FEB 12 1960

Carrigan Mines, Incorporated
P. O. Box 3262
Hayward, California

Re: Docket No. OME-4073 (Uranium)
Carrigan Mines, Incorporated
Autunite Uranium Claims
Tuolumne County, California

Gentlemen:

We have reviewed the subject application, two previous applications for exploration aid, and other information concerning the area in which the above-referenced claims are located.

This review indicates to us the proposed drilling would probably result in finding the same type of discontinuous deposits of uranium-bearing material in the Mahoney formation that were penetrated by the previous drilling on your property. Hence, in view of OME criteria regarding the possibility of making a significant discovery of metals or minerals, we cannot approve your request for Government aid to further explore the subject property.

In accordance with the request mentioned in your letter of December 24, 1959, we are enclosing the geological information and maps submitted with the subject application (see attached list). Our Region XX Field Team will return such information and maps that it has received.

Sincerely yours,

Frank E. Johnson

Acting Director

Attachments

FMMurphy/gla
2-11-60
cc to: Director's Reading File
Operating Committee
Harold Kirkham, USGS
OME Field Team, Region XX (2) w/3 cys each USBM and USGS memoranda
Docket
Chron

List of maps and geological information
returned to Applicant MMK-4073
Carrigan Mines, Inc.

Copies	
2	Map showing geology, access roads, and proposed drill hole sites.
2	USGS map showing location of claims (Dardanelles Cone Quadrangle)
2	Map, dated November 3, 1959, showing previous drill holes, open cuts, and geologic formations
2	Map, squares 1" = 200', showing location of drill holes, with collar, ore horizon, bottom of hole elevations
2	Cross section A-A' showing drill holes and contact between granitics and volcanics
2	Cross section B-B' - same as above
2	Plan map, showing location of holes and list of measured ore bodies, with measured and indicated ore reserve tonnages
2 sets	all letters and reports with one copy MMK Form 40 Application For Financial Assistance in Minerals Exploration

February 8, 1960
No: OME 6073 (Uranium)
Carrigan Mines Inc.
Asphaltic Uranium Claims
Tuolumne County, Calif.

Memorandum

To: W. R. Grimald, Office of Minerals Exploration

From: Harold Kirkham, Geological Survey

Subject: Review of application for exploration assistance.

An exploration project costing $1,330,690 and consisting of 320,000 feet of drilling and 35 miles of road building is proposed. Two previous applications for DMEA assistance to explore this property were denied. The previous requests were for aid on projects estimated to cost only four percent of the new proposal.

Exploration completed in 1958 and 1959 failed to disclose new data that justify participation by the Government in the proposed project. Information on the property obtained during the past three summers by the Atomic Energy Commission indicates that the deposit is not of economic importance. The chance of discovering better grade ore and larger deposits appears to be remote.

I recommend that the application be denied without another field examination.

Harold Kirkham

cc: OME (3)
James Paone
C. L. Gardner
Director's reading
Branch reading
Chron. file
Docket file

HKirkham/mlb
0-MD-1-8-60

MME Form 40
Dec. 1958

6073

Budget Bureau No. 42-R1368
Approval expires Dec. 31, 1963

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

APPLICATION FOR FINANCIAL ASSISTANCE IN MINERALS EXPLORATION

Pursuant to Public Law 85-701 (72 Stat. 700; 30 U.S.C. 641)

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

CARRIGAN MINES, INCORPORATED
P. O. Box 3262
Hayward, California

APPLICANT DO NOT USE THIS BLOCK

DOCKET NUMBER: OME-6073

DATE RECEIVED: 2-1-60

REGION: II

DIVISION CODE: 500

BUSINESS ORGANIZATION *(Check one)*

- INDIVIDUAL [ ]
- CORPORATION [X]
- PARTNERSHIP [ ]
- OTHER *(Specify)* [ ]

STATE IN WHICH FIRM IS ORGANIZED: California

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

NAME	ADDRESS	TITLE
Eugene B. Swanson	1473 Roosevelt Ave. Hayward	Pres.
Dr. George E. Martin	Brook Glen Dr., Saratoga	1st V.P.
Kenneth Austin	Helen Way, Redwood Estates	2nd V.P.
Marjorie R. Johnson	22490 Bayview Ave., Hayward	Sec.
Irene Bickel	2061 Duval Ln., Hayward	Treas.

MINERAL(S) FOR WHICH YOU WISH TO EXPLORE: Uranium (U_3O_8)

ESTIMATED COST OF PROJECT: $ 900,000.00

PROPERTY — NAME: Autunite Uranium Claims

LOCATION — COUNTY: Tuolumne — STATE: California

GENERAL INSTRUCTIONS

Before filling out this application, please read the *OME Regulations for Obtaining Federal Assistance in Financing Explorations for Mineral Reserves* (30 CFR Chap. III). 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 2, existing mine workings and geology in item 3, and the proposed exploration work in item 5. 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 3(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 Office of Minerals Exploration, Department of the Interior, Washington 25, D. C., or with the nearest OME 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, and that he would not ordinarily undertake the proposed exploration under current conditions and circumstances at his sole expense.

December 24, 1959
DATED

Eugene B. Swanson
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. Financial Eligibility:

(a) Submit evidence of efforts made within 90 days preceding the filing of this application to obtain credit from your bank of account and at least one other banking institution or other private source of credit. Such evidence shall include true copies of correspondence which show: (1) date of loan request, (2) amount and terms requested, (3) proposed use of loan funds, and (4) the replies from credit sources. If the loan was offered under terms which you consider unreasonable, state why you consider them so.

(b) List names and addresses of affiliated, parent, or controlling companies or organizations and state extent and nature of their interest.

(c) State how you propose to furnish your share of the cost of the exploration work.

2. Applicant's Rights in Land:

(a) State your interest in the land and mineral rights, whether owner, lessee, purchaser under contract, or other. If you are not the owner, submit one true copy of the lease, contract, or other document (with address of owner) under which you control the property. Describe all liens, mortgages, or other encumbrances on the land and state book and page number and official place where recorded.

(b) 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 adjacent land which you own or control. Describe any part of the land or workings which should not be subject to Government royalty and liens. If the land consists of unpatented claims, state book and page number for each recorded location notice, including amended locations, and official place where recorded. State all the names by which you know the property.

(c) For all land or mineral rights encumbered or not owned, submit five copies of Lien and Subordination Agreements on MME Form 52. If the agreements cannot be obtained, state reasons and provide copies of letters of refusal.

3. 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 land. Include existing mine workings and all production facilities.

(b) State your interest, if any, in operations described in (a).

(c) State, if 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, giving quantities and grades and sampling methods used. Support 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 have, indicating whether you require their return.

4. Accessibility of Property:

(a) To aid the OME representative who may examine the property, state name and address of person who will meet him; give directions for reaching the property; and describe accessibility of property and of any mine workings.

(b) Name the shipping and supply points and state the distances to the property.

5. Exploration Work:

(a) Describe fully the proposed exploration work giving individual footages and sizes of openings *for each item of work.* Use narrative, maps, plans, and sections as necessary. Show 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 *land boundaries* or to the closest identifiable corner.

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

(c) If an OME contract is executed, state how soon thereafter work would be started and finished. State your anticipated average daily or monthly rate of progress for each type of work.

6. Experience:

State your operating experience and background to conduct this exploration work and also that of the person who will supervise the work.

7. Estimate of Costs:

Furnish detailed estimates of the necessary costs *for each item of the work proposed in 5(a)* under the headings listed below with a total for each heading and the estimated total cost of the work. Costs for any work to be performed by an independent contractor should be listed separately under category (a) below. Costs for any work that is not to be performed by an independent contractor should be listed under categories (b) through (g).

(a) Independent contracts. State the total cost of any proposed independent contract for all or any part of the work, and the number of units and the unit cost for each type of work, such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, or 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. The cost of supervision, engineering and geological services, outside consultants, and labor should be itemized by numbers and classes of employees; rates of wages, salaries or fees; and periods of employment. State whether these services are available.

(c) Operating materials and supplies. List items of material and supplies giving quantity and cost of each. 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 equipment and tools costing $50 or more per unit. Give specifications and indicate how each item is to be acquired—i.e., rented, purchased or provided by the applicant. If rented or purchased, state the estimated rental or purchase price. If furnished by the applicant, state condition and present fair market value.

(e) Initial rehabilitation and repairs. Describe the type and the cost of *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 in the exploration work.

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

(g) Miscellaneous. Describe the type and estimate the cost of repairs and maintenance of the operating equipment listed in 7(d). Do not repeat initial repairs listed in 7(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*—The Government will not contribute to costs incurred before the date of the contract, or to costs of or incident to: (1) acquiring, using, or possessing land and any existing improvements, facilities, buildings, installations, and appurtenances, or the depreciation and depletion thereof; (2) general overhead, corporate management, interest and taxes (other than payroll and sales taxes); (3) insurance (other than employees' liability insurance); and (4) damages to persons or property (other than authorized repair to or replacement of equipment or other property used in the work).]

INT.-DUP. SEC., WASH., D.C. 50399

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
555 Battery Street
San Francisco 11, California

EXTRA COPY
O. M. E.
RECEIVED FEB 1 1960

DATE	INITIALS	CODE
January 28, 1960		

Memorandum

To: Chairman, Operating Committee, OME, Washington, D. C.

From: Executive Officer, OME Field Team, Region II

Subject: Carrigan Mines, Inc., P. O. Box 3262, Hayward, California

Enclosed is an application from the subject company for Government financial assistance in exploring for uranium minerals in Tuolumne County, California.

Under separate cover we are mailing two copies of a property map submitted by the applicant on January 27, 1960, showing the locations of his proposed drill holes, access roads, and the geological formations.

Two applications on parts of the same area have previously been submitted and denied:

Docket No. DMEA-4032, October 18, 1955, by E. B. Swanson

Docket No. DMEA-4744, December 31, 1957, by M. D. Carrigan

Subsequent to the 1957 application, the company reports completion of about 20,000 feet of drill holes and ore reserves of:

Measured ore: 100,000 tons averaging 0.10% U_3O_8 or more

Indicated ore: 1,500,000 tons, grade not stated.

Enclosed are copies of a letter, dated January 5, 1960, from Mr. Roland J. Schwarts, Chief, Reno Section, AEC, relative to the subject property. Copies of other confidential reports from Mr. Schwarts to the AEC may possibly be obtained from either their Washington, D. C. office or Salt Lake City, Utah.

On January 19, 1960, while in the Reno, Nevada office of U.S.B.M. on an OME Field Trip, Glenn G. Gentry, member of the OME Field Team, Region II, interviewed Mr. Schwarts relative to the Carrigan mine and obtained the following information:

Ore Reserves:

	Wet Tons	Percent U_3O_8	Tons U_3O_8
Indicated ore	7,730	0.133	10,294
Inferred ore	11,830	0.129	15,246
Total reserves	19,560	0.13	25.540

Mr. Schwarts considers that the calibration of the probe used by the Carrigan company is probably high and that a factor of 0.7% should be used to correct the grade of ore reported by Carrigan.

The applicant has also submitted to this office, refer to enclosure, a letter dated January 26, 1960 entitled "To Supporters of Carrigan Mines, Inc." and a special report entitled "To the Shareholders of Carrigan Mines, Inc."

I have marked five paragraphs in the above letters which may be of interest.

The mine area is now inaccessible due to snow conditions and an examination by the Field Team, if required, will probably be delayed until May or June.

W. F. Dietrich

Attachments

Copy to: H. K. Stager, U.S.G.S.
OME File

JAN 1960
BUREAU OF MINES
DIVISION OF
MINERAL RESOURCES
DESIGN II

Route to:		Init.
	DIETRICH	

UNITED STATES
ATOMIC ENERGY COMMISSION

304 U.S. Bureau of Mines Bldg.
1605 Evans Street
Reno, Nevada

January 5, 1960

Mr. W. F. Dietrich, Executive Officer
Office of Mineral Exploration
555 Battery Street
San Francisco 11, California

re: Carrigan Mines, Inc.

Dear Mr. Dietrich,

During the summer months of the last three years, we have made periodic checks of the work done by Carrigan Mines on their Antimite claims, Tuolumne County, California. We endeavored to re-probe some of their holes but had little success due to caving of the holes. However, the results of such probing as we were able to do indicate that the calibration of their probe was probably high.

Since the Commission is not responsible to provide a market for uranium ore reserves developed after November 24, 1959 (see attached Press Release No. 235), Commission reserve estimates are based on work done prior to that date. The ore reserves as of November 24, 1959, were estimated to be 19,500 tons containing 0.13 % U_3O_8. These reserves are classed non-available (uneconomic) because of low grade, an average thickness of only two to five feet, and an average depth of burial of over 100 feet. With the expiration of the initial production bonus (see attached Press Release No. 234) 0.13 % ore will be worth only $ 3.46 per ton.

