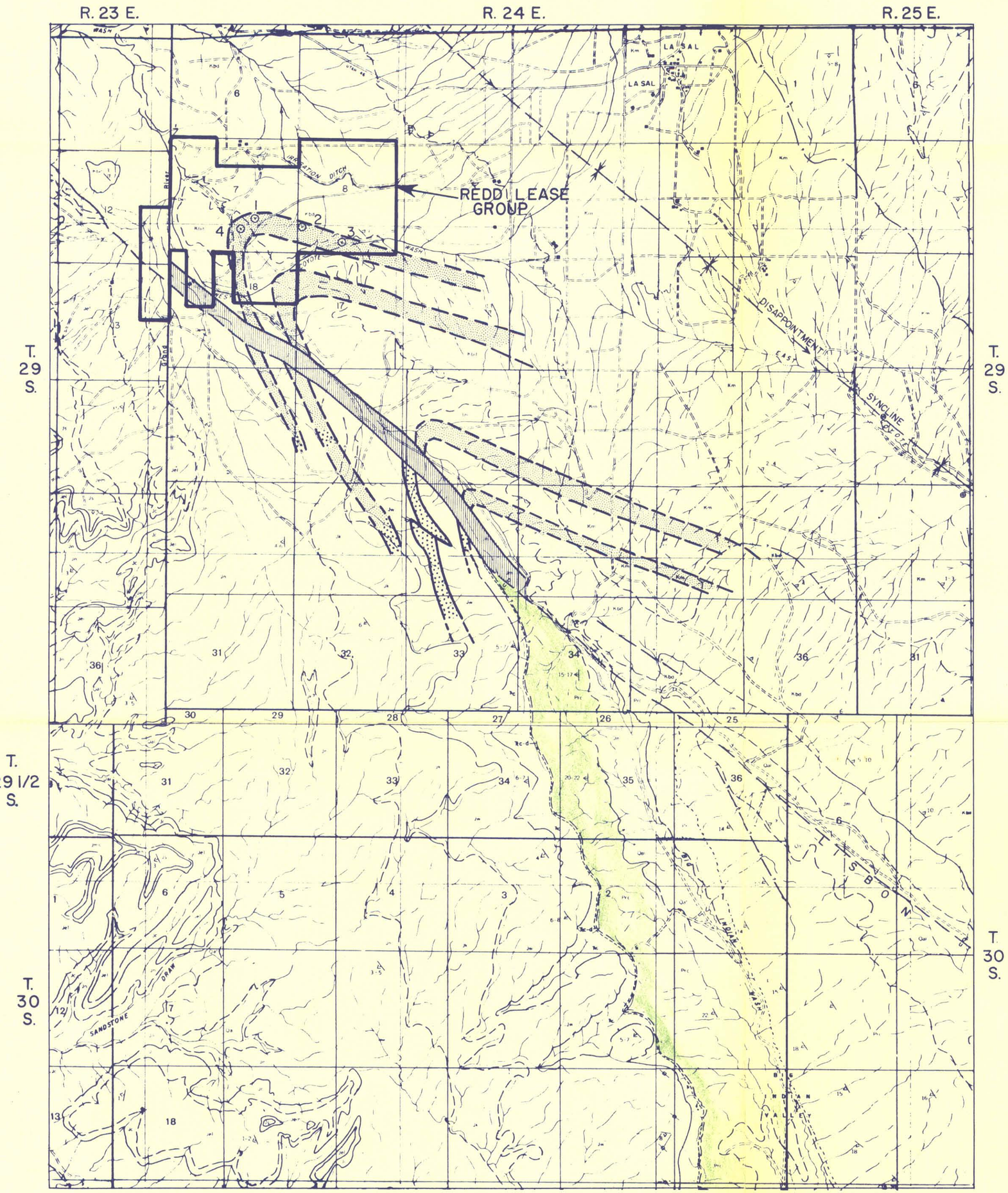
SCALE: 1" = 4000'

4000 2000 0 4000 8000

FEET

TO ACCOMPANY THE HIDDEN SPLENDOR MINING COMPANY APPLICATION TO DMEA, MAY, 1958.

E. T. WOOD



N

EXPLANATION

Plane of Lisbon Valley Fault

Known paleo-outcrops of Cutler sandstone

Projected paleo-outcrops of Cutler sandstone

Group boundary

2 Proposed drill hole location

EXHIBIT E

SHOWING

PROJECTED PALEO-OUTCROPS OF CUTLER SANDSTONE BEDS

IN RELATION TO

REDD LEASE GROUP

AND

PROPOSED DRILL HOLES

SCALE: 1" = 4000'

4000 2000 0 4000 8000

FEET

TO ACCOMPANY THE HIDDEN SPLENDOR MINING COMPANY APPLICATION TO DMEA, MAY, 1958.

E. T. WOOD