FILE COPY
Surname:

Ching
Ellis
Johnson
Mittendorf

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY DMEA
WASHINGTON 25, D. C.

Rewritten by

MAR - 5 1957

Dear Mr. Price:

This is with reference to your letter of February 24, 1957, which relates to an application under Docket DMEA-4022, covering the Riverside claims in Okanogan County, Washington. Unfortunately, your letter crossed in the mails a letter by Mr. C. O. Mittendorf, dated February 26.

No doubt you have now received Mr. Mittendorf's letter which contains all the essential information incorporated in the field report referred to in your letter. We trust that such information is sufficient for your purposes.

It has long been our policy not to release this type of field report, as a whole, for nongovernmental use.

Sincerely yours,

(sgd) Felix E. Wormser
Acting Secretary of the Interior

Mr. Walter S. Price, President
American Strategic Minerals Corporation
903 Ninth Avenue, Apartment 57
Seattle 4, Washington

N. C. Rubin
MChing:~~RPDwyer~~:ar
March 5, 1957
Copy to: Secretary's Reading File
Secretary's file copy
Assistant Secretary, Mineral Resources (2)
DMEA Docket files, DMEA-4022
Administrator's Reading File
Code 700 - Mr. Ching
THKiilsgaard, RM. 5224, USGS
JKratchman, AEC
DMEA Field Team, Region I, NW Dist.
RPDwyer, Rm 7343

MS
R+R

(Recd. Interior
2-27-57
Office of the Ass't.
Secy. for mineral
resources)

AMERICAN STRATEGIC MINERALS CORPORATION

NIGHTHAWK, WASHINGTON

Gold Silver Rare Earths Uranium Thorium

903-9th Avenue, Apt. 57
Seattle 4, Washington
February 24, 1957

Hon. Felix G. Wormser
Assistant Secretary of the Interior
Department of Interior
Washington, D.C.

Dear Sir:

Re: DMEA Application 4022

Referring to your letter of October 30, 1956:

In accordance with the U.S. Code, Administrative Procedures Act, Section 5, it is respectfully requested that a copy of the field report made by a representative of the DMEA and a representative of the Bureau of Mines, on November 1, 1956, on the property of this corporation, be furnished the undersigned.

Thanking you.

Very truly yours,

/s/ Walter S. Price,
President

Copy to A. E. Weissenborn
c/o U.S. Bureau of Mines
Spokane, Washington

C
O
P
Y

Recd. DMEA 2-28-57

FILE COPY
Surname:

DMEA
Ching
Johnson
Mittendorf

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

SOLICITOR
MAR 4
INTERIOR DEPT.

Dear Mr. Price:

This is with reference to your letter of February 24, 1957, which relates to an application under Docket No. DMEA-4022, covering the Riverside claims in Okanogan County, Washington. Unfortunately, your letter crossed in the mails a letter by Mr. C. O. Mittendorf, dated February 26.

No doubt you have now received Mr. Mittendorf's letter which contains all the essential information incorporated in the field report referred to in your letter. We trust that such information is sufficient for your purposes, ~~since it has long been our policy not to make this type of field report, as a whole, available to the public. We find that the U. S. Code cited by you is not applicable in such cases.~~

Sincerely yours,

Assistant Secretary of the Interior

Mr. Walter S. Price, President
American Strategic Minerals Corporation
903 Ninth Avenue, Apartment 57
Seattle 4, Washington

MChing/izm 3-4-57
cc to: Secretary's Reading File
Secretary's file copy
Assistant Secretary, Mineral Resources (2)
DMEA Docket files, DMEA-4022
Administrator's Reading File
Code 700 - Mr. Ching
THKiilsgaard, Rm. 5224, USGS
JKratchman, AEC
DMEA Field Team, Region I, NW Dist. (2)

COPY FOR THE SECRETARY'S OFFICE

4022

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

MAR - 5 1957

Dear Mr. Price:

The Administrator of the Defense Minerals Exploration Administration has informed me of the results of the re-examination of the properties covered by your application, Docket No. DMEA-4022. He is writing to you directly setting forth in detail the evaluation of these results and the disposition of the application.

You have written to me personally several letters in which you comment on the legal aspects of the Defense Minerals Exploration program and the direction of its activities. During the time that your property was being re-examined and the new data evaluated I have had an opportunity to look at the activities of the DMEA office in the light of your comments.

I must say that I am impressed with the thorough manner with which each application is handled irrespective of the size of the project involved. I have found that by far the largest percentage of loans have been made in the category of small loans and to small companies and individual operators. In the evaluation of a proposed project these applicants receive the kind of detailed analysis and expert attention which would not otherwise be available to them except at prohibitive cost. The high percentage of projects which have discovered commercial ore is gratifying, and I am sure it is due to careful evaluation of applications in the original instances as well as the diligent handling of work by the companies or individual operators.

A review of operations shows that the DMEA is interested primarily in finding new sources of commercial ore and that the size of the project or the operator is a secondary consideration. This is as it should be to carry out the intent of the Defense Production Act from which it derives its authority.

I know that it must be disappointing to you to have your applications rejected for lack of sufficient evidence to satisfy the government experts that there is a reasonable prospect of

finding commercial uranium on your properties. But I am sure you will agree that a fair, impartial and objective analysis of your applications was made. This is the most that anyone can do. While this may be disappointing to you, I trust that it does not discourage you from continuing your exploration. Please be assured that any future applications for projects on other properties which you may make will be welcomed.

Your courtesy in giving to me personally your candid views on the DMEA program and its operations as you see them is appreciated.

Sincerely yours,

(sgd) Fred A. Seaton
Secretary of the Interior

Mr. Walter S. Price, President
American Strategic Minerals Corp.
903 Ninth Avenue
Seattle 4, Washington

JGLiebert/GMcC

February 25, 1957

cc: Secretary's Files
Secretary's Reading File
FEW's Staff Reading File
Mr. John Liebert
Mr. Elmer Bennett
Mr. C. O. Mittendorf, DMEA

OFFICE OF THE
ASSISTANT SECRETARY OF THE INTERIOR
WASHINGTON

2/23

Mr. Mittendorf - DMEA
— Hand carry

Mitt, you can let this go now. Please send a copy to Elmer Bennett for information. Your files are returned.

1/ 2/26/57 redenial. JGh.

~~[illegible]~~
~~to Sec~~

DMEA Form 7
(12-56)

700

OFFICIAL FILE COPY

Date	Surname	Code
1-29	Chiang	700
"	Ellis	700
"	Mathewson	100
2/26	Selhodge	130
"	Johnson	110
		225

Lamb
Nelson

AIR MAIL

FEB 26 1957

Mr. Walter S. Price, President
American Strategic Minerals Corporation
903 Ninth Avenue, Apartment 57
Seattle 4, Washington

INTERIOR DEPARTMENT
RECEIVED
JAN 29 1957
19
OFFICE OF THE
ASSISTANT SECRETARY
FOR MINERAL RESOURCES

Re: Docket No. DMEA-4022 (Uranium)
Riverside Claims
Okanogan County, Washington

Dear Mr. Price:

Your letter of October 4, 1956, in reply to Secretary Seaton's letter of September 12, contained some new information in the form of results of additional work performed by you since November 1955 when representatives of the Defense Minerals Exploration Administration last visited your property.

In accordance with the Secretary's assurance to you that the DMEA would be pleased to consider new and more favorable evidence of uranium occurrences on your properties, a re-examination of your Riverside Claims was made on November 1, 1956.

An experienced team, composed of a geologist and a mining engineer, examined the new developments on the property in your presence. A scintillometer survey was made along the sides of the new pit and seven samples were taken at points showing the greatest radioactivity. The locations of two of the samples were selected by you and one of these samples was taken by you personally. An eighth sample was made up of fines collected from around your pulverizer and represent a composite of many samples taken by you on the property.

Each of the eight samples was split. One portion was assayed chemically by the Geochemistry and Petrology Branch of the Geological Survey at Denver, Colorado, and one portion was assayed chemically by Abbot A. Hanks, Inc., of San Francisco. Following are the results:

Sample No.	USGS % U_3O_8	Hanks % U_3O_8
101-C	0.001	Trace
102-C	0.001	Trace
103-C	0.001	0.001
104-C	0.002	0.001
105-C	0.001	0.001
106-C	0.001	0.001
107-C	0.013	0.003
108-C	0.001	Trace

8623

The location of sample No. 106-C was selected by you and sample 107-C was taken by you. Sample No. 108-C was collected from around the pulverizer.

The results support our former conclusion that the probability of finding significant ore reserves on this property is not promising. Under these circumstances we can only reaffirm our denial of your application for exploration assistance.