Areal mapping by Boudreau appears to be very good, but his interpretations and postulations are, to say the least, open to question. We have several reports and considerable correspondence on this property in our files. If you, or any member of your team, wish to check this data, I expect to be in the office all of January except the week of the 11th to 15th. Should you visit this office, I could also discuss some private, but unpublishable, opinions of the operation.

Sincerely yours,

Roland J. Schwartz, Chief
Reno Section

RJS:RJS:rjs

2 incl. as stated

FOR OFFICIAL USE ONLY

Eugene B. Swanson
DIRECTOR
PRESIDENT
GENERAL MANAGER
PURCHASING AGENT

John A. Buhl
DIRECTOR
1ST VICE PRESIDENT

George E. Martin, D. V. M.
DIRECTOR
2ND VICE PRESIDENT

Irene Bickel
DIRECTOR
TREASURER

Marjorie R. Johnson
DIRECTOR
SECRETARY

Forrest E. Walker
DIRECTOR
FIELD MANAGER

J. Don Long
DIRECTOR
FIELD SUPT.
ASST. PUR. AGENT

Jeanne Buhl
ASSISTANT SECRETARY

David E. Swanson
ASST. GEN. MANAGER

Kenneth W. Austin
2nd Vice President

CONSULTANTS:
MacDonald, Brunsell & Walters
ATTORNEYS AT LAW
FINANCIAL CENTER BLDG.
OAKLAND 12, CALIFORNIA
TEMPLEBAR 6-1866

Francis H. Frederick
MINING GEOLOGIST
1209 DEYOUNG BLDG.
690 MARKET STREET
SAN FRANCISCO 4, CALIF.
SUTTER 1-1562

Leonard A. Gross
C. P. A.
1322 WEBSTER STREET
OAKLAND, CALIFORNIA
GLENCOURT 2-0910

Eugene Boudreau
RESIDENT GEOLOGIST

Carrigan Mines, Incorporated
P. O. Box 3262, Hayward, California
Jefferson 7-9008

January 27, 1960

W. F. Dietrich, Executive Officer
OME Field Team, Region II
U. S. Department of the Interior
Office of Minerals Exploration
555 Battery Street
San Francisco 11, California

Dear Mr. Dietrich:

Sorry for the delay in compiling the proposed 1960-1961 drill site and access road maps as requested by Mr. Gentry to coincide with the information delivered to your office at 11:00 a.m. on December 28, 1959.

After consultation and consideration given to the many bids on our proposed exploration program, the Directors and Officers of this corporation concur that our exploration, considered as pioneering, could best be controlled by this corporation. It is felt that contractual obligations with various contractors, having no interest in the development of California's natural resources by this corporation, other than profiteering, would not serve the best interest of the Office of Minerals Exploration's program and the shareholders of this corporation---equally.

Before elaborating on our estimate of costs, may I call your attention to the Geological Reports of Francis H. Frederick, dated April 1, 1957 and December 30, 1957? You have copies of these reports in your files.

The management and consultants of this corporation hereby agree to cooperate and convey, to the very best of their ability, all information, immediately upon its compilation, to the OME and AEC Field Teams.

Since our program is exploratory and subject to the assistance of the OME, we will, upon completion of exploration and at our expense, block out the ore bodies discovered and immediately commence mining thereafter.

We understand that our exploration program is far in excess of your maximum allocation for assistance, however, there are many phases we must see to completion that are not covered within your assistance allowance. Please make the necessary adjustment on the estimated $900,000.00 cost as filed in your office in December, 1959. The enclosed estimate of $1,350,650.00 is a much more realistic figure and is based upon our experience and actual costs of work done on the property during 1957, 1958 and 1959, any figures compiled by anyone else to the contrary, notwithstanding.

The Directors, Officers and Consultants of this corporation are at your disposal.

Thanking you for your assistance in this matter, I remain,

Sincerely yours,

Eugene B. Swanson

Eugene B. Swanson, President
Carrigan Mines, Inc.
P. O. Box 3262
Hayward, California

EBS;mrj

Enc. Maps of proposed drill sites and access roads
Estimate of costs

CARRIGAN MINES, INCORPORATED
P. O. Box 3262
Hayward, California

ESTIMATE OF COSTS OF PROPOSED EXPLORATION PROGRAM
1960 and 1961

35 miles of roads including drilling and blasting at $30.00 per 100 feet	$55,650.00
Leveling at drill sites - 400 sites at $50.00 per site	20,000.00
Moving in and out and standby costs on dozer	10,000.00
Rotary Drilling: 280,000 feet at $3.50 per foot	980,000.00
Core Drilling: 20,000 feet at $6.50 per foot	130,000.00
Casing at $125.00 per hole on 40 holes	5,000.00
Moving in and out and standby time on: 6 rotary air-water Drill Rigs 3 water tank trucks 1 maintainance truck 1 drill steel carry-all snow clearance equipment fuel tanks (gasoline, butane and oil) 6 trailers	37,000.00
Assaying: 500 samples at $16.00 each (Spectrographic and chemical analysis)	8,000.00
Sample sacks, containers, small tools, gasoline for consultants and supervisor	12,000.00
Supervision: Two seasons (1960-1961) at $9,000.00 per season	18,000.00
Geological, Engineering and Metallurgical consultation; communication system; administration and contingencies	75,000.00
TOTAL	$1,350,650.00

Eugene B. Swanson
DIRECTOR
PRESIDENT
GENERAL MANAGER
PURCHASING AGENT

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DIRECTOR
[redacted]

George E. Martin, D. V. M.
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Eugene Boudreau
RESIDENT GEOLOGIST

Carrigan Mines, Incorporated

P. O. Box 3262, Hayward, California
Jefferson 7-9008

December 24, 1959

W. F. Dietrich, Executive Officer
OME Field Team Region II
U. S. Department of the Interior
Office of Minerals Exploration
555 Battery Street
San Francisco 11, California

Dear Mr. Dietrich:

Submitted herewith are four copies of OME Form 40 together with additional information as listed below as enclosures.

RE: Item 1. Financial Eligibility.

a. Enclosures, reports from potential lenders.

b. We are not affiliated with any other companies or organizations.

c. Our portion of the funds necessary to finish this exploration program will be furnished by sale of stock.

RE: Item 2. Rights in Land.

a. Carrigan Mines, Inc. is a lessee of the properties under exploration and development to date, and to be explored and developed as stated in the photostatic copy of the Mining Lease enclosed. This new lease encompasses a much larger area than our previous lease with the locators of these unpatented mining claims.

b. The book and page number of the Claims encompassed by this lease are described in the enclosed photostatic copy of a Quitclaim Deed. Their location is described according to Range and Township in "Exhibit A" of the above mentioned lease and are as outlined on the topographical map, enclosed.

Preliminary Title Report enclosed

c. A subordination clause in included in Article IX of the above lease.

RE: Item 3. Physical Description.

a. The enclosures of our latest geological report and maps are in the same order as submitted to

Arthur E. Granger
Chief, Salt Lake Branch
U. S. Atomic Energy Commission
222 South West Temple
Salt Lake City 1, Utah.

There has been no actual mining done to date on the property.

b. The drilling program as outlined in the above geological report has been done at the expense of this corporation and its supporters.

c., d., e., f., and g. as included in the above geological report.

RE: Item 4. Accessibility of Property.

a. The property is at an elevation of approximately 7500 feet and accessibility is determined according to weather conditions. Mr. Roland J. Schwartz of the Reno Division of the A. E. C. has recently visited the property and could be called upon to conduct an inspection of the property and has information regarding the potential of the property. Snow conditions permitting, representatives of this corporation can be found at the mining cabin, located at the intersection of Niagara Creek and Eagle Meadow Road, 2 miles East off Highway 108, 55 miles above Sonora, in Range 19 East, Township 5 North, Section 5, M. D. B. M., Summit Mining District, Tuolumne County, California.

b. Shipping and supply points are Pinecrest and Sonora, California. In addition, a logging train is within 8 miles of the property. At this time, the State of California keeps Highway 108 clear of snow to within 10 miles of the mining cabin.

RE: Items 5 and 7. Exploration Work and Estimate of Costs.

(5) a. Enclosure - lowest bid from all drilling contractors.

Proposed work shall be done within the boundaries of the Mehrten and Valley Springs formations and the andesitic mudflows as per information given in enclosed geologic maps. A progressive drilling exploration program will be determined as work progresses in the most favorable areas.

According to the work done to date by this corporation, we estimate that we will do the necessary 300,000 feet of rotary and core

drilling by the end of 1961 at the rate of $3.00 per foot to include:

a. Radiometric logging of drill holes and charting of lithology.

b. Coring as required by our geologists, engineers and metallurgists.

c. The building of access roads and site preparation as determined and to be determined by progressive drilling.

The complete and accurate compilation of the above records will be submitted to the O. M. E. monthly, including complete costs as work progresses; or as required.

RE: Item 6. Experience.

I have been active in the uranium exploration and mining field for many years and as the owner of the Uranium Girl Mines, now in production on the Colorado Plateau. For four years I have managed the exploration program of Carrigan Mines' Autunite mining lease.

Respectfully submitted,

Eugene B. Swanson

Eugene B. Swanson, President
Carrigan Mines, Inc.
P. O. Box 3262
Hayward, California

EBS:mrj
Enclosures

Eugene B. Swanson
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PRESIDENT
GENERAL MANAGER
PURCHASING AGENT

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Eugene Boudreau
RESIDENT GEOLOGIST

Carrigan Mines, Incorporated

P. O. Box 3262, Hayward, California
Jefferson 7-9008

Item 3

CARRIGAN MINES INC.
P. O. BOX 3262
HAYWARD, CALIFORNIA
JE. 7-9008

December 24, 1959

U. S. Department of the Interior
Office of Minerals Exploration
555 Battery Street
San Francisco 11, California

Gentlemen:

RE: Enclosure 7 of Geological Report (Item 3g.)

The ore sample used for the Spectrographic Analysis and Assay from Abbot A. Hanks, Inc., dated December 11, 1959 was obtained by taking ten pounds of ore at random from Cut B and ten pounds from Cut C. The ores were then mixed together then screened through ½" wire mesh.

In addition to the copies of letters dated August 14, 1959 from Vitro Uranium Company, Vitro has additional chemical assay reports in their files. In a letter to us from B. L. Myerson, dated June 22, 1959 they stated the following; "I am sure you will be interested to know that the sample we cut from the small carbonaceous lens near your drill hole #32 assayed .19% U_3O_8. The grab sample taken from the ½ tonstockpile on the Autunite #1 claim assayed 0.10% U_3O_8."

We request the return of all geological information and maps submitted with this application.

Thank you very much.

Sincerely,

Eugene B. Swanson

Eugene B. Swanson, President
Carrigan Mines, Inc.
P. O. Box 3262
Hayward, California

EBS:mrj

BRANCH LABORATORY: 1086 MARTIN AVENUE • SANTA CLARA • CHERRY 8-5262

Item 3

ABBOT A. HANKS, INC.

ESTABLISHED 1866

1300 SANSOME STREET • SAN FRANCISCO 11, CALIFORNIA • EXBROOK 7-2464

Engineers
Assayers
Chemists
Metallurgists
Spectrographers
Soils and Foundations
Consulting · Testing · Inspecting

CARRIGAN MINES
P. O. BOX 3
HAYWARD, CALIF.
JE. 7-9008

LABORATORY REPORT

Lab. No. C106484

Date December 11, 1959

Submitted by Carrigan Mines Inc.
P. O. Box 3262
Hayward, California

Sample Mark #1

QUALITATIVE SPECTROGRAPHIC ANALYSIS
Metals Found and Estimated Percentage Range

Less than .03%	.03% to .30%	.30% to 3%	3% to 30%	30% to 100%
Cobalt Strontium Lead Chromium Copper Molybdenum Rare Earths Zirconium Silver Boron Nickel	Titanium Manganese Uranium Vanadium Zinc	Aluminum Calcium Sodium Potassium Magnesium	Silicon Iron	

Remarks Carbonaceous material present.

ABBOT A. HANKS, INC.
Original signed by
MARTIN P. QUIST
By.....
Martin P. Quist
Registered Chemist

maj CA-108

BRANCH LABORATORY: 1086 MARTIN AVENUE • SANTA CLARA • CHERRY 8-5262

CABLE: HANX

ABBOT A. HANKS, INC.

ESTABLISHED 1866

1300 SANSOME STREET • SAN FRANCISCO 11, CALIFORNIA • EXBROOK 7-2464

Engineers
Assayers
Chemists
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December 11, 1959

Item 3

CARRIGAN MINES INC.
P. O. BOX 3262
HAYWARD, CALIFORNIA
JE. 7-9008

REPORT OF ASSAY

Deposited by Carrigan Mines Inc.
P. O. Box 3262
Hayward, California

Sample of ORE

Labty. No.	Mark	GOLD, per ton of 2,000 lbs.		SILVER, per ton of 2,000 lbs.		Percentages
		Troy Ounces	Value at $35.00 oz.	Troy Ounces	Value at	
					$	
C106484	#1					URANIUM OXIDE 0.071 %

ABBOT A. HANKS, INC.
Original Signed by
MARTIN P. QUIST
By.....
Martin P. Quist

CA-105

ns1

Item 3

CARRIGAN MINES INC.
P. O. BOX 3262
HAYWARD, CALIFORNIA
JE. 7-9008

Copy of Letter received August 19, 1959

FROM: VITRO URANIUM COMPANY
600 West 33rd South Street
Salt Lake City 15, Utah

August 14, 1959

Mr. Don Long
Carrigan Mines, Inc.
P. O. Box 3262
Hayward, California

Dear Mr. Long:

We have completed assaying of your recently submitted samples and find the results to be as follows:

Sample No.	%U_3O_8
1	0.02
2	0.05
3	0.45
4	0.52

We would certainly be interested in discussing possible purchase of ore with your if you believe that the grade of production could be held above 0.30% U308. As you may be aware, there will be no further initial production bonus paid on any ores sold after March 31, 1960. Therefore, if your property is eligible for bonus, I would suggest any shipments made before then be as high as possible in grade in order to take advantage of the bonus.

I would like to hear from you regarding your future plans for production.

Very truly yours,

VITRO URANIUM COMPANY

/s/ R. B. Coleman
Ore Buyer

CARRIGAN MINES INC.
P. O. BOX 3262
HAYWARD, CALIFORNIA
JE. 7-9008

December 2, 1959

Arthur E. Granger, Chief
Salt Lake Branch
Production Evaluation Division
U. S. Atomic Energy Commission
222 South West Temple, Room 210
Salt Lake City, Utah

Gentlemen:

In response to your letter of September 2, 1959, Uranium Ore Reserve Survey, this report contains an estimate of the ore reserves on the Autunite Claims leased to Carrigan Mines and records of all exploration and development data used in their compilation. In the List of Enclosures is supplied an account of the accompanying maps, cross sections, radiometric drill hole logs, and copies of chemical and radiometric assays.

ABSTRACT

The property in Tuolumne County, California, undergoing exploration by Carrigan Mines, Inc., shows excellent promise of becoming a significant producer of U_3O_8. Secondary uranium minerals are present in carbonaceous material contained in beds and lenses of the Mio-Pliocene Mehrten formation. Measured ore amounts to 100,000 tons consisting of 0.10% U_3O_8, or better. Indicated ore is estimated at 1,500,000 tons. Further exploration has a good chance of discovering additional amounts of ore.

INTRODUCTION

The claims under consideration are located in Ranges 18, 19 and 20 East; Townships 5 and 6 North in Tuolumne County, California. This region is a portion of the western slope of the High Sierras near Sonora Pass. The area is represented in its entirety on the Dardanelles Quadrangle sheet put out by the U. S. Geological Survey. (Summit Mining District)

GEOLOGIC REPORT

Generalized lithology and structure

Oldest of the rocks in the area is a small remnant of metamorphic rock located at the lower end of Upper Eagle Meadow. The metamorphic is a fine-grained brown schist representing either altered Paleozoic or Mesozoic sediments.

Next oldest in the sequence are the granitic basement rocks, the bulk of which being granodiorite and quartz monzonite porphyry. Aplite dikes and pegmatites are common in these massive intrusions of the Sierran batholith complex.

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HAYWARD, CALIFORNIA
JE. 7-9008

Geologic Report (con't)

Wherever present, the rhyolite tuff and dacite flows of the Valley Springs formation are nonconformable on the granitics. The dacite flows are uppermost in the formation. Thickness of the Valley Springs varies from a few feet to an observed 500 feet. Age of the Valley Springs is probably late Eocene to early Miocene.

Erosion surfaces separate the Mio-Pliocene Mehrten formation from the older rocks. The Mehrten is essentially andesitic throughout, consisting of bedded conglomerate, mudflow, breccia, tuff, sandstone, clay and lava flows. Maximum observable thickness is 2,000 feet. Like the Valley Springs, the Mehrten has a slight westerly down-tilt.

Unconformable on the Mehrten in adjacent areas, but entirely removed by erosion from the Autunite claims, are the latite flows and welded tuffs of the early Pliocene Stanislaus formation.

Pliistocene glaciation has left behind numerous deposits of glacial till and has also marked the landscape with examples of glacial sculpture.

Nature and occurrence of mineralization

All of the granitic rocks contain disseminated primary uranium minerals, with the aplite dikes and pegmatites having the most concentrated amounts.

Several outcrops of Valley Springs rhyolite have small shows of uranium.

It is only in the Mehrten formation that commercial uranium ore has been found to date. The secondary uranium minerals autunite and meta-autunite are the major ore minerals. Both are hydrous calcium uranium phosphates. Torbernite and uraninite are present in minor amounts. The uranium minerals are localized in carbonaceous material in the conglomerate, sandstone, and tuff. Pyrite is a common associate.

Geologic history and ore genesis

During late Jurassic time, approximately 125 million years ago, bodies of molten rock of granitic composition began to intrude and uplift this area along with that which comprises the rest of the present day Sierra Nevadas. For about 60 million years these molten bodies, or batholiths, emplaced themselves, and the accompanying heat and pressure metamorphased the overlying cover of volcanic and sedimentary rocks. Much of the solidified granitic core was exposed as erosion attacked the newly formed highlands.

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Geologic history (con't)

Volcanism commenced during the late Eocene, and a great quantity of rhyolitic material was spread over the landscape, with the greatest thicknesses accumulating in the valleys. A temporary cessation of volcanism in late Miocene time, coupled with uplift of the area, allowed erosion to remove much of the rhyolite.

During late Miocene and early Pliocene time renewed volcanism produced the andesitic material that comprises the main portion of the Mehrten formation. It was at this time that primary uranium minerals that had been freed from their granitic hosts by weathering action were chemically altered to secondary minerals and concentrated under reducing conditions in organic debris in the river valleys. Percolating ground water was the main agent of ore transport, and also the medium in which took place the transition of primary uranium minerals into secondary uranium minerals.

So prolific was the outpouring of the Mehrten volcanics and the more basic Stanislaus volcanics which followed that the pre-Mehrten valleys were filled up and a new topography was then evolved. Further uplift of the Sierras, with attendant accelerated erosion, and a period of glaciation have left us with our present rugged mountains and deep valleys.

ORE RESERVES

Measured ore

Measured ore amounts to 100,000 tons. This figure was arrived at by tracing each ore horizon through several drill holes, then finding the averange thickness and multiplying it by the encompassed area. The total number of feet of ore per bed was then converted into tons of ore per bed by using a ratio of 15 cubic feet equal one ton.

No attempt was made at calculating the average grade of ore per bed. The reason for this is that no reliable probe factor is available. However, comparison of probe readings and a chemical assay on ore from a certain interval in hole 31 indicated that the probe readings had to be multiplied by the factor of 1.58. Nothing has been added to the recorded probe readings, but in the determination of ore beds all readings were arbitrarily increased by 0.03%.

Indicated ore

Indicated ore is estimated at 1,500,000 tons. This tonnage was figured by enclosing the total area known to have ore and then multiplying it by the average thickness of ore per hole for each hole within the area that was drilled all the way down to the granitics.

Inferred ore

There is no way of knowing the total amount of uranium ore that the Autunite mining claims will ultimately produce. If it

CARRIGAN MINES INC.
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HAYWARD, CALIFORNIA
JE. 7-9008

Ore Reserves (con't)

is possible to trace the ore channel for some distance, then there may be several million tons of ore present. Possibly, other ore channels exist. Only a thorough and extensive exploration program can prove or disprove the possibilities.

INFORMATION ON MEASURED ORE

Ore Bed No. 1 (orange boundary) 13,000 tons

Approximate elevation of top of body - 7050'

Drill holes involved in calculation of tonnage

Hole No.	Thickness of bed (ft.)	% U_3O_8
73	5.0	0.04
65	trace	
54	12.0	0.04
30	1.0	0.09
27	12.0	0.11
	6.0'-average thickness	

Ore Bed No. 2 (light green boundary) 4,000 tons

Approximate elevation of top of body - 7020'
Drill holes involved in calculation of tonnage

Hole No.	Thickness of bed (ft.)	% U_3O_8
75	3.0	0.06
53	14.0	0.04
50	5.0	0.12
44	3.5	0.13
42	trace	
41	4.5	0.20
31	1.0	0.12
	4.0'-average thickness	

Ore Bed No. 3 (dark green boundary) 7,000 tons

Approximate elevation of top of body - 7000'
Drill holes involved in calculation of tonnage

Hole No.	Thickness of bed (ft.)	% U_3O_8
65	trace	
54	2.5	0.10
30	1.5	0.10
26	7.0	0.08
25	3.0	0.05
24	1.0	0.04
22	9.0	0.09
	4.0'-average thickness	

CARRIGAN MINES INC.
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HAYWARD, CALIFORNIA
JE 7-9008

Information on Measured Ore (con't)

Bed No. 4 (gray boundary) 3,500 tons

Approximate elevation of top of body - 6940'
Drill holes involved in calculation of tonnage

Hole No.	Thickness of bed (ft.)	$\%U_3O_8$
C	2.0	0.06
D	2.0	0.15
72	trace	
71	trace	
8	3.0	0.11
6	2.0	0.10
5	trace	
	1.5' average thickness	

Ore Bed No. 5 (yellow boundary) 4,500 tons

Approximate elevation of top of body - 6935'
Drill holes involved in calculation of tonnage

Hole No.	Thickness of bed (ft.)	$\%U_3O_8$
75	trace	
47	3.0	0.05
45	1.5	0.17
	1.5' average thickness	

Ore Bed No. 6 (blue boundary) 8,000 tons

Approximate elevation of top of body - 6915'
Drill holes involved in calculation of tonnage

Hole No.	Thickness of bed (ft.)	$\%U_3O_8$
73	5.0	0.04
65	3.0	0.10
54	3.0	0.06
30	1.0	0.09
	3.0' average thickness	

Ore Bed No. 7 (red boundary) 21,000 tons

Approximate elevation of top of body - 6890'
Drill holes involved in calculation of tonnage

Hole No.	Thickness of bed (ft.)	$\%U_3O_8$
75	6.0	0.07
67	1.5	0.13
53	4.0	0.15
50	3.0	0.10
47	1.5	0.08
45	5.0	0.07
41	7.0	0.04
	4.0' average thickness	

CARRIGAN MINES INC.
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Information on Measured Ore (con't)

Ore Bed No. 8 (brown boundary) 8,000 tons

Approximate elevation of top of body - 6865'
Drill holes involved in calculation of tonnage

Hole No.	Thickness of bed (ft.)	% U_3O_8
76	4.0	0.20
65	3.0	0.09
54	8.0	0.27
	5.0'-average thickness	

Ore Bed No. 9 (pink boundary) 7,000 tons

Approximate elevation of top of body - 6846'
Drill holes involved in calculation of tonnage

Hole No.	Thickness of bed (ft.)	% U_3O_8
72	5.0	0.07
67	4.5	0.27
41	trace	
8	2.0	0.16
	3.0'-average thickness	

Ore Bed No. 10 (purple boundary) 16,000 tons

Approximate elevation of top of body - 6835'
Drill holes involved in calculation of tonnage

Hole No.	Thickness of bed (ft.)	% U_3O_8
72	6.5	0.11
71	8.0	0.04
67	2.5	0.12
50	3.0	0.10
	4.0'-average thickness	

Total Measured Ore in Beds	92,000 tons
Total Measured Ore in Unconnected Areas (Assuming a 25 foot radius per hole)	8,000 tons
TOTAL MEASURED ORE	100,000 tons

CARRIGAN MINES INC.
P. O. BOX 3262
HAYWARD, CALIFORNIA
JE. 7-9808

EXPLORATION DATA

The ore concerned with in this report was first discovered in filed on in 1955, and exploration work completed since that date is listed below.