Sincerely yours,

C. O. Mittendorf (for)

Administrator

MChing/COMittendorf/izm (1-11-57) 1-29-57

cc to: Mr. Feliz E. Wormser (2)
DMEA FT Reg. I, NW Dist. (2)
Code 700
Mr. Ching
Admr.'s Reading File
Operating Committee
Messrs. ~~xxxxxxxxxxxxxxxxxxxx~~
THKiilsgaard, 5224
JKratchman, AEC
Elmer Bennett, Rm. 5148

DMEA Form 7
(12-56)

700

OFFICIAL FILE COPY

Date	Surname	Code
1-11-57	Ching	700
1-14	Ellis	700
	Johnson	110
1/11	Selfridge	130
1/14	Mathews	100
		225

Selfridge
Lamb
Kulsgaard

Mr. Walter S. Price, President
American Strategic Minerals Corporation
903 Ninth Avenue, Apartment 57
Seattle 4, Washington

Re: Docket No. DMEA-4022 (Uranium)
Riverside Claims
Okanogan County, Washington

Dear Mr. Price:

At the suggestion of Mr. Felix E. Wormser, Assistant Secretary of the Interior, we requested our Field Team to schedule a re-examination of the subject property as promptly as possible.

An experienced team, composed of a geologist and a mining engineer, ~~recently~~ examined the new developments on the property in your presence. A scintillometer survey was made along the sides of the new pit and seven samples were taken at points showing the greatest radioactivity. The locations of two of the samples were selected by you and one of these samples was taken by you personally. An eighth sample was made up of fines collected from around your pulverizer and represent a composite of many samples taken by you on the property.

Each of the eight samples was split. One portion was assayed chemically by the Geochemistry and Petrology Branch of the Geological Survey at Denver, Colorado and one portion was assayed chemically by Abbot A. Hanks, Inc., of San Francisco. Following are the results:

Sample No.	USGS % U_3O_8	Hanks % U_3O_8
101-C	0.001	Trace
102-C	0.001	Trace
103-C	0.001	0.001
104-C	0.002	0.001
105-C	0.001	0.001
106-C	0.001	0.001
107-C	0.013	0.003
108-C	0.001	Trace

The location of sample No. 106-C was selected by you and sample 107-C was taken by you. Sample No. 108-C was collected from around the pulverizer.

8623

The results support our former conclusion that the probability of finding significant ore reserves on this property is not promising. Under these circumstances we can only reaffirm our denial of your application for exploration assistance.

Sincerely yours,

C. O. Mittendorf

Administrator

MChing/izm 1-11-57
cc to: DMEA FT Reg. I, NW Dist. (2)
Code 700
Admr.'s Reading File
~~JOHosted~~, Rm. 3210, GSA
THKiilsgaard, Rm. 5224
JECrawford, Rm. 3643
Mr. Ching

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

OFFICE DMEA
RECEIVED JAN 16 1957

DATE	INITIALS	CODE
1-16	C	220
1-16	~~Cheney~~	700
		225

Comments complete

January 15, 1957
Re: DMEA 4022
American Strategic Minerals Corp.
Riverside Claims
Okanogan County, Washington
Uranium-tungsten

Memorandum

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

From: N. E. Nelson, U. S. Geological Survey

Subject: Review of Examiners' memorandum on "new work" on subject property.

As was to be expected, no new evidence of worthwhile mineralization was found by the examiners during the re-examination of the prospect. Repeated examinations have been made and it has been clearly demonstrated by sampling that no uranium mineralization of interest exists in the places considered most likely by the representative of the applicant.

Again, denial of the application is recommended.

N. E. Nelson

N. E. Nelson

OFFICIAL FILE COPY
DMEA
RECEIVED JAN 15 1957

DATE	INITIALS	CODE
1-15	cw	220
1-15	~~Chrisy~~	700
		225

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

Date January 14, 1957

DMEA Docket No. 4022
DMEA Contract No.
Commodity Uranium
Name of applicant American Strategic Minerals Corp.
Name of property Riverside Claims
Location of property Okanogan County, Washington
Estimated cost of project

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee

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

Subject: Review of Field Team Report
(Application, Field Team Report, etc.)

1. Date of subject document: 12/28/56. 2. Date received by reviewer: 1/10/57.

3. Prior reports on this property known to reviewer: Yes ☐ No ☐

4. Prior reports on nearby properties known to reviewer: Yes ☐ No ☐

5. Information available on past production: Yes ☐ No ☐

6. Other pertinent factors known to reviewer: Yes ☐ No ☐

7. Explain items marked yes above:

8. Factors needing special consideration:
   a. Location ☐
   b. Ownership ☐
   c. Evidence of mineralization ☐
   d. Geology ☐
   e. Proposed exploration method ☐
   f. Alternate exploration method ☐
   g. Costs ☐
   h. ☐

9. Action advised:
   a. Obtain information from applicant ☐
   b. Refer to Field Team ☐
   c. Denial ☒
   d. Agree with Field Team ☒
      1. Consult with Mr. _____ at _____ AEC office.
   e. Disagree with Field Team ☐
   f. Suggest alternate plan ☐
   g. Request another examination ☐
   h. Approval ☐

10. Remarks: (Use back of page if necessary) Mr. J. O. Hosted, Washington representative of the Atomic Energy Commission, assisted in the review.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D. C.~~
So. 157 Howard Street
Spokane 4, Washington

FILE COPY
DMEA
JAN 11 1957
MINERALS CODE
130
1/11/57
225

January 9, 1957

MEMORANDUM

To: DMEA Field Team, Region I, Northwest District

From: D. R. MacLaren, Geologist, U. S. Geological Survey and S. W. Zoldok, Engineer, U. S. Bureau of Mines

Subject: Supplementary report of examination and sampling of new work, Docket No. DMEA-4022 (Uranium), American Stretegic Minerals Corporation, Riverside Claims, Okanogan County, Washington.

The following additional statements regarding our visit to the subject property concern certain facts that are not usually part of a report but are offered to round out our memorandum report of December 20, 1956.

When we left Spokane the morning of October 31, 1956, the sky was overcast and we were apprehensive lest we encounter a snow storm by the time we would reach the property. During the morning the overcast burned off and when we reached Mr. Price's cabin about 2:30 p.m., the sun was shining and few if any clouds remained. As it gets dark about 4 p.m., it was decided, with Mr. Price's concurrence, that we would do better to wait until the next morning to visit his new workings on the Riverside claims. Mr. Price had many specimens in his cabin which he said were from his property. Several of the specimens, when tested with a Geiger counter, were found to be radioactive, although we could not identify any uranium-bearing minerals. The radioactivity apparently is limited to specimens made up or containing streaks of alaskite. Other specimens were coated by fluorescent material which was bright to pale green in color under the "black light." Some of the specimens with fluorescent coatings were also weakly radioactive but most of them were not. The fluorescent mineral was opaline quartz which a bead test later proved to contain no uranium.

As it was our understanding that the purpose of the examination was to sample and appraise only the new work that had been done since Quinlan and Weis were on the property and as Mr. Price had not furnished any description of this work, we asked what had been done and where. We were told that no further work had been done on the McDaniel property but that one open cut had been made

Reviewed by
DMEA OPERATING COMMITTEE
1-11-57
(date)

on the Riverside property, and a small pit had been opened near the top of the hill south of the open cut. Mention of this small pit was omitted in our memorandum of December 20, 1956. Mr. Price told us that the only workings on the McDaniel property were drill holes filled with water that shielded the radioactivity from detection and a few trenches that Quinlan and Weis had seen and sampled. At his cabin, Mr. Pricehad a piece of slaty material which he said contained thuchlite. No radioactivity could be found in this specimen, but Mr. Price insisted that some of the uranium is not radioactive. As this was a representative sample of the only material he said he wanted us to see on the Riverside property, we broke off a piece and brought it in for examination. It is not the least bit radioactive and we could find no evidence of thucholite or any other uranium mineral in it. Therefore, it was not sent in for chemical assay.

Zoldok asked Mr. Price about a consultant, Dr. William Rowe, whom Mr. Price had hired to write a geologic report; he also asked why Mr. Price did not hire a recognized geophysicist. Mr. Price replied that Mr. Satterlee's instrument embodied the latest geophysical principles, as yet unknown or unaccepted by the profession, and added that he was availing himself of the best engineering, geological, and geophysical help available.

We also talked with Mr. Satterlee about his geophysical instrument. After a few somewhat evasive answers as to its manufacture, he admitted that he had made it himself from plans which he had bought from someone who claimed they had originated in Germany. He was also reluctant to say what the source of power was, but finally said it was something akin to the personal magnetism of the operator. He then showed us the instrument which is in a box about 2½ feet long, 1½ feet wide and a foot deep, having a hinged top, much like a medium size suitcase. Held to the inside of the top by spring clips are 15 or so thin pellets of plastic material in each of which is imbedded a "pure" mineral specimen. The bottom part of the box is surfaced by an instrument panel--one set of controls and dials for determining the horizontal distance to an ore body, another set for determining the vertical distance. Although he did not give a demonstration, Mr. Satterlee described the method of operation. He takes a pellet containing a specimen of the mineral for which he is seeking and holds it in his left hand along with a short rod which is connected to the instrument. This rod is stuck into or held against the ground. In his right hand he holds a longer rod, also connected to the instrument, which he swings in a horizontal or vertical arc, depending upon which component he is seeking. When the rod is lined in, it vibrates rapidly. He then reads his dials from which he can tell the distance to an occurrence of that mineral. By repeating the process with various specimens, he can tell what minerals are in the deposit. He said that, although some people claim to make assay determinations with similar instruments, he does not make any such claim.