1955 - Trenches, pits, and open cut work by hand tool excavating and bulldozer.
1956 - Open cut work by bulldozer.
1957 - Rotary drilling of four holes totaling 572 feet.
1958 - Fifty-five holes drilled by rotary drilling and diamond bit core drilling. Total footage drilled was 10,305 feet, including 70 feet of core samples from in and near certain ore zones. Some bulldozer work also done on roads and in open cuts.
1959 - Twenty-six holes drilled or deepened by rotary drilling. Total footage drilled was approximately 9,700 feet. Bulldozer work done on access roads and in open cuts. Stockpile begun from ore exposed in three of open cuts.

Since submittal of my report of estimated ore reserves as of July 27, 1959, additional rotary drilling has been accomplished. An important factor in this drilling done subsequent to July 27th has been the acquisition of sufficient drill pipe to enable the drillers to reach the granitic basement rocks. Several of the old holes have been deepened and a number of new holes have been drilled, all of which have contributed new and significant information. The new data gained on ore reserves is hereby incorporated in the estimates included in this report. See List of Enclosures for other data on exploration work.

Exploration work is, in the main, the determining of the course of the old buried early-Mehrten-time river channel that traversed the area, for it is there that the ore-rich river benches are located. A combination of rotary drilling and field mapping have established its direct and configuration for a certain distance, as illustrated by the accompanying maps and cross sections. The drilling program for 1960 should call for at least 100,000 feet of drilling to block out more measured ore in the area of the indicated ore as holes should be drilled on 100 foot centers. Another 100,000 feet of drilling should be allotted to exploration work. The total amount of drilling will, of course, depend on the results as the program moves along.

Respectfully submitted,
Eugene H. Boudreau
Eugene H. Boudreau, Resident Geologist
Carrigan Mines, Inc.
P. O. Box 3262
Hayward, California

EHB:mrj
List of Enclosures attached
Enc.

CARRIGAN MINES INC.
P. O. BOX 3262
HAYWARD, CALIFORNIA
JE. 7-9008

LIST OF ENCLOSURES

1. Geologic map showing:
   a. Surface geology and topography.
   b. Axis of buried ore channel.
   c. Locations of all drill holes, open cuts, and access roads.
   d. Locations of cross sections in Enclosures 3 and 4.

2. Drill hole location map showing:
   a. Locations of all drill holes within ore block outlines of measured and indicated ore.
   b. Collar elevations and elevations of bottoms of drill holes.
   c. Elevations of tops of ore horizons encountered in drill holes.

3.) Cross sections across buried ore channel showing:
4.)
   a. Outline of Mehrten-granitic contact.
   b. Drill holes used in determining cross sections.

5. Record book of drill holes radiometric logs with:
   a. Hole number.
   b. Year drilled.
   c. Collar elevation.
   d. Total depth and whether or not granitic basement was reached.
   e. Elevations of tops of ore horizons encountered.
   f. Thickness of ore horizons.
   g. Average grade of ore in each horizon (no correction factors added).

6. Ore block outlines with:
   a. Boundaries of measured and indicated ore.
   b. Tonnages of ore bodies.

7. Copies of chemical and radiometric assay reports.

8. Claim map with:
   a. Area encompassed by mining claims of Carrigan Mines, Inc.
   b. Surface geology as so far determined.

November 25, 1959

Mr. Eugene B. Swanson
Carrigan Mines, Incorporated
Post Office Box 3262
Hayward, California

Dear Mr. Swanson:

Enclosed is my proposal for the drilling of your mining properties in accordance with our previous conversations during my visit to your properties in California.

You will note I did not insert a coring price in my proposal, inasmuch as the project, to my understanding, will be a plugging contract, and if the coring is to be done it will be at a later date. If, however, you think that a few holes need coring we could do it on a cost plus basis, or if you prefer I will send you a price and leave it open for negotiation.

After a thorough investigation and a geological study of your claims and the surrounding area, I have become deeply interested in the mining potential of this district, and would like to know if there is a possibility of purchasing some stock in your Corporation by applying a small percentage of the drilling income toward this purchase.

The tonnage and grade of the ore that is presently blocked out within the vastness of your property certainly warrants the drilling program that your engineers have outlined. The conclusion of the drilling in 1960 should show a tremendous increase in your ore reserves which will greatly increase the possibilities of a mill or an upgrading plant to process and market your ore. If this is the case, I would like to be considered for a mining lease from your Corporation.

Also enclosed is a rough copy of an article that was being drafted by the Bureau of Mines during one of our exploration programs on Beaver Mesa. This is only a portion of the article as Mr. Redmon, the Engineer, spent many months in the field with our operation writing this article. It will appear in a Bureau of Mines publication sometime next year. Not that it means anything, but I thought it might be interesting for you to read as it pertains to some of the conversations we have had concerning air drilling. When you are finished with the article I would appreciate your returning it at your convenience.

CARRIGAN MINES INC.
P. O. BOX 3262
HAYWARD, CALIFORNIA
JE. 7-9008

Item 5a

In our discussion you told me that you might be interested in purchasing one of the rigs used on the job at the completion of the drilling contract. If you are still interested at that time it is possible that I might be able to consider this.

In closing I wish to take this opportunity to thank you for your kindness and consideration shown me during my recent visit to California.

Sincerely,

Robert J. Colquitt
Drilling Contractor

RJC:bj

Enclosure

CARRIGAN MINES INC.
P. O. BOX 3262
HAYWARD, CALIFORNIA
JE. 7-9008

Item 5a

November 28, 1959

Carrigan Mines, Incorporated
Post Office Box 3262
Hayward, California

Attention: Mr. Eugene B. Swanson

Gentlemen:

After careful consideration and study of the material to be drilled, along with the working conditions and operating costs in the Sonora Area, I herewith submit my proposal for the exploratory drilling of your mining properties - the Automite Claims in Tuolumne County, California.

MY PROPOSAL IS AS FOLLOWS:

To guarantee to drill the entire 200,000 feet during the time that is allowed for this operation in the year 1960.

1. For a minimum 200,000 feet of non-core drilling-

   To be drilled @ $1.87 per foot.

2. Ordinarily, in a contract of this nature, there is usually a standby time or bit clause, but because of my understanding that you will guarantee a minimum amount of 250 feet per shift, per rig, per day, I will omit these clauses.

3. There will be no equipment transportation clause because of the size of the job. I have incorporated that expense in the footage price.

4. Samples and drill logs will definitely be kept according to your own engineer's specifications.

5. There will definitely be no information divulged to anyone outside of the immediate organization concerning the findings of your exploration program.

6. All equipment and personnel are covered with the necessary insurance. These certificates of insurance are available to you upon request.

CARRIGAN MINES INC.
P. O. BOX 3262
HAYWARD, CALIFORNIA
JE. 7-9008

Item 5a

7. Equipment to be used will be Portadrill air and water combination units of the latest models, and will be in perfect condition prior to the commencing of the operation, thus insuring against any major breakdown throughout the working period of the contract. An adequate supply of spare parts and other operating materials will be kept on hand at all times to eliminate, as much as possible, any downtime that might arise.

8. Auxiliary equipment such as pickups, compressors, and water trucks will also be in excellent shape.

9. If, at any time, you are not satisfied with my personnel, equipment, or the operation in general, I will readily adhere to any suggestions you might care to offer.

10. All work will be conducted in a businesslike manner and in compliance with the Laws and Statutes of the State of California.

We will commence the operation with three drill rigs operating on a two shift basis per each unit. This will give us the equivalent of six rigs in the field. If it is necessary to have more rigs on the job for the timely completion of the program they will be readily available.

We will be prepared to drill with either water or an air medium, using 600 Gyro-flo high stage compressors, whichever method is more feasible.

The low price I have offered and the proposal for operations is based upon the following:

1. The major portion of the drill holes will be at depths ranging from 250 feet to 350 feet.

2. The granitic base encountered at the bottom of the sediments does not have to be penetrated any further than is necessary to determine the bottoming of the holes.

3. Drilling will be done exclusively in the sedimentary zones of the Mohrten formations.

4. Penetration should be fairly rapid in this material unless the harder andesite and rhyolite flows are encountered. It is my understanding that you do not intend to drill these areas at this time.

5. Your Corporation will provide and maintain drill roads and drill sites.

CARRIGAN MINES INC.
P. O. BOX 3262
HAYWARD, CALIFORNIA
JE. 7-9[illegible]

Item 5a

6. Funds for the payment of completed drilling will be placed in an escrow account at a banking establishment with a reasonable retainer with which to commence the job.

My drillers are well experienced men with many years behind them in mining exploration, particularly in the uranium field. They are very familiar with Portadrills.

As for my own experience, I have been associated with the drilling industry for twelve years; I have worked for Winter-Weise Company in the construction of Portadrills and have run them in all types of drilling. I have been operating my own company in the uranium industry since 1954, and prior to that had been drilling in the uranium industry since 1948.

At the present I am conducting a mining program with two partners. We are operating two small uranium mines on the Colorado Plateau.

On a separate sheet attached hereto, I am furnishing names and addresses of several of the Companies we have drilled for.

If these specifications meet with your approval and we are awarded the contract, we will have our equipment in all readiness to move on to your project next spring as soon as weather conditions permit us to do so.

Respectfully submitted,

Robert J. Colquitt
Drilling Contractor

RJCabj

Attachment

CARRIGAN MINES INC.
P. O. BOX 3262
HAYWARD, CALIFORNIA
JE. 7-9078

Item 5a

These Job References I have selected for you, in the event that you should desire to check on the capabilities of my organization. They were selected because they were interesting and difficult programs requiring large organized crews to complete an excessive amount of footage in a specified time. For the most they were B.L.M. Contracts and Indian Reservation Exploration Permits.

1. Mr. Allen Simpson, President
   Denver Rocky Uranium, Inc.
   1129 Colorado Avenue
   Grand Junction, Colorado

2. Mr. Tom Howell, Vice President and General Manager
   Shootanik Camp Mining Corporation
   317 Main Street
   Grand Junction, Colorado

3. Mr. Joe Birman
   Department of Geology
   California College
   [illegible] Road
   Los Angeles 41, California

4. Mr. Tom Rodden, Mining Engineer
   United States Department of the Interior
   Bureau of Mines
   Building 53, Federal Center
   Denver 2, Colorado

5. Mr. G. Ryan Louie, President and Director
   New Idria Mining and Chemical Corporation
   Idria, San Benito County, California

6. Mr. Jim Maynard (formerly with Ryan Oil Company)
   The Young Brothers Corporation
   Stanford, Montana

7. Mr. A. W. Gering, Vice President
   New Idria Oil and Gas
   Graham, Texas

CARRIGAN MINES, INC.
P. O. BOX 3252
HAYWARD, CALIFORNIA
JE. 7-9008

Item 5a

FRANCIS H. FREDERICK
Mining Geologist

1209 De Young Bldg.
690 Market Street
San Francisco 4, California
Phone SUtter 1-1562

Residence:
2715 Stuart Street
Berkeley 5, California
Phone AShberry 3-7651

April 27, 1959

Carrigan Mines, Incorporated
1627 East 14th Street
San Leandro, California

Re: Autunite Mining Claims Group
Tuolumne County, California

Gentlemen:

This letter is a summary of the operations to date and includes some proposals for further work. It is not intended that this letter-report be a final report and analysis of the information obtained to date. Other more specific recommendations regarding work for 1959 can be made after a more detailed study is made of the geologic data and hole probe data completed. Sufficient is known of the property and district at this stage of my analysis of the data to be able to know that the property has merit as a potential uranium producer and at this time I can recommend a minimum amount of work for the next stage of exploration and development.

Total exploration work to date is listed below.

1955 - Trenches, pits, and open cut work by hand tool excavating, and tractor-dozer.

1956 - Open cut work by tractor-dozer equipment.

1957 - Rotary drilling in four holes, total footage drilled was 572 feet, deepest hole was 165 feet. Low grade uranium content found in three holes; one hole showed, by probing, 0.12% uranium oxide at 107 feet, and lower grade material at other zones.

1958 - Fifty-three holes were drilled by rotary drilling and diamond bit core drilling. Deepest hole was 255 feet. Total footage drilled was 10,305 feet. Of that total drilling 70 feet were core drilled for samples in and near certain ore zones. Some tractor-dozer work was also done on roads and in open cuts.

Ten of the holes drilled in 1958 showed, by probing with a deep hole geiger probe, ore of what is generally considered commercial grade, from 0.18% to 0.38% U_3O_8. Twenty-two additional holes showed uranium content in interesting amounts, from 0.06% to 0.17% U_3O_8. The twenty-one remaining holes showed 0.05% U_3O_8 or less or were not probed because of holes becoming closed before the probe work was done. Some of the ore zones represent thin layers of ore in the sediments. Probing results on thin ore layers always indicate lower content of uranium than is actually present because the probes are calibrated for thick layers of ore in which the probe and meter readings are effected by ore above and below the actual position of the probe in the hole. It is believed that the probe results at the Autunite Claims should be increased by 30% to 60% of the readings in the ore layers. The thinnest layers should be increased by the largest amount. Some excellent grade ore layers are two and three feet thick, some are only one foot thick.

The best ore was found in hole No. 31 at 71 to 74.5 feet down. Probing results for 5 feet, from 70 to 75 feet indicate an average content of 0.20% U_3O_8 for 5

feet. Probe data for 10 feet including the 5 feet of 0.20% zone averaged 0.12% U_3O_8. A chemical assay on the 10 feet of core from that section assayed 0.19% U_3O_8 indicating a probe factor of 1.58 on that ore zone. Thus, 1.58 times the 0.20% amounts to an actual content of 0.31% U_3O_8 for the 5 feet in hole No. 31. Hole No. 50 drilled within a few feet of hole No. 31 indicates ore at the same horizon as No. 31, and in addition showed lower grade but interesting content at two other sedimentary horizons, --one at 198 to 210 feet down, another at 244 to 247 feet down. At 255 feet down, the limit of drilling equipment on hand, the hole was still in sediments.

The new topographic and drill map of the property shows the location of the drill holes, the drill holes containing interesting probe data, and position of the granitic contact with the volcanic rocks and sediments at the surface, trend lines of the potential ore zone, and some positions of recommended holes.

Some of the old holes should be deepened by 200 to 400 feet. Most of the new holes should be 500 feet deep unless granitic rock is encountered sooner. It is proposed that 10,000 feet of drilling be done in the next stage, some of the drilling should be coring in selected ore horizons. Preparation should be made to drill to at least 500 feet of depth, possibly more in some holes. Many holes could be shallower; the decision on which holes should be short and which long must be determined only after drilling a few deep holes.

The channels containing known uranium mineralization extend for more than a half mile in the Carrigan Mines property and it is believed extend much farther. The extent should be tested by further drilling in the next stage of exploration. An easterly extension of ore channels for about 1,000 feet is possible in the east end of the property. Westerly extension of the channels could be as much as 6,000 feet west from the ore zone at hole No. 34 at the west end of the known ore.

Exploration can also be carried on by drifting on one of the upper most ore layers by running an adit or tunnel from near the base of the cave bluffs. The best ore layer in holes No. 31, 44, and 53 is at elevation 7,010 and is probably the same ore and sedimentary horizon in which the open cut ore at elevation 6,990 is exposed near hole No. 32, just east of the 1/4 corner. To drive such an adit from near hole No. 9 to the ore in hole No. 31 the distance would be about 600 feet. The cost of such an adit would be about $18,000. The ore horizon would be explored all the way but other holes drilled in that area between hole No. 9 and hole No. 31 show ore of lower grade. It cannot be assured at this time that such an adit would be in ore all the way. The adit would be excellent exploration but it is thought that at this time the drill program will yield more information for the cost. Another portal site might be chosen that is closer to the known best ore area. Shaft sinking at drill hole No. 31 would not be good exploration because the information gained for the cost would be quite limited.

A program consisting of drilling and an adit to explore a selected ore horizon could be efficiently done. With good equipment and the adit operating one shift per day progress should be 5 feet per working day unless some areas have to be timbered. Assuming no timbering and working 6 days per week, it would require 20 weeks to reach the 600 foot objective. Even if the 600 foot objective is not reached in the season some valuable information would be obtained and some ore would be exposed and stockpiled from the drifting work.

The Judd property immediately to the east of your property has ore exposed in open cuts and drill holes in the same formation as at your property. The Volks

property at 5 miles almost directly east from your property has been explored and developed by Lakeview Mining Company of Lakeview, Oregon. A substantial tonnage of excellent grade ore has been developed there, and plans are under consideration to treat the ore at the Lakeview milling plant in Oregon. The Volks property ore developed by Lakeview Mining Company is in the same geologic formation as at your property but at a higher elevation. Their ore zone is at 8,500 feet elevation, the Judd ore is at 7,600 and 7,700 feet elevation, and Carrigan Mines' ore is at 6,800 to 7,015 feet elevation. All three deposits are in the same formations and types of channels.

It is believed that the chances for finding substantial ore bodies at the lower elevations at your property are at least as good as at the other properties, one of which has a commercial deposit.

Detailed mapping of geology, topography, and hole locations is essential as part of the next stage of exploration.

No detail calculation of ore reserves have been made at this time although the work to date indicates possibilities of substantial reserves. If an ore bearing channel can be proved to exist for a total length of only 2,000 feet, only 150 feet wide, and 5 feet thick the total tonnage would be 100,000 tons. Work done to date indicates such a possibility.

To carry out the proposed 10,000 feet of drilling or more, some adit work, and a detail map and engineering study a total appropriation of $40,000 to $60,000 should be available--the total amount depending on the total amount of drilling and adit work to be done.

Respectfully submitted,

/s/ Francis H. Frederick

FHF:ea

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April 1, 1957

Carrigan Mines, Inc.
1624 E. 14th Street
San Leandro, California

Gentlemen:

In September, 1955 I made an examination of the Tharp, Boles, and Swanson mining claim in Sections 4 and 9, Township 4 North, Range 19 East, Tuolumne County, California. The area examined lies about two and one-half miles by road southerly from the paved Highway Route 108 at an elevation of about 6,500 feet, and includes the basin and general area embracing a length of Niagara Creek.

Uranium mineralization, in the mineral autunite, and possibly in other mineral forms, is present in the sandstone, shale, and conglomerate beds of the area examined. The sedimentary beds containing the observed uranium content are probably largely of volcanic origin but resemble in physical characteristics some of the ore bearing horizons in the Morrison formation of Jurassic Age in the Colorado Plateau uranium area. The beds are nearly horizontal, dipping no more than 10° in the exposures observed. Granitic rocks, upon which the sediments have been deposited, are exposed in the general area, and were observed at 300 feet south of one of the important autunite exposures in the sandstone and conglomerate. The area of the Niagara Creek basin or swale within the property is probably also a trough shaped or basin shaped scoured or eroded area in the old (Tertiary) granitic land surface which has become filled with the sediments now observed. It is possible that enrichment of uranium minerals exist in the lower parts of the sedimentary filling. If the sediments contain carbon material, such as carbonized wood, the chances for uranium mineralization is increased. Within such a filled trough or basin there is a possibility of finding a concentration of uranium ore because it is known that the sedimentary fill is uranium bearing. Sediments exposed in the one basin area examined are a type favorable to uranium ore deposition. A number of important conditions that are favorable for uranium mineralization are present in the sediments exposed.

I understand the property ownership has been extended since my examination to include a total of 1,440 acres in Sections 4, 5, 8, and 9, Township 5 North, Range 19 East. Inclusion of a large acreage in the property at this time is a good plan so that general geologic and exploration work can be done within the property and so that the best areas may be selected for concentrated exploration. The area examined and found to be of interest, because it is known to contain sediments that contain indications of uranium mineralization, is 1,000 feet by 800 feet in area and is bounded on the south by granitic outcrops, and on the east and west by volcanic lava flown and hard cemented conglomerates. The sediments of interest extend northerly beyond the limits examined. The lavas and hard cemented conglomerates to the east and the west of the Niagara Creek Basin are cap rocks lying on top of the sediments of interest for exploration. At the time of my examination in the Fall of 1955 it was known that two other properties in the general area had interesting uranium discoveries; one property was about one mile easterly and another about five miles easterly from the Carrigan property. In a property the size now held by Carrigan Mining Company there are several opportunities for discovery of other basins and areas favorable for ore mineralization in the sedimentary formations.

The most important showing of uranium at the property was at the small open cut and trench west of Niagara Creek and south of the road. There readings with geiger counter

and a scintillation counter gave the equivalent of 0.12 to 0.15 per cent U_3O_8 by radioactive determination. Selected samples and specimens of the ore gave readings as high as 0.60 per cent U_3O_8. A small sample determined by the Atomic Energy Commission and U.S. Bureau of Mines at Salt Lake City, Utah, assayed 0.27 per cent U_3O_8 by assay, and 0.23 per cent by radioactive energy determination. A sample cut by myself in 1955 at the same place, representing a thickness of about one foot, assayed 0.05 per cent U_3O_8 by chemical determination. Three other samples ranging from four inches to twenty-four inches of conglomerate and gray soft sandstone assayed 0.05 per cent U_3O_8, 0.06 per cent U_3O_8, and 0.072 per cent U_3O_8. A one and one-quarter pound piece of rock from the same place, a select specimen, measured 0.40 per cent U_3O_8. The observed mineralization at this location was fine-grained autunite dispersed through the rock and around the conglomerate pebbles and disseminated in the matrix of the conglomerate, and finely dispersed in the sandy parts of the formation. Some bright green fluorescing opaline material is also associated with the autunite. Some bulldozing, trenching, and drilling is recommended for further exploration of this particular layer of conglomerate and sandstone. Carbonized wood material is scattered through the sandstone and conglomerate formation at the location of this small open cut. About twenty-five to fifty feet in elevation higher than this cut is a sloping bench from which drilling work can be done to drill down through this uranium bearing layer and into possible other uranium bearing layers at greater depth. The drilling should be done by vertical hole drilling from a number of places on the bench in order to determine the position of the best uranium bearing beds before other exploratory work is done in this area.

There are other exposures of uranium bearing sands in the area, particularly in the sand beds at a lower horizon than the conglomerate beds just described. About 500 feet northerly, down stream along Niagara Creek, is a small cut in the creek bank in a sandstone formation showing carbonized wood and uranium mineralization. Determination with a scintillation counter indicates an assay content of 0.01 to 0.03 per cent U_3O_8 in the sands close to the edge of the creek. About 200 to 300 feet farther downstream are two cuts in the sandstone bluffs at the edge of the creek which indicates similar mineralization in sandstone containing carbonized wood. Radioactive readings at these places indicate 0.01 to 0.05 per cent U_3O_8 in the sandstone at the edge of the creek. It is quite possible that considerable leaching has taken place in the sands so close to the creek bed. Enrichment may be found in beds directly below these surface exposures if the beds are porous and contain carbonized material. Carbonized material is not essential to uranium mineralization but it is associated with uranium in many deposits in the sediments.

About 400 feet almost directly east from the main conglomerate cut is a bluff of hard cemented volcanic gravels and conglomerate lying on top of the sandstone formation and containing a small natural cave and water seep near its base. Traces of autunite are exposed, and radioactive count is present, in the cave. Exploration should be done below the volcanic gravels and conglomerates by drilling from selected locations.

Drilling should be done in a number of places in the Niagara Creek flat and in the basin area. Drilling should be vertical down holes to the granitic basement rock to searhh for mineralized sedimentary layers in the sandstone where there may be a concentration of carbonized material and uranium. All of the mineralization observed and identified is the secondary mineral autunite which has been derived by leaching and reconcentration from some source material that may have been eroded away.

A general exploratory program in the area should include some geologic mapping of the area as a whole and some preliminary vertical drill holes to determine the general depth of the main sedimentary layers containing the uranium minerals. Sufficient is known about the area now to start a preliminary drilling program that can be started at about the same time the general geological mapping starts, so that by the time

[illegible]

some of the first holes are completed the geologist will be on the job and can determine the location placement for the subsequent drilling that is currently being planned. The first stage of a drilling program should be about ten holes, each 100 to 500 feet in depth. The depth of each hole depends on the depth to the basement rock or bedrock (granite) as determined as work progresses in the first drilling. The purpose of the first drilling would be more to determine the depth of the sediments and the carbon content of certain horizons in the sediments rather than specifically looking for uranium content. Once the general attitude or depth and position of the sedimentary formation has been determined, then a plan can be made for attempting to drill in the places most likely containing the concentrations of uranium mineralization. All holes should be drilled in such a manner so that they can be probed with a geiger counter probe in order to determine the horizons containing uranium mineralization. A total program of drilling on the property could include more than fifty holes ranging from 75 to 300 feet in depth. Some of the holes can be drilled to specific horizons such as the conglomerate bed from the bench between the small cut and the volcanic bluffs; such holes may need to extend to a depth of only 75 to 100 feet.

The fact that there is uranium mineralization in the conglomerate and sandstones in the area, and that the sandstones and comglomerate do contain carbonized material, which is usually essential to a concentration of uranium, is sufficient showing to warrant an exploration program searching for a concentration of uranium mineralization. Uranium minerals are not very resistant to weathering and leaching and migrate considerable distances through porous or permeable formations unless concentrated in structural traps or reservoirs by carbon material or phosphates, or both. The main plan in the exploration proposed is to look for structural positions in which the sedimentary formations are a good host rock for ore and contain the apparently necessary carbon material to cause enrichment of uranium minerals.