During the night it started to rain and by the morning of November 1, 1956, we had a mixture of rain and snow. We met Mr. Price at his cabin and proceeded to the open cut. The snow melted as soon as it fell and in no way interfered with the examination and sampling of the open cut. When that work was finished, we asked Mr. Price to show us the new pit near the top of the hill which he had mentioned to us the day before. Both Mr. Price and Mr. Satterlee insisted that we could not get through in the jeep, and we offered to walk. Either Mr. Satterlee or Mr. Price, or both of them, said the showing was not as good as that at the open cut and were reluctant to make the climb. We then asked if there were any other exposures they wished to show us and were told only the railroad cut which Quinlan and Weis had mapped and sampled. We suggested that we go there and Price asked Satterlee to go with us while he took the jeep to a meeting place. Mr. Satterlee was reluctant to go on the grounds that it was a long down-hill climb and we would see nothing that Quinlan and Weis had not seen. We then returned to the cabin where Mr. Price showed us a bucketful of fines that he said he had collected from the base of a grinding machine. He panned some of this material and got a tail of black, greasy, material that he claimed was "uranium." It was not radioactive, but Mr. Price said that was due to the water coating the material and again referred to nonradioactive uranium minerals. We took a sample of this material which Hanks assayed at a trace, and the USGS assayed at 0.001 percent U_3O_8.

Before leaving, we again asked if there was any new work we should see and were told only the pit near the hilltop and the McDaniel property. We asked what new work there was to see on the McDaniel property and were told none. We reminded Mr. Price that he had given us what he called a representative piece of this material and he repeated that it was and that we would see nothing more if we went there. We asked if he could take us to the pit the next day and he said he could not and repeated the previous statement that it was not as "hot" a showing as we had seen at the open cut.

cc: USBM (1)
Kiilsgaard

2 copies
1-Ching 1/17

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.
So. 157 Howard Street
Spokane 4, Washington

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DMEA
RECEIVED JAN 11 1957
DATE | INITIALS | CODE
1/14 Com | 100
~~100~~
225

January 9, 1957

Air Mail

Mr. C. O. Mittendorf, Administrator
Defense Minerals Exploration Administration
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-4022 (Uranium)
American Strategic Minerals Corporation
Riverside claims
Okanogan County, Washington

Dear Mr. Mittendorf:

Our report on the re-examination of the American Strategic Minerals Corporation's Riverside claims was mailed to you on January 4, 1956. As two sets of field examiners have examined the property carefully for the DMEA and have been unable to find more uranium than would be expected in a normal granitic or gneissic rock and as Mr. Walter S. Price is persistent in his statement that there is uranium on the property, I have asked Mr. Donald R. MacLaren and Mr. Stephen W. Zoldok to set forth their conversations with Mr. Price and Mr. F. B. Satterlee, his geophysicist, during the course of the examination. I think that this will provide you background material that will be useful in reviewing this docket.

I sincerely regret that our field examiners have been unable to find any evidence of any significant amount of uranium on Mr. Price's property, even in the samples that Mr. Price took himself. Geologists from the Atomic Energy Commission have also examined the property independently with similar results. Commission geologists were invited to accompany the DMEA examiners but declined to do so.

Mr. Price's belief in the property in the face of the negative results apparently reflects his faith in Mr. Satterlee and Dr. Douglas Wm. Rowe who has acted as a geologic consultant for Mr. Price. Frankly, we are unable to understand the principals on which Mr. Satterlee's instrument operates and are completely skeptical of the anomalies that Mr. Satterlee claims it can detect. Previously – We have forwarded to you a report of Dr. Rowe's on the property which Mr. Price sent to us. I would like to suggest that you read it, if you have not already done so. Perhaps you can understand it; none of us here have been able to do so.

I regret that we cannot go along with Mr. Price, but, in my opinion, both the Field Team and the DMEA would be open to the charge of an unwise and unjustified expenditure of public funds if we did so.

Sincerely yours,

A. E. Weissenborn

A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region I
Northwest District

Enclosure (in dupl.)
cc: Thor H. Kiilsgaard
USBM

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D.C.~~
So. 157 Howard Street
Spokane 4, Washington

OFFICIAL FILE COPY DMEA RECEIVED JAN 7 1957		
DATE	INITIALS	CODE
		180
1/11	cw	220
		~~700~~
		225

~~December 28, 1956~~

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-4022 (Uranium)
American Strategic Minerals Corp.
Riverside Claims
Okanogan County, Washington

Dear Mr. Selfridge:

Enclosed are four copies of a memorandum by D. R. MacLaren, geologist, Geological Survey, and S. W. Zoldok, engineer, Bureau of Mines, covering the re-examination of the referenced property as requested in your teletype of October 24, 1956. The delay in submitting this report was caused by the time required to have sample assayed by two independent assayers.

From the results of this re-examination, we can see no justification for changing our original recommendation that the application be denied.

By Field Team, Region I, NW District

Wing G. Agnew

Wing G. Agnew, Acting Exec. Officer
U. S. Bureau of Mines

Donald R. MacLaren

Donald R. MacLaren, Acting Member
U. S. Geological Survey

Enclosure 1 (in quad.)

cc: USBM (2) w/encl.
USGS (SRO) w/encl.
AEC, SLC w/encl.
AEC, Spokane w/encl.

Reviewed by
DMEA OPERATING COMMITTEE
1-11-57
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D.C.~~
So. 157 Howard Street
Spokane 4, Washington

OFFICIAL FILE COPY
DMEA
RECEIVED JAN 7 1957

DATE	INITIALS	CODE
		130

December 20, 1956

MEMORANDUM

To: DMEA Field Team, Region I, Northwest District

From: D. R. MacLaren, Geologist, U. S. Geological Survey, and S. W. Zoldok, Engineer, U. S. Bureau of Mines

Subject: Examination and sampling of new work, Docket No. DMEA-4022 (Uranium), American Strategic Minerals Corporation, Riverside Claims, Okanogan County, Washington

At the request of the Field Team, we visited the subject property October 31 and November 1, 1956, to examine and appraise the results of additional exploration reported by the applicant since the examination of November 1 and 2, 1955, by James J. Quinlan and Paul L. Weis of the Geological Survey. We met Mr. Walter Price and Mr. Floyd B. Satterlee at Mr. Price's cabin during the afternoon of October 31. It was too late to accomplish much in the field, but Mr. Price gave us a description of the property and of the evidence he would show us to justify a DMEA project. As Mr. Price bases most of his hopes on the results of geophysical work done by Mr. Satterlee, we tried to find out the nature of the instrument used. It turned out to be a home-made gadget, the plans for which Mr. Satterlee said he bought from some vague person in Germany. Mr. Satterlee, with some reluctance, stated that the power on which his machine operates is something akin to the personal magnetism of the operator.

The only new work done on the property consists of an open cut or pit about 80 feet long and 22 feet wide, open at the eastern end and reaching a maximum depth of about 20 feet at the western end. The western end of this trench cuts into part of Pit No. 1 described by Quinlan, and shown on his plate II. A scintillometer survey was made along the three sides of the pit. Background was 0.015 MR/hr and the highest reading was from 0.12 to 0.125 MR/hr in a small lens of alaskite.

A total of 7 samples were taken at various places in the trench where there was any appreciable increase in radiation count above background. Samples 101-C through 104-C were taken by Zoldok, samples 105-C and 106-C were taken by MacLaren, location of 106-C

Reviewed by
DMEA OPERATING COMMITTEE
1-11-57
(date)

being selected by Mr. Price, and sample 107-C was taken by Mr. Price at a location of his own selection. According to Mr. Price, samples 106-C and 107-C were taken at points that carried the highest uranium content in the pit. The locations of these samples and the assays are shown on the accompanying sketch.

At his cabin Mr. Price had a bucket full of fines that he collected from around his pulverizer. This material was a mixture of the grinding leakage and represented a composite of all the samples he has taken on his property. As Mr. Price claimed that a sample of this material had assayed better than 0.1 percent U_3O_8, we also took a sample of these fines. This is sample 108-C in the list at the end of this memorandum.