Drilling can be done for costs of $1.00 to $6.50 per foot depending on the type of drilling required. The lowest cost drilling-wagon drilling with section drill steel -- gives a small hole, two to two and one-half inches in diameter with only [illegible] or sludge sample. Depth obtainable by such drilling is about 60 to 100 feet. Rotary drilling with a truck mounted compressor and drill unit, such as a Mayhew 1000, or a Fehling Drill, or a Porta Drill, or similar units, can drill 200 to 400 feet per eight-hour day and drill either dry or wet. Depth in excess of 1,000 feet can be drilled with such rigs. Hole size is about four and one-quarter inches and drilling can be converted to core drilling delivering a three inch diameter core from any depth specified for coring. Costs vary from $1.50 per foot dry to $3.50 per foot wet, plus moving time. Core drilling with the rotary drills varies from $3.50 to $6.00 per foot. Diamond drilling can also be done with standard diamond drill rigs with costs running from $5.50 per foot for plug bit drilling with no core to as much as $6.50 or even higher for core drilling. I propose that an attempt be made to arrange a contract to do the drilling with a rotary rig such as a truck mounted Mayhew 1000, a Porta Drill, or a Fehling Drill. Drilling at this property will probably have to be done wet as the sediments are moist or water bearing. Estimated cost per hole, as recommended, might not exceed an average price of $3.00 per foot plus transportation to and from the job. It may be possible to get wet drilling done for an average price of $3.00 per foot, including some core sections in ore zones. The operating season in the area for an initial drilling program will be limited by snow conditions to a period from sometime in late May to sometime in late November or December.

The preliminary drilling might include four holes at a depth of 300 feet each and an additional six holes at about 100 to 150 feet each distributed rather widely in the area to determine the general formational conditions and to determine uranium content at those holes. Subsequent drilling might include three holes at 300 feet, ten to twenty holes at 200 feet, ten to twoenty holes at 100 feet and many holes at approxim-

ately 50 to 100 feet each with a grand total of 6,000 to 10,000 feet of drilling. Preparation should be made for storing the sludge in containers or piles in such a way that determinations can be made on them at sometime after the drilling of each hole has been completed, and in order to compare the sludge or cuttings obtained with the result of the probing of the holes. When it has been determined that certain layers are ore bearing or are mineralized then arrangements should be made so that those particular sections can be cored by additional drilling, a core being recovered for assay purposes from the ore bearing or mineralized sections. In addition to the cost of the drilling will be the cost of preparing the drill sites and drill roads by a tractor-dozer, and the cost of the geologic work, interpretation of the results of the drilling, and supervision of the drilling and preservation of the cores and drill cuttings. It is estimated at this time that the total cost of the drilling will vary from $18,000 to $24,000 if the footage drilled is about as indicated above. If it turns out that the drilling is shallower than mentioned above to reach the basement of the potential ore bearing formation than it is proposed that additional short holes be drilled over a more extended area and other work such as short tunnels and shafts to be substitued for the drill footage not required. The total cost of preparatory work, geologic work, and supervision for the company might amount to a total of $6,000 to $12,000 during the period of drilling and exploration.

When the drilling has been completed it would then be in order to consider a means of further exploring the best ore horizons discovered to that time. In general shaft sinking or running of adits and cuts would be the best way to investigate the ore horizons depending on the depth and the location of such discoveries.

In order to constitute ore grade material the assays of the ore sections should range from 0.10 per cent U_3O_8 and upward. A good grade of shipping ore is from 0.20 per cent U_3O_8 or higher. It may be necessary to use some sort of upgrading system on ores that assay less than 0.20 per cent U_3O_8. Thicknesses of ore that would be interesting or that would be commercial for the assay grades mentioned above would be from two feet to five feet or thicker depending on the grade of ore being mined. If some high grade at 0.50 per cent U_3O_8 is discovered such ore can be mined commercially at a thickness as narrow as one or one and one-half feet.

Drilling should be planned with one drill rig of a satisfactory type to accomplish the type of drilling required at the property so that a minimum of moving and mobilizing costs will be entailed. The total drilling program can be carried out in thirty to sixty days time, depending on the efficiency of the rig and the nature of the ground encountered in the drilling.

Respectfully submitted,

s/ Francis H. Frederick

ba

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December 30, 1957

Carrigan Mines, Incorporated
1627 East 14th Street
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Re: Autunite Claims Group
Tuolumne County, California

Gentlemen:

This letter report is supplemental to my preliminary report of April 1, 1957, and summarizes the data available to date regarding the uranium mineralization and possibilities at the Autunite claims in Tuolumne County, California.

In July I visited the property during the test drilling work with the truck mounted rotary Porta-drill. The driller was not fully prepared with collar casing and other casing, nor was he prepared for wet drilling which turned out to be necessary for deep hole drilling. As a result of the test drilling it was concluded that the rotary type drilling with standard and extra hard cone bits would be a satisfactory way to drill the property. The 4-1/4 inch diameter holes were satisfactory. Core drilling can be done using the same equipment but using an NX core barrel and an NX coring bit to get good core results for the sections of the hole that should be cored in the ore horizons for assay purposes.

The recommendations in this report are based on drilling vertical rotary drill holes for probing information, with coring in special sections of some of the holes as determined by the probing data. It is proposed that the drilling be done with a truck mounted rotary drill, drilling to be dry when possible and wet drilling be resorted to when necessary.

A sketch geologic-topographic map of the property has been prepared by means of stereo study of air photos. The photo-geology expressed on the map shows the surface contact between the granitic rim rocks and the Tertiary volcanic rocks and sediments in the filled Tertiary basin or trough. The Tertiary sediments are the ore host rocks in the area. The topography shown on the sketch map is quite crude, having been made by stereo examination of the airphotos without accurate controls. The map must be regarded as strictly a sketch map to give the general expression of the terrain rather than true elevations. The map is quite satisfactory for laying out the drill program with the understanding that the collar elevations of the holes shown on the map maybe as much as 50 to 100 feet off in elevation. The scale of the map is approximately 315 feet to 1 inch. The map shows the main access roads to the property as well as the drill roads that have been constructed to date. More drill roads will have to be constructed to the various proposed drill holes but most of the work can be readily done by dozer work and it is anticipated that the drill roads and preparation of drill sites will cost less than $8,000 for the entire project. It is not possible to make an accurate guess at this time as to the cost of the drill roads because some drilling and blasting in road preparation will be necessary and it has not been determined to what extent that will have to be done.

The 4 holes drilled in 1957 are shown on the map, holes No. 11, 12, 22, and 23. Those holes varied from 122 feet to 165 feet in depth. Hole No. 23 discovered ore at a depth of 107 feet or at an elevation of approximately 6955 feet, approximately at the elevation of the floor of Niagara Creek in that area. The places of ore discovery or known uranium occurrence have been indicated on the map by red marks.

The photo-geology study indicates that there is a possible drainage axis trending about south 80 degrees west through the property for a distance of about two miles. The lowest elevation on the property showing the Tertiary sediments is at about 6,750 feet at the extreme southwest corner of the map. About 1 mile west of the west boundary of the property the low spot of the Tertiary drainage system appears to be at an elevation of about 6,400 feet at the bottom of the indicated channel. The elevation of the floor of the valley where Niagara Creek cuts through the sediments in the area partially explored for uranium on the property is at an elevation 6,950 feet. Uranium has been disclosed in Tertiary sediments on the Judd property about 1.5 miles east of the east boundary of the Autunite Claims group and at a higher elevation. The ore disclosures there are approximately on the general "channel" trend as indicated by the photo-geology.

The host rocks, the volcanic rocks and Tertiary sediments, in the Tertiary basin or trough in the granitic surroundings are 1,200 feet wide at Niagara Creek at the narrowest exposure on the property. The extent of the Tertiary rocks at the surface is much greater at the east and west ends of the property; at the west end the entire north-south boundary of the property--a distance of more than a mile--is Tertiary sediments and volcanics. At the east end of the property the total width of Tertiary rocks exposed at the surface is about 4,000 feet. The actual depth from the surface to the basement granitic rocks in the center of the channel is not accurately known throughout the property but it is reasonable to assume that the lowest elevation of Tertiary sediments at the Niagara Creek explored area is close to 6,750 to 6,800 feet elevation--about 150 to 200 feet below the valley floor. The low point known at 2-1/2 miles west is about 6,400 feet elevation. It is thought that drilling may need only extend to the depth of the favorable carbon and sand beds at a higher horizon than the very bottom of the Tertiary rocks. The Tertiary rocks have been identified as Miocene age.

The ore discovered to date on the property, and in the adjoining properties at both the Judd and the Volks properties, has been found in sandy members of the Tertiary sediments that resemble the Morrison sandstones of the Colorado Plateau in physical chacteristics--just as the uranium productive Tertiary sandstones in Wyoming somewhat resemble the Morrison and older uranium bearing sandstones of the Colorado Plateau. All of the ore discovered has been associated with carbon material, dispersed and scattered throughout the sandstones. In the south part of Section 4 in the Carrigan properties the favorable sandstone horizon appears to be at an elevation close to the floor of the valley of Niagara Creek. With respect to the elevations shown on the map that zone or horizon would be from elevation 6,920 to 6,970 feet. The larger fragments of carbonized material in the open cut in the south center of Section 4 close to the quarter corner is at elevation 6,970, the low grade material in the sand member along Niagara Creek about 1,000 feet down creek and north of the above-described occurrence is at elevation 6,930 to 6,945. The ore discovery in hole No. 23 at 107 to 110 feet depth is at an elevation of approximately 6,955 feet. The elevation of the ore in the sandstone at the Judd property about 1 mile east of those described occurrences is at a higher elevation and would be "upstream" in the present sandstone drainage system or channels.

Some of the sedimentary basin area of the property is capped by lavas and it may be somewhat costly to drill through the lavas and continue on into the softer sedimentary members to get the necessary information so the main drill program is based on drilling as close to the favorable members as possible but giving consideration to the possible need of deep cover to minimize leaching of the ore minerals, and to gain possible secondary enrichment in the carbon bearing beds.

The pattern of drilling laid out on the map is not to be considered as specific with respect to actual location of each hole, because as the drilling progresses information from one hole will control the position and depth drilled in the subsequent holes. The pattern is laid out to show the general plan of exploration to discover the benches that may be ore bearing, as well as main channels that may be ore bearing. The depth to which the holes will be drilled will be controlled by information received in the first several holes. It is planned that a few of the first holes be drilled in the Niagara Creek basin or valley and go to the granitic floor in order to determine the sequence of rocks below the elevation of the valley floor and to determine the possible merit of further deep drilling. If no favorable appearing sand members are discovered in those first several holes then the subsequent holes starting at higher elevations will be drilled to the depths where favorable sand members are known to exist such as at the approximate elevation of the valley floor in that area. Some of the holes are planned rather close to the granite contact at the surface in order to determine the shape of the Tertiary canyon walls and to attempt to locate possible favorable high sand benches.

Because the ore mineralization is known to be largely autunite it is believed that considerable leaching of ore has taken place. Also because there is considerable carbon in some of the sand beds it is believed that there are substantial channels, remnant beaches, or sand beds that are capable of being good host rocks for uranium deposition--either secondary or primary. The planned drilling should find continuations of the carbon bearing sandstone beds already disclosed by the open cut work and drilling. Work done to date has been in areas where leaching or "robbing" of the uranium has been effective. The planned drilling should find enriched beds and beds that have not been made low grade by the leaching that is evident in Niagara Creek canyon where present water drainage and leaching is at work.

The total program will include 40 holes or more with an estimated total footage of 9,000 feet. The total number of holes displayed on the sketch map is 33. Some of the holes may only be 100 to 150 feet in depth, some of the holes may be as much as 450 or 500 feet in depth, depending on information obtained as the drilling progresses. It is thought that some of the holes shown on the map may not be drilled at all, decision depending on information obtained during the program; it is also planned that a number of holes be drilled close to and around any hole that discovers a substantial ore occurrence. It is also planned that the first holes be drilled for probing only and if favorable indications are found by probing then some of the offset or nearby holes will be core drilled at the horizons indicated favorable by the probing. The cost of the project can be kept down considerably by using probe holes only for the initial exploration, with core drilling to follow with coring only in sections of the holes that are indicated to be ore bearing by the other information. The cuttings will be saved from the holes for radiometric and chemical determinations, and for comparison with core drilling in the areas containing ore. The project is based on 8,800 feet of rotary drill holes in 40 holes, plus 200 feet of core drilling in 5 to 15 foot sections in selected sections of some of the 40 holes. Coring will only be done when probing in nearby holes indicates strongly that ore can be cored at specific depths in the new holes.