Because there have been so many protestations by Mr. Price to the effect that the accuracy of our assaying has been open to question, all 8 samples were first assayed chemically in Denver, Colorado by the Geochemistry and Petrology Branch of the Geological Survey, after which the pulps were assayed chemically by Abbot A. Hanks, Inc., of San Francisco, California. The results of these assays are:

Sample No.	USGS $\%U_3O_8$	Hanks $\%U_3O_8$	
101-C	0.001	Tr	
102-C	0.001	Tr	
103-C	0.001	0.001	
104-C	0.002	0.001	
105-C	0.001	0.001	
106-C	0.001	0.001	Location picked by Price.
107-C	0.013	0.003	Cut by Price.
108-C	0.001	Tr	Composite of fines.

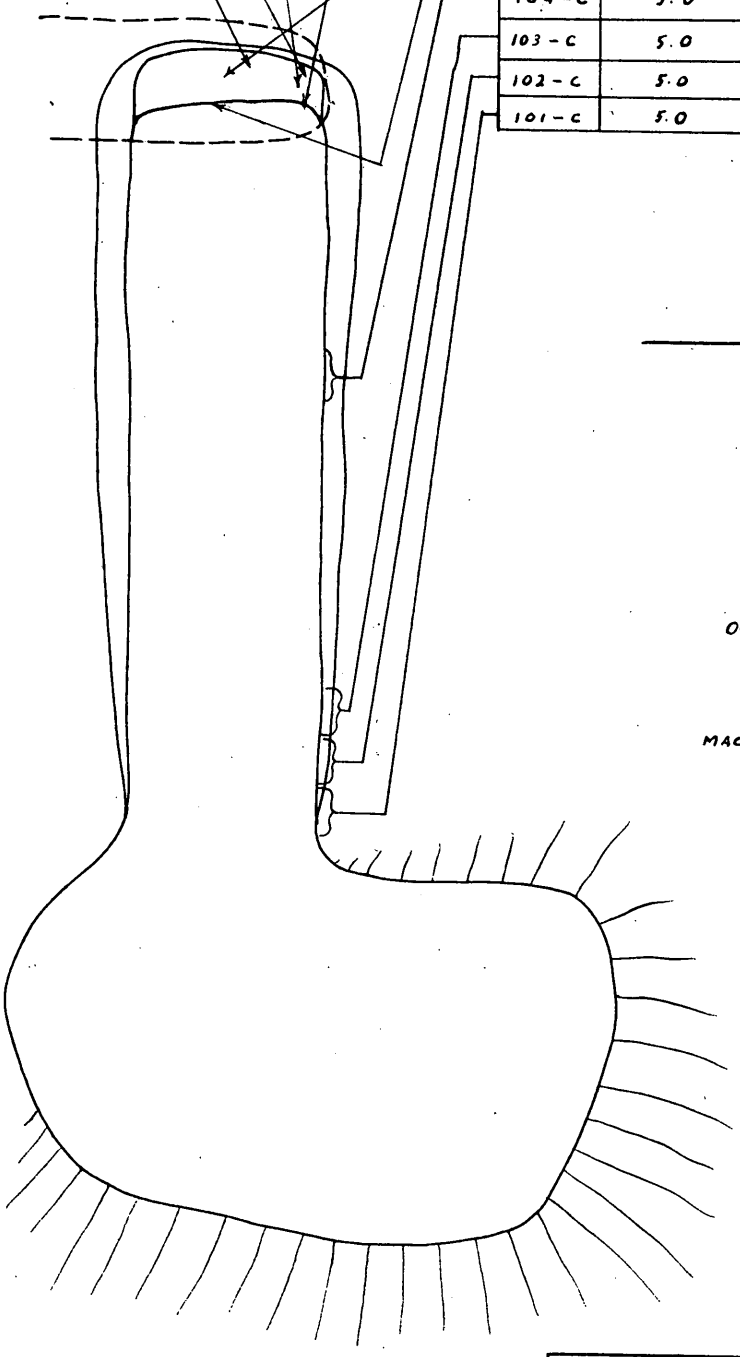
These assays support the conclusions of Quinlan that "there are no significant occurrences of radioactive minerals" on the Riverside claims.

We did not visit the McDaniel property as Mr. Price assured us that no work had been done on this property since the examination was made by Quinlan.

Enclosure

cc: DMEA (Orig. & 3)
USBM (2)
USGS (SRO)
AEC, SLC
AEC, Spokane
Docket

	WIDTH FEET	PERCENT U_3O_8 BY U.S.G.S	BY HANKS
R-2	6.0	< 0.001	
R-3	3.2	0.003	
R-1	0.15	0.031	
107-C	1.00	0.011	0.013
105-C	0.5	0.001	0.001
106-C	0.15	0.001	0.001
104-C	5.0	0.002	0.002
103-C	5.0	< 0.001	0.001
102-C	5.0	< 0.001	TRACE
101-C	5.0	< 0.001	TRACE



N

EXPLANATION

OUTLINE OF QUINLAN'S PIT. No. 1

R-1

QUINLAN SAMPLE

101-C

MACLAREN AND ZOLDOK SAMPLES

20 10 0 10 FEET

PLAN SHOWING SAMPLE LOCATIONS AND ASSAYS

RIVERSIDE CLAIMS

AMERICAN STRATEGIC MINERALS CORP.

OKANOGAN COUNTY, WASHINGTON

OCT. 1956 D.R.M.

RECEIVED
JAN 7 1957
E.M.E.A.

November 6, 1956

Memorandum to the Files

From: George C. Selfridge
Special Assistant

Subject: Docket No. DMEA-4022 (Uranium)
American Strategic Minerals Corporation
Riverside Claims
Okanogan County, Washington

During a telephone conversation with Mr. Weissenborn today he mentioned that the subject property had been examined. The field personnel had taken samples as also had Mr. Price, president of the corporation.

To avoid any controversy, the Field Team will send some of the samples to Abbot and Hanks and splits of the same to the Bureau of Mines.

(typed)

George C. Selfridge

GCSelfridge/esf
11/8/56
cc to: Docket
Admr. R. File
Mr. Ellis
Mr. Selfridge

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

DMEA

OCT 30 1956

My dear Mr. [illegible]:

Acknowledgment is made of your letter dated October [illegible] and attachments, in reply to our letter of September 12, 1956.

The staff of the defense minerals exploration administration has now made a thorough review of the supplemental information which you have furnished.

While we understand that the new information does not completely satisfy the requirements outlined in detail in the fourth paragraph of our letter of September 12, 1956, nevertheless, requesting the DMEA to schedule an on-site examination and evaluation of the work you have performed since our engineers and geologists visited your property in 1955. I realize that the winter season is approaching rapidly and that, in order to render a final decision as expeditiously as possible, the field examination must be made immediately and without the solicitation of additional data by further correspondence.

I am sure that Mr. Weissenborn, Executive Officer of DMEA at Spokane, Washington, will contact you at an early date. Any assistance that you can render the Field Team during its examination will be greatly appreciated.

Sincerely yours,

(sgd) Felix E. Wormser

Assistant Secretary of the Interior

Mr. Walter [illegible] Price, President
American Strategic Minerals Corporation
903 4th Avenue, Apt. 57
Seattle 4, Washington

Committendorf/Tw-10/29/56
cc: Secretary's File
Secretary's Reading File
Asst. Secretary for Mineral Resources (2)
Mails & Files, DMEA
Admr. Reading File, DMEA
DMEA Field Team, Reg. [illegible] - N.W. District
Fare [illegible] Misc. Metals Div., DMEA

urname copy DMEA-4022

Department of the Interior

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

DMEA
14X4401(01) Revolving Fund, Defense Production Act, Interior (Allocated Working Fund to the Office of the Secy.)

T E L E T Y P E

OCT 24 1956

Ching
Ch
Selfridge
Mortenday

A. E. WEISSENBORN, EXECUTIVE OFFICER
DMEA FIELD TEAM, REGION I
NORTHWEST DISTRICT
SOUTH 157 HOWARD STREET
SPOKANE 4, WASHINGTON

(Uranium)

RE AMERICAN STRATEGIC MINERALS CORPORATION DOCKET NO. 4022

PLEASE PROMPTLY SCHEDULE FURTHER FIELD EXAMINATION RIVERSIDE CLAIMS IN ACCORDANCE WITH WASHINGTON CONFERENCE OF OCTOBER 22.

George C. Selfridge

CHAIRMAN, OPERATING COMMITTEE (2-B)

MCHING/GIA
10-22-56
cc to: Admr.'s Reading File
Operating Committee
Docket
DMEA Field Team, Region I, NWDist. - confirmation
Messrs. JECrawford, 3643
THKiilsgaard, 5224
JOHosted, 3210, GSA
MChing, Code 700

A.S.L.

same copy

700

Ching
Ellis

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

October 22, 1956

Memorandum

To: Allen Dakan, Chief
Operations Control and Statistics Division

Attention: Catherine Curtin

From: Ernest Wm. Ellis, Chief
Rare and Miscellaneous Metals Division

Subject: Docket No. DMEA-4022 (Uranium)
American Strategic Minerals Corporation
Riverside Claims
Okanogan County, Washington

The subject docket was closed on our records, by denial, in accordance with the Administrator's letter to the Applicant of January 16, 1956.

This Division has prepared a teletype to the Executive Officer, Region I, Northwest District, authorizing the scheduling of a further field examination of the Riverside Claims. Accordingly, it is requested that this docket be reactivated on the Mails and Files records.

Kindly forward this docket, together with Docket DMEA-3790, to the Operating Committee with the attached teletype to Region I, Northwest District, and the memorandum to the Assistant Secretary, Mineral Resources, prepared for Mr. Mittendorf's signature.

Ernest Wm. Ellis

Ernest Wm. Ellis

MChing/gla
cc to: Docket
Code 700, Mr. Ching

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

October 22, 1956

Memorandum

To: Allen Dakan, Chief
Operations Control and Statistics Division

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Ernest Wm. Ellis

Ernest Wm. Ellis

Surname Copy - DMEA-4022

700

Ching
Ellis
Selfridge

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

October 22, 1956

Memorandum

To: Assistant Secretary, Mineral Resources

From: Administrator, DMEA

Subject: Dockets Nos. DMEA-3790 and 4022
American Strategic Minerals Corporation
McDaniel Lease and Riverside Claims
Okanogan County, Washington

I have carefully examined the supplemental information, related to the subject applications, which was attached to your memorandum of October 15, 1956.

The new information submitted is not new in the sense that it is composed of a list of assay results which were submitted to this Administration through Senator Magnuson's office under date of August 3, 1956. It is new in the sense that it was not available to our field examiners at the time of their examination of the properties.

In my letter of August 13, 1956, to Senator Magnuson, I stated that I was unable to make a true evaluation of the assays without knowing how the samples were taken and where they were taken. In accordance with this statement, Secretary Seaton's letter of September 12, 1956, to the Applicant, explained that another field examination might be justified if the "new developments" were supported by maps which show the new work performed subsequent to the 1955 field examination, any new developments related to geological formations and structures, locations where samples were procured, how they were procured, and the chemical assays thereof.

Mr. Price has advised that the samples from which the assays were derived were procured from a cut on the Riverside property. The cut is described as 80 feet long, 22 feet wide, and 18 feet deep. No map was submitted, as requested in the Secretary's letter, to show the location of the cut and of the samples within the cut, and no indication was given as to whether the samples were representative channel samples, grab samples, or selected specimens.

A review of the subject dockets will show that Mr. Price has often made exaggerated claims in connection with his properties which had no bases in fact. Two DMEA geologists and an Atomic Energy Commission geologist have examined the properties and have concluded that they offer very little promise as potential uranium producers.

For these reasons we were particularly interested in having Mr. Price thoroughly substantiate his allegations.

However, in view of the reported new cut and the latest assay figures presented by Mr. Price and the necessity of prompt action, if the new exposures are to be examined before winter weather sets in, I shall immediately request the Field Team to schedule a further field examination of the Riverside claims as soon as possible.

I am returning the original letter, dated October 4, 1956, from Mr. Price to Secretary Seaton, together with four pages of supplemental information supplied by Mr. Price.

C. O. Mittendorf

Administrator

MChing/gla
10-22-56
cc to: Admr.'s Reading File
Operating Committee
Docket
Messrs. JECrawford, 3643
THKiilsgaard, 5224
JOHosted, 3210,GSA
Code 700, Mr. Ching

16-17-56

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

RECEIVED
OCT 17 1956

October 15, 1956

Memorandum

To: Administrator, DMEA

From: Assistant Secretary for Mineral Resources

Subject: Additional information re DMEA applications Nos. 3790 and 4022 -- American Strategic Minerals Corporation

Attached for your consideration in connection with the above-named applications is additional information forwarded by applicant in accordance with Secretary Seaton's letter of September 12, 1956, to applicant.

Please carefully examine this information and advise me whether or not it is of such significance as would warrant a further field examination of the properties and a complete re-examination of the applications.

Felix E. Wormser

Attachs.

AMERICAN STRATEGIC MINERALS CORPORATION

NIGHTHAWK, WASHINGTON

903-9th Avenue, Apt. 57
Seattle 4, Washington
October 4, 1956

Personal Attention of

The Hon. Fred A. Seaton
Secretary of the Interior
Washington, D.C.

Dear Sir:

This is in acknowledgment of your letter of September 12, answering our telegram of August 27, regarding our applications for Government aid inexploration project, filed with the DMEA, under Nos. 3790 and 4022.

It is requested, Mr. Secretary, that the American Strategic Minerals Corporation, furnish the DMEA

> "with a narrative, in quadruplicate, revealing the worthwhile new developments mentioned in our telegram, and at the same time furnish maps which will show the new work subsequent to the 1955 field examinations, any new developments as to geological formations and structures, locations where samples were procured, how they were procured, and the chemical assays thereof".

Mr. Secretary, although it should be borne in mind that this company applied for the loan for exploration purposes, that being the purpose these funds weremade available by Congress, we are attempting to comply with this further request from the DMEA. Therefore, enclosed, please find:

1/ narrative in quadruplicate, as requested
2/ report on assays, in quadruplicate
3/ list of materials already supplied DMEA.

It is respectfully brought to your attention that we entered upon this program solely because of the published statements by our Government forits need for strategic and critical minerals, and promises to assist those who undertook such aprogram. That need still exists, according to your own statement made in Los Angeles (AP, Los Angeles, Oct.1) "Secretary of the Interior Fred A. Seaton warned today that America's high grade mineral reserves are being depleted and new deposits must be found".

Induced by these published statements of our Government and relying thereon, we undertook thisprogram of exploration

for uranium in Okanogan County, Washington, located the properties which are the subject of our application, spent months in acquiring the necessary leases. We commenced exploration and development work, employed miners and geologists, formed a company, contracted for mining equipment, necessary headquarters, and entered upon other obligations, based on the values of these properties, and upon the good faith of the DMEA to immediately carry out its part of the program and make the funds available for the necessary exploration work.

We have carried on the expense of the exploration program over an extended period of time,have supplied the DMEA with assays showing the indicated presence of commercial grade uranium ore, geological reports recommending further work, and giving an indicated value of the property, maps, etc. Still the DMEA has not seen fit to grant the loan so urgently needed, forwhich we applied, but continues to request further information from us, all taking time and added expense.

It is sincerely hoped that it will be found possible to grant us the loans for which we have applied, without any further delay, in order that we may proceed immediately with the exploration of these properties as outlined in our program supplied to the DMEA.

Thanking you.

Sincerely yours,

/s/ Walter S. Price

Walter S. Price
President

Enclosures

c
o
p
y

AMERICAN STRATEGIC MINERALS CORPORATION

NIGHTHAWK, WASHINGTON

RECEIVED
OCT 17 1956

GOLD · SILVER · RARE EARTHS · URANIUM · THORIUM

Re: DMEA applications 3790 - uranium, tungsten
4022 - uranium, ~~tungsten~~

1. The new developments referred to are the attached assays, showing the indicated presence of commercial grade uranium ore, all of which assays, with the exception of one, have been obtained since the DMEA crew visited the property last November, 1955, under bad weather circumstances, to-wit, a snowstorm. That assay the DMEA crew saw.

All of these assays have been heretofore furnished the DMEA directly, and again brought to their attention through Senator Magnuson, when DMEA refused to make available a copy of its report to applicant, and further when conflicting reports on the assays were sent to Senator Magnuson.

All of these assays are from Government recognized assayists, and from the Atomic Energy Commission itself, with the exception of the assay by Mincona Concentrating Company of America.

The samples from which these assays were made were procured from a cut on the Riverside property.

2. The new work is a cut on the Riverside property (application 4022) 80 feet long, 22 feet wide, and 18 feet deep.

3. The DMEA already has maps in quadruplicate, and geological reports in quadruplicate.

Walter S. Price

Walter S. Price

Oct. 4, 1956

RECEIVED
OCT 17 1956

Re: DMEA applications 4022- uranium
3790 - uranium-tungsten

The following assays relate to application DMEA 4022 - uranium:

1. From Charles A. Rasor, Chief, Ore Procurement Branch, Mining Division, U.S. Atomic Energy Commission, Grand Junction, Colorado, to American Strategic Minerals Corporation, 11/30/55:

"Please be advised that your recently submitted sample has been assayed by this office, the chemical assay showing your sample to contain 0.10 U_3O_8."