The non-core drilling will be done by tri-cone rotary bits, and experience has shown that bit costs will be high because of certain conglomerate beds. Costs will be considerably lower as compared with core drilling. Core drilling will be done with standard diamond bit coring equipment attached to the truck mounted Failing 750 drill planned for the project.

Drill roads should be built by a tractor-dozer that will have to be available almost daily due to frequent moves of the drilling rig and need of leveling off at the drill sites as they are selected. Selection of each drill site will be based on the data from all drilling to that time including the hole just previously drilled. Probably the simplest contract system for the road work would be to pay for the drill roads on a lineal foot basis. An estimated 15,000 feet of road work will be required, plus leveling at about 40 drill sites. Leveling may cost $50 per site on the average, or a total of $2,000. Road work will involve some drilling and blasting and the average cost of roads may be $30 per hundred feet; 15,000 feet for $4,500. Standby cost and moving costs on the road building equipment will cost about $1,000. Total costs of roads, leveling at drill sites, and moving in and out would then total $7,500.

Drilling costs on the DMEA project should be on a unit basis, as if on a contract, whether drilled with company equipment or on an outside contract. The contract estimates of $3.50 per foot for a 4-1/4 inch hole for probing, drilled by a truck mounted wet drilling rig is a fair price. Core drilling with the same rig giving an Nx or Bx core for $6.50 per foot is also reasonable. Holes that need to be kept open for probing may have to be cased. Drilling experience at the property indicates that in many holes no casing, except collar casing, will be necessary. Casing cost will run about $10 per hour for drilling time, plus cost of casing pipe. I estimate that possibly 20 holes will be core drilled at possible ore horizons for 10 feet each hole. At $6.50 per foot for 200 feet the total cost of core drilling for the project will be $1,300. Assays of drill cores will serve to calibrate the hole probing results by chemical assaying. Assay costs for uranium at Abbot Hank's laboratory in San Francisco is $10 per assay. Approximately 50 samples will be submitted for assay. Other assay offices may be used if the work is accurate and the cost is less.

The project should be completed in 3 months or less after work starts. Work should start in July, if possible, in order to take advantage of the good weather. Work can continue into late October or possibly November, but it would be wise to try to complete the exploratory drilling by November 1.

Costs of supervision, accounting, administration, geology, engineering, and preparation of final engineering report are based on a 3 month project. Cost figures are shown in the following Summary Table of Estimated Costs.

SUMMARY OF ESTIMATED COSTS

Roads to drill sites	$4,500
Leveling at drill sites	2,000
Moving in and out and standby costs on dozer	1,000
Rotary Drilling: 8,800 ft. at $3.50 per ft.	30,800
Core drilling at $6.50 per ft. Nx or Bx core	1,300
Assaying at $10 per sample	500
Accounting	450
Sample sacks and cans, small tools, gasoline for superintendent	120
Supervision at $600 per month	1,800
Geological and Engineering, consultant and administration	4,000
Contingencies, including possible casing of holes	5,000
Total	$51,470

There will undoubtedly be other costs that are not covered in the outlined program, so the Company should be aware and prepared for expenditures that may not be included in a DMEA contract or in the above estimates.

Respectfully submitted,

/s/ Francis H. Frederick

FHF:ea

CARRIGAN MINES INC.
P. O. BOX 3262
HAYWARD, CALIFORNIA
JE. 7-9008

Item 2 b

PRELIMINARY REPORT

Description of property situate in the County of Tuolumne, State of California.

LODE CLAIMS:

Claim	Vol.	Page	Number
1	23	1	2400
2	23	1	2399
3	22	500	2398
4	22	500	2397
5	22	499	2396
6	22	499	2395
7	22	498	2394

PLACER CLAIMS:

Claim	Vol.	Page	Number
1	14	398	3338
2	14	467	3235
3	14	466	3234
4	14	466	3233
5	14	468	3567
6	14	469	3568
7	14	470	3569
8	14	470	3570
9	14	476	3578
10	24	51	1926
11	24	52	1927
12	24	53	1928
13	24	54	1929
14	24	55	1930
15	24	56	1931
16	24	57	1932
17	24	1	1871
18	24	2	1872
19	24	3	1873
20	24	4	1874
21	24	5	1875
22	24	6	1876
23	24	7	1877
24	24	8	1878
25	24	9	1879
26	24	10	1880
27	24	11	1881
28	24	12	1882
29	24	13	1883
30	24	14	1884
31	24	15	1885
32	24	16	1886
33	24	17	1887
34	24	18	1888
35	24	19	1889
36	24	20	1890
37	24	21	1891
38	24	22	1892
39	24	23	1893
40	24	24	1894
41	24	25	1895
42	24	26	1896
43	24	27	1897
44	24	28	1898
45	24	29	1899
46	24	30	1900
47	24	31	1901
48	24	32	1902
49	24	33	1903
50	24	34	1904
51	24	35	1905
52	24	36	1906
53	24	37	1907
54	24	38	1908
55	24	39	1909
56	24	40	1910
57	24	41	1911
58	24	42	1912
59	24	43	1913
60	24	44	1914
61	24	45	1915
62	24	46	1916
63	24	47	1917
64	24	48	1918
65	24	49	1919
66	24	50	1920
67	24	59	2301
68	24	60	2302
69	24	61	2303
70	24	62	2304
71	24	63	2305
72	24	75	3347
73	24	76	3348
74	24	77	3349
75	24	94	3786
76	24	95	3787
77	24	96	3788
78	24	97	3789
79	24	98	3790
80	24	99	3791
81	24	100	3792
82	24	101	3793
83	24	102	3794
84	24	103	3795
85	24	104	3796
86	24	105	3797
87	24	106	3798
88	24	107	3799
89	24	108	3800
90	24	109	3801
91	24	110	3802
92	24	111	3803
93	24	112	3804
94	24	113	3805

CARRIGAN MINES INC.
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PLACER CLAIMS: (Con't)

Claim	Vol.	Page	Number
95	24	114	3806
96	24	115	3807
97	24	116	3808
98	24	117	3809
99	24	118	3810
100	24	119	3811
101	24	120	3812
102	24	121	3813
103	24	122	3814
104	24	123	3815
105	24	124	3816
106	24	125	3817
107	24	126	3818
108	24	127	3819
109	24	128	3820
110	24	129	3821
111	24	130	3822
112	24	131	3823
113	24	132	3824
114	24	133	3825
115	24	134	3826
116	24	135	3827
117	24	136	3828
118	24	137	3829
119	24	138	3830
120	24	139	3831
121	24	140	3832
122	24	141	3833
123	24	142	3834
124	24	143	3835
125	24	144	3836
126	24	145	3837
127	24	146	3838
128	24	147	3839
129	24	148	3840
130	24	149	3841
131	24	150	3842
132	24	151	3843
133	24	152	3844
134	24	153	3845
135	24	154	3846
136	24	155	3847
137	24	156	3848
138	24	157	3849
139	24	158	3850
140	24	159	3851
141	24	160	3852
142	24	161	3853
143	24	162	3854
144	24	163	3855
145	24	164	3856
146	24	165	3857
147	24	166	3858
148	24	167	3859
149	24	168	3860
150	24	169	3861
151	24	170	3862
152	24	171	3863
153	24	172	3864
154	24	173	3865
155	24	174	3866
156	24	175	3867
157	24	176	3868
158	24	177	3869
159	24	178	3870
160	24	179	3871
161	24	180	3872
162	24	181	3873
163	24	182	3874
164	24	183	3875
165	24	184	3876
166	24	185	3877
167	24	186	3878
168	24	187	3879
169	24	188	3880
170	24	189	3881
171	24	190	3882
172	24	191	3883
173	24	192	3884
174	24	193	3885
175	24	194	3886
176	24	195	3887
177	24	196	3888
178	24	197	3889
179	24	198	3890
180	24	199	3891
181	24	200	3892
182	24	201	3893
183	24	202	3894
184	24	203	3895
185	24	204	3896
186	24	205	3897
187	24	206	3898
188	24	207	3899
189	24	208	3900
190	24	209	3901
191	24	232	4188
192	24	231	4187
193	24	230	4186
194	24	235	4339
195	24	236	4340
196	24	237	4341
197	24	238	4342
198	24	239	4343
199	24	240	4344
200	24	241	4345
201	24	242	4346
202	24	243	4347
203	24	244	4348
204	24	245	4349
205	24	246	4350
206	24	247	4351
207	24	248	4352
208	24	249	4353
209	24	250	4354
210	24	251	4355
211	24	252	4356
212	24	253	4357
213	24	254	4358
214	24	255	4359
215	24	256	4360
216	24	257	4361
217	24	258	4362
218	24	259	4363

CARRIGAN MINES INC
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Claims No's. 2, 3 and 4, re-recorded for purposes of better identification on October 15, 1959 in Vol. 24, Pages 210, 212 and 214 respectively.

The above Mining Claims can be further identified by Sections and portions thereof within the Summit Mining District, County of Tuolumne, State of California, by legal subdivision according to the United States Survey as follows, to wit:

WITHIN Range 18 East, Township 5 North, M. D. B. M.:

The East ½ of Section 1, together with all of Sections 12 and 13.

WITHIN Range 18 East, Township 6 North, M. D. B. M.:

All of Section 36.

WITHIN Range 19 East, Township 6 North, M. D. B. M.:

The South ½ of Section 22; and the East ½ of Section 30; and the SouthWest ¼ of Section 23; and the South West ¼ of Section 25; and the East ½ of Section 31, together with all of Sections 19, 20, 21, 26, 27, 28, 29, 32, 33, 34, 35 and 36.

WITHIN Range 20 East, Township 6 North, M. D. B. M.:

The West ½ of Section 33, together with all of Section 31 and 32.

WITHIN Range 20 East, Township 5 North, M. D. B. M.:

The West ½ of Section 8; and the South West ¼ of Section 16, together with all of Sections 5, 6, 7, 17, 18, 19, 20, 29 and 30.

WITHIN Range 19 East, Township 5 North, M. D. B. M.:

The North ½ of Section 21; and the North East ¼ of Section 27, together with all of Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 22, 23, 24, 25 and 26.

CARRIGAN MINES INC.
P. O. BOX 3262
HAYWARD, CALIFORNIA
JE. 7-9008

Record title is vested in:

EUGENE M. THARP,
NORMAN BOLES,
EUGENE B. SWANSON

Subject to:

1. Taxes for the year 1959-1960, paid. Taxes listed on Unsecured Roll, Parcel 20-07, Code Area 80-06. Amount $119.06.

2. Lease, Eugene M. Tharp, Norman Boles, Eugene B. Swanson, to Carrigan Mines, Inc., a California Corporation. Dated December 6, 1959 and recorded December 22, 1959 in Vol. 109, Page 274 Recorder's No. 4841, Official Records of Tuolumne County. Lease applies to all claims covered in this report.

3. Except as to any conflict with any patents issued by the United States of America or by the State of California andexcept as to conflicting mining locations.

4. These claims are held subject to a full compliance with all mining laws of the United States of America, together with a full compliance with the regulations governing the mining district in which said claims are located.

5. Any actions pending or judgements rendered in any federal court.

This report is made at the request of Eugene B. Swanson, P. O. Box 3262, Hayward, California. Liability hereunder is limited to the amount of our fee, $500.00.

Dated at Sonora, California
December 22, 1959 at 3:00 p.m.

SONORA ABSTRACT AND TITLE CO.