2. Smith's Lab, Moab, Utah

10/14/55	0.102
10/14/55	0.126
1/24/56	0.049
1/24/56	0.181
1/24/56	0.078
1/25/56	0.185
2/ 3/56	0.364
7/27/56	0.124
7/27/56	0.121

3. Brown's Lab, Grand Junction

1/26/56	0.18
7/ 4/56	0.40

4. Mincona Mineral Concentrating Co. of America

7/10/56	0.38
7/10/56 - concentrate	1.26

"The minimum acceptable grade under Circular 5, Revised, is 0.10% uranium oxide". Statement by Sheldon P. Wimpfen, Idaho Mining Association, Sun Valley, Idaho, Sept. 8, 1955.

Resume of materials supplied DMEA

DMEA Application # 3790
dated March 30, 1955

1. Application, 4 copies

2. Transmittal letter, 4 copies

3. Owner's consent to lien, 4 copies

4. Outline of proposed exploratory program, 4 copies

5. Resume of proposed expenditures, 4 copies

6. Sketch of radioactive areas, 4 copies

7. Township map, delineating leases, 4 copies

8. Aerial map, 4 copies

9. Mining leases, 4 copies

10. Biographical data of business manager, 4 copies

11. Copy of articles of incorporation, 4 copies

12. By-laws of corporation, 4 copies

13. Copy of corporation license, 4 copies

14. Geology and radiometric survey of an area in Horse Springs Coulee, Okanogan County, Washington, by Forbes Robertson, economic geologist, recommending sinking of shaft, retention of geologist for further work, etc., 4 copies.

15. Geophysical survey report, by F. B. Satterlee, objective of survey to locate and trace out all of the mineral bearing veins, and to determine the different minerals present, strike, dip, extension, faulting and depth of veins, survey covering 2,200 acres held under lease by this corporation. 4 copies.

16. Certified assay showing uranium content of outcrops, 4 copies

17. Map showing radioactive anomalies and target areas, 4 copies

18. Letter from Lewie Williams, reporting findings of core drill holes with a Universal Nucliometer probe, 4 copies

19. Amended application, 4 copies

20. Report of the Geology of an Area in the Horse Spring Coulee District, Okanogan County, Washington, by Douglas Wm. Rowe, engineer and geologist, 4 copies

21. Plus open cutting, limited core drilling property at applicant's expense

22. Plus a trip to Washington, to confer with DMEA.

Resume of materials supplied DMEA

DMEA Application 4022 - uranium

RECEIVED
OCT 17 1956

1. Application in quadruplicate

2. Transmittal letter, 4 copies

3. Owner's consent to lien, 4 copies

4. Option with lease and purchase agreement, 4 copies

5. Certified true copies of Notice of Mining location covering fourteen claims, in all 56 separate papers

6. Power of attorney, 4 copies

7. Map of claims, indicating target areas, 4 copies

8. Township map, 4 copies

9. Geological map of Oroville-Nighthawk District, 4 copies

10. Photostatic reprint, 4 copies, from Part II of Washington Geological Survey, Bulletin No. 5, entitled

    "Geology and Ore Deposits of the Oroville-Nighthawk Mining District", by Joseph B. Umpleby - 32 pages

11. Certified true copies of uranium and zirconium oxide assays, made from a cross-cut of the mineralized zone, at five feet of depth, four copies

12. Letter from Charles A. Rasor, Chief, Ore Procurement Branch, Mining Division, Atomic Energy Commission, Grand Junction, reporting chemical assay to contain 0.10% U_3O_8, 4 copies

13. Report of the Geology of an Area situated in the Nighthawk District, Okanogan County, State of Washington, by Douglas William Rowe, engineer and geologist, 4 copies

14. 9 assays from Smith's Lab, Moab; 3 assays from Brown's Lab, Grand Junction, and 2 assays from Mincona Concentrating Company of America.

15. Notification that option for lease had been exercised, and lease obtained.

16. Plus open cutting said property

17. Plus a trip to Washington, D.C. to confer with DMEA, on this property.

Docket Copy

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

DMEA

SEP 12 1956

My dear Mr. Price:

This will acknowledge receipt of your telegram, dated August 27, 1956, which relates to the following applications for Government aid filed with the Defense Minerals Exploration Administration:

Docket No. DMEA-3790 (Uranium-tungsten)
American Strategic Minerals Corporation
McDaniel Lease

and

Docket No. DMEA-4022 (Uranium)
Riverside Claims
Okanogan County, Washington

I have requested that the subject applications and other pertinent data in Washington be again reviewed. Based upon this review, I regret to inform you that the findings are the same as stated in the Administrator's letter to you of January 6, 1956.

You refer in your telegram to a request from Senator Warren G. Magnuson of August 3, which was replied to over the signature of the Administrator on August 13. As indicated in your telegram, you have received a copy of this letter which apparently answers Mrs. Price's letter, dated August 1, addressed to Senator Magnuson.

However, your telegram of recent date refers to "new developments on our properties." As mentioned in the Administrator's letter of August 13, the Defense Minerals Exploration Administration will be pleased to consider any new and more favorable evidence of the possibility of disclosing significant ore reserves on your properties. Another field examination may be authorized providing you will furnish the Defense Minerals Exploration Administration with a narrative revealing the worthwhile "new developments" mentioned in your telegram and, at the same time, furnish maps which will show new work performed subsequent to the 1955 field examination, any new developments as to geological formations and structures, locations where samples were procured, how they were procured, and the chemical assays thereof. All information should be furnished in quadruplicate.

We desire to be of assistance to you, but in order to do so it is necessary that you place in our hands information, other than that now available, which will warrant another examination of your properties.

Sincerely yours,

(Sgd) Fred A. Seaton

Secretary of the Interior

Mr. Walter S. Price, President
American Strategic Minerals Corporation
903 Ninth Avenue, Apartment 57
Seattle 4, Washington

Copy to: Hon. Warren G. Magnuson
U. S. Senate
with copy of Mr. Price's telegram of 8-28-56

EWEllis/gla/izm (8-31-56) 9-4-56
cc to: Secretary's Reading File
Secretary's file copy
Assistant Secretary, Mineral Resources (2)
DMEA Docket files, DMEA-3790 and DMEA-4022 w/2cc of incoming telegram
Administrator's Reading File
Code 700
JECrawford, Rm. 3641, USBM
TNKiilsgaard, Rm. 5224, USGS
JOHosted, Rm. 3210, GSA - AEC
DMEA Field Team, Region I, NWDist. (2) w/2cc of incoming telegram

WESTERN UNION TELEGRAM

QA 452 AUG 28 AM 12 28

O SEA852 LONG NL PD=SEATTLE WASH 27=

HON FRED SEATON

SECY DEPT OF THE INTERIOR WASH DC

Received Aug. 28, 1956
Secretary's Immediate Office

DO YOU APPROVE THE NEGATIVE REPLY OF CLARENCE MITTENDORF, ADMINISTRATOR, DMEA, TO THE FORMAL REQUEST ON AUGUST 3RD 1956 OF WARREN G MAGNUSON, SENIOR SENATOR, STATE OF WASHINGTON FOR A REVIEW OF THE APPLICATION OF AMERICAN STRATEGIC MINERALS CORPORATION FOR A DEFENSE MINERALS EXPLORATION LOAN AND A REEXAMINATION OF THE PROPERTIES OF SAID COMPANY?

IF NOT, IT WOULD BE APPRECIATED IF YOU WILL IMMEDIATELY ORDER A THOROUGH AND COMPREHENSIVE REEXAMINATION OF OUR APPLCATIONS AND PROPERTIES, IN THE LIGHT OF THE TERMS OF THE DEFENSE PRODUCTION ACT OF 1950 AS AMENDED, AND THE NEW DEVELOPMENTS ON OUR PROPERTIES AS REPORTED THROUGH SENATOR MAGNUSON.

WE WOULD APPRECIATE AN ANSWER FROM YOU DIRECTLY IN VIEW OF THE SERIOUS AND ULTIMATE CONSEQUENCES WHICH WILL DIRECTLY FORESWEAR TO THE HIGHEST LEVELS OF THE UNITED STATES GOVERNMENT

WALTER S RRICE AMERICAN STRATEGIC MINERALS CORPN
903 NINTH AVE APT 57

DMEA 3 1956 1950 903 57.

RECEIVED
Aug. 30, 1956
DMEA

Interior Department
Received Aug. 29, 1956
Office of the Assistant Secretary for Mineral Resources

C
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Y

700

FILE COPY
Surname:

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

AUG 13 1956

Hon. Warren G. Magnuson
United States Senate
Washington 25, D. C.

Re: Docket No. DMEA-3790 (Uranium-Tungsten)
American Strategic Minerals Corporation
McDaniel Lease

and

Docket No. DMEA-4022 (Uranium)
Riverside Claims
Okanogan County, Washington

My dear Senator Magnuson:

Reference is made to your letter of August 3, 1956, enclosing a letter to you from Mrs. Ruth A. Price of the American Strategic Minerals Corporation.

It is noted that Mrs. Price questions the adequacy of the field examination made on the subject properties and quotes a number of assay returns on ore from the Riverside property which, presumably, would justify a DMEA exploration project.

The properties were examined by two of our geologists on November 1 and 2, 1955. They were accompanied during the examination by Mr. Walter S. Price, President of the American Strategic Minerals Corporation and by Mr. F. B. Satterlee during a part of the examination. I quote from the report of examination, dated December 14, 1955:

> "A snowstorm on November 2 caused some inconvenience, but it did not greatly hamper field work as most of the outcrops of the reported uranium structures and other exposures were relatively free from snow."

That the examiners were able to make a thorough examination of the Riverside property is evidenced by a detailed geologic sketch map prepared by them. The map shows that a railroad cut across the northern end of the property exposes the principal rock formations. Fourteen different rock formations were examined, described, and checked for radioactivity. Representative samples were taken from two of the most radioactive zones and assayed chemically. One sample assayed 0.001 percent uranium and the other 0.006 percent uranium.

R.C.L.

Four other exposures in prospect pits located in the most promising areas south of the railroad cut were also examined and described. Three of the pits were checked for radioactivity and five areas showing the highest radioactivity were sampled and the samples assayed chemically. These assays ranged from a low of less than 0.001 percent uranium to a high of 0.011 percent uranium.

It is plain that a conscientious effort was made by the two field examiners to thoroughly appraise the property. It is unlikely that any known favorable areas were missed since a representative of the Applicant was present to point out such areas.

With respect to the assay returns quoted by Mrs. Price, I am unable to make a true evaluation of them without knowing how the samples were taken and where they were taken. None of these assay returns were made available to us prior to the field examination.

As you know a geologist of the Atomic Energy Commission has also examined the Riverside property and found no evidence of the presence of commercially minable uranium ore.

On the basis of the information available to us, I do not believe that a further examination of either of the captioned properties is warranted. I shall, however, be pleased to consider any new and more favorable evidence of the possibility of finding commercially minable ore on the properties. Possibly a discussion of their case, especially with respect to geology, sampling, assays, etc., by the Applicant's representative with our Field Team members in Spokane might be helpful.

The enclosure referred to in your letter is being returned herewith.

Sincerely yours,

C. O. Mittendorf

Administrator

Enclosure

MChing/ism 8-10-56
cc to: Docket 4022
Code 700
Mr. Ching
Admr.'s Reading File
DMEA Field Team, Reg. I, NW Dist. (w/2 cc of Applicant's letter of Aug. 1, 1956 and Sen. Magnuson's letter of Aug. 3, 1956)

Messrs. JECrawford, Rm. 3643
TEKillingsord, Rm. 5224
JOHerted, Rm. 3210, GAA

COPY

AMERICAN STRATEGIC MINERALS CORPORATION
NIGHTHAWK, WASHINGTON

DOCKET DMEA-4022

57 9 (2145)

903--9th Avenue, Apt. 55,
Seattle 4, Washington
August 1, 1956

Senator Warren G. Magnuson
United States Senate
Washington, D. C.

Dear Senator Magnuson:

This is in reply to your kind letter of July 5th, wherein you advised us that you had asked a specialist on the staff of the Committee on Interior and Insular Affairs to go into the matter of our application for a DMEA loan.

You stated that this specialist was advised "that both DMEA and AEC have made exhaustive examinations on your property, and states that the uranium showing on it is limited to 1/1000 of 1 per cent. In the past there have been cases where it was felt that further exploratory work was justified when there was a minimum showing of 1/10 of 1 per cent, but in recent months the trend has been towards not following up properties that show less than 2/10 of 1 per cent of uranium value."

Since Mr. Mittendorf declined to make a copy of the government's report available to us, we have no knowledge of its contents.

However, an exhaustive examination was not made on the property. On the Riverside properties it was made in a snowstorm in November!

The reason for rejecting our application was given that information available to the government indicates a low probability of making a significant discovery. 50% of the applications made to the DMEA are rejected on this basis, according to a speech made by Mr. Mittendorf in Las Vegas last fall, so we are in good company.

For your information, Senator Magnuson, the following assays have been received by us from ore on the Riverside properties. Both Smith's Lab. at Moab, Utah, and Brown's Lab. at Grand Junction are approved assayists by the A.E.C.

Atomic Energy Commission, Grand Junction,
11/30/55 0.10% U308.

(forwarded)

Smith's Lab, Moab, Utah		
10/14/56	U_3O_8	0.102
		0.126
1/24/56		0.049
		0.181
		0.078
1/25/56		0.185
2/3/56		0.364
7/27/56		0.124
7/27/56		0.121
Brown's Lab, Grand Junction		
1/26/56		0.18
2/4/56		0.40

Further, Mincona Mineral Concentrating Co. of America on July 10, 1956, reported their assays on the ore showed 0.39, and on concentrate 1.26, and that they were willing to stand back of these assays.

You will note that these numerous assays from government recognized assayists no where indicate that the uranium showing is limited to 1/1000 of 1 per cent.

If you have any time while you are home this summer, Walter and I would like to talk to you about this whole matter.

Looking forward anyhow to seeing you next week on August 9th at the Seafair dinner.

Sincerely yours,

/s/ Ruth

Mrs. Ruth A. Price

Surname copy
DMEA-4022

700

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

Ching
Z Kennard

MAY 15 1956

Hon. Don Magnuson
House of Representatives
Washington 25, D. C.

Re: American Strategic Minerals Corporation
Docket No. DMEA-3790 (Uranium-tungsten)
McDaniel Lease
Docket No. DMEA-4022 (Uranium)
Riverside Claims
Okanogan County, Washington

My dear Mr. Magnuson:

Reference is made to your communication, dated May 10, 1956, and enclosure, regarding the captioned applications for financial assistance in two exploration projects.

Both applications were denied on January 16, 1956, after a field examination and other pertinent information available to the Government revealed that neither property offered any promise of a significant discovery.

The correspondence enclosed with your communication is being returned herewith.

If you require additional information on this matter, please call upon me.

Sincerely yours,

G. S. Mittendorf

Administrator

Enclosure

MChing/gla
5-14-56
cc to: Admr.'s Reading File
Docket DMEA-3790
" DMEA-4022
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA
Code 700, Mr. Ching
DMEA Field Team, Region I, NWDist. (2)
w/2 cc incoming letter

See DMEA-3790 for copy incoming inquiry & attachment

R.S.

5-15-56

RM:CWT

RECEIVED
MAY 11 1956

MAY 11 1956

7022

Honorable Henry M. Jackson
United States Senate

Dear Senator Jackson:

This is in reference to your communication of May 2, 1956, requesting our comments with regard to a letter dated April 16, 1956, addressed to you by Mr. Walter A. Price, President, American Strategic Minerals Corporation, Nighthawk, Washington. In his letter, Mr. Price criticises the findings of field representatives of Atomic Energy Commission and Defense Minerals Exploration Administration who examined his mining properties located in Okanogan County, Washington and requests a re-examination by AEC geologists.

The properties in question, known as the Riverside No. 1 and McDaniels Lease, were visited by a geologist assigned to our Spokane office in October, 1955. Radiometric and geologic reconnaissance failed to disclose the presence of commercially minable uranium ores. It was concluded that neither of the properties offered promise as a potential uranium producer.

A similar conclusion was reached by a DMEA field team which subsequently conducted an independent examination of the properties in connection with applications for financial assistance filed by American Strategic Minerals Corporation with Defense Minerals Exploration Administration. As you know the applications were declined. In these circumstances, we do not believe that a further examination is warranted.

We can find no factual basis for Mr. Price's assertion that the field representatives or either DMEA or AEC stationed in Spokane are following a program to resist the development of raw material resources in the State of Washington.

Sincerely yours,

SIGNED AND
DISPATCHED

cc Mittendorf, DMEA

Jesse C. Johnson
Director
Division of Raw Materials

a.e.l.

[illegible] D. RUSSELL, GA., CHAIRMAN
[illegible], VA.
[illegible], TEX.
[illegible], TEX.
[illegible], CONN.
[illegible], MO.
HENRY M. JACKSON, WASH.
[illegible], N. C.
LEVERETT SALTONSTALL, MASS.
[illegible], N. H.
RALPH E. FLANDERS, VT.
MARGARET CHASE SMITH, MAINE
FRANCIS CASE, S. DAK.
JACOB K. JAVITS, N.Y.
WYMAN WALKER, IDAHO
[illegible] L. [illegible], JR., CHIEF CLERK

United States Senate

COMMITTEE ON ARMED SERVICES

May 2, 1956

Honorable Jesse C. Johnson
Director, Division of Raw Materials
Atomic Energy Commission
Washington, D. C.

My dear Mr. Johnson:

You have probably received by now a copy of a letter addressed to me on April 16 by Walter S. Price, President of the American Strategic Minerals Corporation, which criticizes the work of both the Defense Minerals Exploration Administration and the Atomic Energy Commission representatives in Washington State.

I would greatly appreciate having your comments on Mr. Price's letter.