Lewis H. Bach

by: Lewis H. Bach, Manager

Search No. 13-585
df

Item 3
CARRIGAN MINES INC.
P. O. BOX 3262
HAYWARD, CALIFORNIA
JE. 7-9008

ENCLOSURE NO. 5

Drill Hole Radiometric Logs from Carrigan Autunite Claims

Information Given

Hole No.
Collar Elevation

Year Drilled
Total Depth
(p-plugged)
(G-hit granite)
Average Grade of Ore in Bed

Elevation of Tops of Ore Horizons

Hole A — 1957
C.E.-7015' — T.D.-126' (p)

Elev.	Ft.	$\%U_3O_8$
7010	5.0	readings to 0.15
6987	6.0	0.07

Hole B — 1957
C.E.-7000' — T.D.-79' (p)

Hole C — 1957
C.E.7043' — T.D.-165'

Elev.	Ft.	$\%U_3O_8$
6943	2.0	0.06

Hole D — 1957
C.E.-7050' — T.D.-117'

Elev.	Ft.	$\%U_3O_8$
6984	1.5	0.09
6968	0.5	0.07
6943	2.0	0.15

Hole 1 — 1958
C.E.-6950' — T.D.-179' (p)
some reading 55-100'

Hole 2 — 1958
C.E.-6950' — T.D.-25'

Hole 3 — 1958
C.E.-7010' — T.D.-220' (p)

Hole 4 — 1958
C.E.-7125' — T.D.-207' (p)

Elev.	Ft.	$\%U_3O_8$
6977	2.0	0.32

Hole 5 — 1958
C.E.-7070' — T.D.-170' (p)
Small reading intermittently from 7006-6900

Hole 6 — 1958
C.E.-7040' — T.D.-182' (p)

Elev.	Ft.	$\%U_3O_8$
6936	2.0	0.10
6843	trace	0.08

Hole 7 — 1958
C.E.-7035' — T.D.245'

Elev.	Ft.	$\%U_3O_8$
6857	trace	0.10
6827	"	0.12
6804	"	0.08

Hole 8 — 1958
C.E.-7050' — T.D.-259'

Elev.	Ft.	$\%U_3O_8$
6942	3.0	0.11
6845	2.0	0.16

Hole 9 — 1958
C.E.-6980' — T.D.255'

Elev.	Ft.	$\%U_3O_8$
6960	1.0	0.13
6874	1.0	0.11
6855	2.0	0.11
6812	3.0	0.13
6775	1.0	0.10

Hole 10 — 1958
C.E.-7005' — T.D.-245'

Elev.	Ft.	$\%U_3O_8$
7005	7.0	0.08
6993	2.0	0.14
6960	trace	0.08
6931	"	0.10
6894	"	0.08
6885	"	0.08
6852	"	0.10
6829	"	0.10
6770	"	0.10

Item 3

CARRIGAN MINES INC.
P. O. BOX 3262
HAYWARD, CALIFORNIA
JE. 7-9008

Drill Hole Radiometric Logs (con't)

Hole 11 — 1958
G.E.-7130' — T.D.-243'

Elev.	Ft.	%U3O8
7022	3.0	0.11
6968	4.0	0.16
6918	2.0	0.11

Hole 12 — 1958
G.E.-7023' — T.D.-115'

Hole 13 — 1958
G.E.-7150' — T.D.-48'

Hole 14 — 1958
G.E.-7150' — T.D.-95'

Hole 15 — 1958
G.E.-7240' — T.D.-215'

Hole 16 — 1958-59
G.E.-7350' — T.D.-243' (c)

Hole 17 — 1958
G.E.-7360' — T.D.-120'

Hole 18 — 1958
G.E.-7155' — T.D.-235'

Hole 19 — 1958
G.E.-7090' — T.D.-195' (c)

Elev.	Ft.	%U3O8
7080	11.0	0.06
7070	20.0	0.05
7046	7.0	0.09
7026	11.0	0.06
7002	trace	0.05
6993	"	0.06
6973	"	0.06

Hole 20 — 1958
G.E.-7080' — T.D.-185' (c)

Hole 21 — 1958
G.E.-7112' — T.D.-145'

Hole 22 — 1958-59
G.E.-7130' — T.D.-170'

Elev.	Ft.	%U3O8
7003	2.0	0.09
6985	2.0	0.06
6891	trace	
6877	"	
6882	"	
6882	2.0	0.11

Hole 23 — 1958
G.E.-7140' — T.D.-170'

Hole 24 — 1958
G.E.-7150' — T.D.-175'

Elev.	Ft.	%U3O8
6999	1.0	0.04
6987	2.0	0.10

Hole 25 — 1958
G.E.-7139' — T.D.-175'

Elev.	Ft.	%U3O8
7004	3.0	0.05
6990	3.0	0.05

Hole 26 — 1958
G.E.-7150' — T.D.-185'

Elev.	Ft.	%U3O8
7033	4.0	0.08
6993	7.0	0.08

Hole 27 — 1958
G.E.-7160' — T.D.-160'

Elev.	Ft.	%U3O8
7053	3.0	0.10
7046	9.0	0.06

Hole 28 — 1958
G.E.-7120' — T.D.-(p)

Hole 29 — 1958
G.E.-7135' — T.D.-30' (p)

Hole 30 — 1958
G.E.-7145' — T.D.-250'

Elev.	Ft.	%U3O8
7040	1.0	0.09
7008	1.5	0.10
6921	1.0	0.09

Hole 31 — 1958
G.E.-7080' — T.D.-155'

Elev.	Ft.	%U3O8
7010	4.5	0.20
6940	1.0	0.08

Hole 32 — 1958
G.E.-6980' — T.D.-135'

Elev.	Ft.	%U3O8
6900	2.5	0.60

Hole 33 — 1958
G.E.-7030' — T.D.-115'

Item 3

CARRIGAN MINES INC.
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HAYWARD, CALIFORNIA
JE. 7-9008

Drill Hole Radiometric Logs (con't)

Hole 34 — 1950
C.D.-7060' — T.D.-255'

Elev.	Ft.	[illegible]
6925	3.5	0.00
6965	5.5	0.10

Hole 35 — 1950
C.D.-7120' — T.D.-255'

Elev.	Ft.	[illegible]
6965	1.0	0.07

Hole 36 — 1950
C.D.-7070' — T.D.-155'

Elev.	Ft.	[illegible]
6990	4.0	0.08

Hole 37 — 1958
C. D. -7065' — T.D.-255'

Hole 38 — 1958
C.D.-7055' — T.D.-175'

Elev.	Ft.	[illegible]
6950	1.0	0.00

Hole 39 — 1958
C.D.-7095 — T.D.165(p)

Elev.	Ft.	[illegible]
6951	trace	0.00

Hole 40 — 1950
C.D.-7060' — T.D.-235'(p)

Elev.	Ft.	[illegible]
6950	1.0	0.07

Hole 41 — 1958-59
C.D.-7095'

Elev.	Ft.	[illegible]
7010	1.0	0.12
6975	trace	
6947	2.0	0.03
6913	1.0	0.03
6875	7.0	low
6845	trace	
6812	4.0	low
6775	2.0	0.01-0.05
6755	trace	
6712	2.0	0.01-0.05
6690	5.0	0.12

Hole 42 — 1950
C.D.-7095' — T.D.-160'

Elev.	Ft.	[illegible]
7025	trace	
6950	2.0	0.07

Hole 43 — 1950
C.D.-7080' — T.D.-85'
core hole

Hole 44 — 1958
C.D.-7080' — T.D.-85'

Elev.	Ft.	[illegible]
7010	3.5	0.13

Hole 45 — 1958-59
C.D.-7140' — T.D.-475'(c)

Elev.	Ft.	[illegible]
6950	4.0	0.10
6924	1.5	0.17
6857	5.0	0.07
6781	3.0	0.03
6761	3.0	0.10
6715	1.5	0.00

Hole 46 — 1950
C.D.-7150' — T.D.-255'

Elev.	Ft.	[illegible]
7025	6.0	low
6955	4.0	0.00
6870	5.0	low
6837	trace	low
6955	5.0	0.06

Hole 47 — 1958-59
C.D.-7165' — T.D.-515'(c)

Elev.	Ft.	[illegible]
7005	6.0	low
6966	5.0	low
6940	3.0	0.05
6876	1.5	0.03
6813	2.0	0.03
6792	1.5	0.09
6768	3.5	0.10
6712	1.0	0.03

Hole 48 — 1950
C.D.-7170' — T.D.-255'

Item 3

CARRIGAN MINES INC.
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HAYWARD, CALIFORNIA
JE. 7-9008

Drill Hole Electrical Logs (con't)

Hole 40		1959
G.E.-		T.D.-25'
Hole 55		1959
G.E.-7020'		T.D.-255'
Elev.	Ft.	Ft-Ohm
7000	5.0	0.12
6980	2.0	0.03
6970	17.0	low
6965	2.0	0.06
6870	3.0	0.10
6855	3.0	0.10
Hole 71		1959
G.E.-7070'		T.D.-110'
Hole 72		1959
G.E.-7120'		T.D.-245' (p)
Hole 73		1959
G.E.-7037'		T.D.-[illegible]
Elev.	Ft.	Ft-Ohm
7001	14.5	low
6930	4.0	0.15
6750	2.0	0.05
Hole 74		1958-59
G.E.-7125'		T.D.-415' (d)
Elev.	Ft.	Ft-Ohm
7045	12.5	0.50
6975	2.5	0.10
6915	3.0	0.05
6930	2.5	0.17
6825	2.0	0.07
Hole 75		1959
G.E.-7100'		T.D.-120'
Hole 76		1959
G.E.-7050'		T.D.-180'
Hole 77		1959
G.E.-7020'		T.D.-50' (p)
Hole 78		1959
G.E.-		T.D.-100'

Hole 79		1959
G.E.-7050'		T.D.-217'
Elev.	Ft.	Ft-Ohm
6981	4.5	0.12
Hole 80		1959
G.E.-7045'		T.D.-200'
Elev.	Ft.	Ft-Ohm
7015	10.0	0.05
6951	trace	0.06
Hole 81		1959
G.E.-4938'		T.D.-365' (d)
Elev.	Ft.	Ft-Ohm
6875	2.0	0.07
6854	4.0	0.12
6844	3.0	0.05
6770	0.0	0.09
6598	2.5	0.16
Hole 82		1959
G.E.-7140'		T.D.-210'
Elev.	Ft.	Ft-Ohm
7035	8.0	0.09
Hole 83		1959
G.E.-7160'		T.D.-220'
Elev.	Ft.	Ft-Ohm
6970	1.5	0.35
Hole 84		1959
G.E.-7110'		T.D.-260' (d)
Elev.	Ft.	Ft-Ohm
7037	trace	
7020	"	
7014	"	
6940	"	
6910	"	
Hole 85		1959
G.E.-7165'		T.D.-[illegible] (d)
Elev.	Ft.	Ft-Ohm
7055	trace	
7030	"	
6970	"	
6955	0.0	0.03
6937	trace	
6917	3.0	0.10
6870	2.0	0.07
6865	3.0	0.09

Item 3

CARRIGAN MINES INC.
P. O. BOX 3262
HAYWARD, CALIFORNIA
JE. 7-9008

Drill Hole Radiometric Logs (con't)

Hole 66 — 1950
G.E.=7110' — T.D.=[illegible]'

Elev.	Ft.	
7051	[illegible]	[illegible]
[illegible]	1.4	0.00
[illegible]	3.0	0.13
[illegible]	2.5	0.02
6913	1.0	0.07
[illegible]	7.0	0.10

Hole 67 — 1950
G.E.=7130' — T.D.=[illegible]' (G)

Elev.	Ft.	
[illegible]	[illegible]	[illegible]
6951	1.6	0.13
[illegible]	4.7	0.07
6935	0.6	0.12
6919	4.1	0.10

Hole 68 — 1950
G.E.=7105' — T.D.=[illegible]' (G)

Elev.	Ft.	
[illegible]	[illegible]	[illegible]
6949	0.7	[illegible]

Hole 69 — 1950
G.E.=7109' — T.D.=[illegible]' (G)

Elev.	Ft.	
[illegible]	[illegible]	[illegible]
[illegible]	4.5	[illegible]
6703	trace	
6710	1.7	0.03

Hole 70 — 1950
G.E.=7155 — T.D.-370(G)

Elev.	Ft.	
[illegible]	[illegible]	[illegible]
[illegible]	0.0	low
[illegible]	trace	0.06
[illegible]	2.0	0.03

Hole 71 — 1950
G.E.=7075' — T.D.=[illegible]' (G)

Elev.	Ft.	
[illegible]	[illegible]	[illegible]
7008	1.0	0.03
[illegible]	trace	
[illegible]	0.0	low

Hole 72 — 1950
G.E.=7070' — T.D.=[illegible]' (G)

Elev.	Ft.	
[illegible]	[illegible]	[illegible]
[illegible]	trace	
[illegible]	2.5	0.03
6951	5.0	0.07
[illegible]	6.5	0.11
6703	3.0	0.03
6735	1.0	0.03
[illegible]	7.0	0.07
[illegible]	trace	
[illegible]		

Hole 73 — 1950
G.E.=7155' — T.D.=400' (G)

Elev.	Ft.	
7043	5.0	low
6970	2.0	low
6919	2.0	low
[illegible]	2.0	0.03
[illegible]	4.0	0.04-0.06
6700	2.0	0.03

Hole 74 — 1950
G.E.=7165' — T.D.=[illegible]' (G)

Elev.	Ft.	
7043	5.0	[illegible]
[illegible]	4.0	0.03
[illegible]	2.0	0.15
6700	trace	

Hole 75 — 1950
G.E.=7195' — T.D.=[illegible]' (G)

Elev.	Ft.	
7053	5.0	[illegible]
[illegible]	3.0	0.07
[illegible]	trace	
6918	4.0	low
[illegible]	4.0	0.07

Hole 76 — 1950
G.E.=7120' — T.D.=[illegible]'

Elev.	Ft.	
7053	2.0	0.10
6957	4.0	0.05

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