Best wishes.

Sincerely yours,

Henry M. Jackson

Henry M. Jackson, U.S.S.

HMJ:mo

RECEIVED
MAY 14 1956

Congressional Communications Section
Room 335
Date 5/3/56 Time 9.40

C 1921

[redacted] CORPORATION

[redacted]

[redacted]

Nighthawk, Washington

April 16, 1956

RECEIVED
MAY 14 1956

Senator Henry M. Jackson
United States Senate
Washington, D.C.

Dear Senator Jackson:

We are enclosing herewith geological reports on our uranium properties in Okanogan County, Washington.

You will recall that we have previously discussed and corresponded with you concerning these properties in connection with the Defense Minerals Exploration Administration loan applications we made this past year (1955).

It is to be noted that Dr. Rove, who prepared these preliminary reports, and who is considered as a very competent geologist, has made a tentative evaluation of our Nighthawk properties at $7,500,000, properties on which we couldn't even obtain a $69,000 loan from the DMEA for exploration work, in accordance with the intent of Congress, as expressed under the terms of the Defense Production Act of 1950, as amended.

This evaluation was established on the basis of what shows on the surface, and the assessment work we have done to date.

Our application to the DMEA was made in good faith; we have fully complied with the terms of the Act, with negative results. If the Act is not going to be administered in accordance with the terms thereof, and the will of Congress, then it would appear that it should be revoked at this session of Congress. If it is going to be administered in accordance with its terms, and the will of Congress, then the loans for which we have applied for exploration purposes should be granted without delay.

The Congressional Delegation from the State of Washington should be particularly interested and concerned with the "negative and stifling activities" of the DMEA office in Spokane, and also the AEC field representatives stationed there. They are apparently both following a program to resist the development of raw material resources in this state, in respect to the raw materials program of the AEC. This has been not only our experience, but the experience of many others.

In connection with the enclosed geological reports on our properties, they confirm and verify our work on these

04536

uranium bearing areas, and are quite contrary to the apparent field reports turned in by the field men of both the DMEA and the AEC field office in Spokane, copies of which the first cited refused to furnish us.

The AEC report turned in last fall (November) is so hopelessly inadequate and erroneous that we have refused to sign and return the authority for publication by the AEC. This was done upon advice of legal counsel.

This matter is brought to your attention, since it is sincerely believed the public interest involved requires early and prompt action by the Congressional representatives from this state.

Very truly yours,

Walter S. Price
President

cc Senator Magnuson
Congressman Pelly
Jesse Johnson

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

IN REPLY REFER TO:

Wright

RECEIVED
MAY 14 1956

MAY 11 1956

4022

Honorable Warren G. Magnuson
United States Senate

Dear Senator Magnuson:

This is in reference to your communication of April 30, 1956, transmitting copies of letters you have received from Mr. Walter S. Price, President, American Strategic Minerals Corporation, Nightowl, Washington. Mr. Price expresses opposition to the location of a uranium ore processing plant at Springdale, Washington. He also is critical of findings made by field representatives of Defense Minerals Exploration Administration and Atomic Energy Commission who examined his company's properties and requests a re-examination by AEC geologists.

In connection with Mr. Price's comments relative to the processing plant, I should like to point out that the location of uranium mills is determined by the private companies which build and operate the plants. With the exception of one war-time plant acquired by the Commission in 1948, all of the domestic uranium mills have been privately financed and operated. The companies constructing the mills select the locations with the view of obtaining the lowest production cost, taking into consideration ore haulage as well as power, water supply, and other factors affecting operating and construction costs.

Newmont Mining Company is currently discussing with our Grand Junction Operations Office the possibility of constructing a uranium mill in the Eastern Washington area, but as yet no firm proposal has been submitted and we are not aware that the company has selected a specific site for the plant under consideration. However, it appears that it would be logical to locate a mill in the Spokane area since the bulk of the uranium ore reserves in Washington is located in Stevens and Spokane Counties, within approximately forty air miles of Spokane, and the tonnage available within this area is adequate to support a milling operation.

The uranium occurrences which we have examined in other areas of the State do not at this time contain appreciable developed ore reserves and on the basis of present knowledge we do not believe it likely that these occurrences will develop sufficient reserves soon enough to warrant consideration with respect to the location of the mill under study by Newmont.

The properties of American Strategic Minerals Corporation, known as the Riverside No. 1 and McDaniels Lease, located in Okanogan County, Washington, were visited by a geologist assigned to our Spokane office in October, 1955. Radiometric and geologic reconnaissance failed to disclose the presence of commercially minable uranium ores. It was concluded that neither of the properties offered promise as a potential uranium producer.

A similar conclusion was reached by a DMEA field team which subsequently conducted an independent examination of the properties in connection with applications for financial assistance filed by American Strategic Minerals Corporation with Defense Minerals Exploration Administration. As you know the applications were declined. In these circumstances we do not believe that a further examination is warranted.

We can find no factual basis for Mr. Price's assertion that the field representatives of either DMEA or AEC stationed in Spokane are following a program to resist the development of raw material resources in the State of Washington.

Sincerely yours,
SIGNED AND
DISPATCHED

Jesse C. Johnson
Director
Division of Raw Materials

Encl.
Inc. ltr frm
Walter S. Price (addressed to Senator Henry M. Jackson)

cc: A.E. Jones, GJOO)
E.E. Thurlow, SLEB)w/~~of~~ inc. ltr and its enclosure
C.O. Mittendorf, DMEA)

KG
Tully:KG
5/9/56

RDN JCJ CONG COMM OGC

AMERICAN STRATEGIC MINERALS CORPORATION

[redacted]

[redacted] WASHINGTON

RECEIVED

MAY 14 1956

April 14, 1956

Senator Henry M. Jackson
United States Senate
Washington, D.C.

Dear Senator:

You will recall that we discussed the possible locations in the State of Washington for uranium ore buying stations by the A.E.C. last fall.

There have been several published reports recently that the A.E.C. is contemplating licensing the Dawson Mining Company, or its uranium processing subsidiary, to build a [illegible] mill at Springdale, Washington. A glance at the map of Washington will indicate to you that Springdale is on the Colville branch of the Great Northern Railroad.

We would like to suggest that it is not in the public interest to establish the first uranium ore-processing mill at this location, for the following reasons:

1. It is on a noncompetitive branch line railroad. There are four major railroads serving this state, and, consequently there are numerous locations where the mill could be more centrally located, and where competitive rail transportation may be obtained. It is to be pointed out that the Government (the A.E.C.) pays most of the freight bill on purchased ores, whether purchased directly by the A.E.C., or a licensed agent, such as Vitro-Chemical Corporation at Salt Lake City. It is apparent that if this large mill is located at Springdale, the Government will have paid over a period of time considerable amounts in freight costs; whereas this likelihood could be prevented by placing the mill and/or buying station in a more central location, such as Wenatchee.

2. It should be pointed out that much of the ore in the State of Washington will probably move by truck at least to rail points. If the mill is located at Springdale, many of the prospective producing areas will be tied up by road restrictions. For instance, in our own case, the cheapest, most economical route would be by truck from Nightmare, via Republic (Sherman Pass) to Kettle Falls, thence to Springdale, but load restrictions due to bad roads would tie us up for several months each year.

April 14, 1956

[redacted] more central location should be [redacted] and gates will prevail, and [redacted] Wenatchee or some [redacted] would seem to be more in the [redacted]

[redacted] in greatly appreciated [redacted]

Sayles [redacted]

Jesse Johnson [redacted]

COPY

DOUGLAS Wm. ROWE
Engineer and Geologist
Mines & Minerals

RECEIVED
MAY 14 1956

3109 Arcade Building
Seattle 1, Wash.
April 11, 1956

Report on the Geology of an Area Situated in the Hose Spring Coulee District, Okanogan County, State of Washington by Douglas Wm. Rose

Examination has been made on certain properties located in the unincorporated mining district 15 air miles from Sections 9 and 16 of Township 40 North, Range 26 E.W.M., situated in Sections 2, 10 to 15, 23 and 24, in Twp 37 N, Range 26, EWM, owned and operated by The American Strategic Minerals Corporation.

I find the area consists of two major faults, 9600 feet and 7700 feet in length, with 5 cross fraction faults, occurring between the Colville Batholith on the East and the Sinlahekan Batholith on the West.

The main fault displays lake bed deposits on its east side. The radioactive area consists of silicone shales of leached graphitic complex and pre-Cambrian quartzites intersected by north and south quartz veinlets and numerous dykes ranging from inches to many feet. This highly metamorphosed zone displays copper, strontium, vanadium, nickel, cobalt, chromium, zinc, lead, silver, as very minor fractions; manganese and boron in greater fractions; magnesium, calcium, sodium, potassium, titanium as 3%; silicon, aluminum, iron, uranium and thorium exceeding 30%. The other fault area displays less crustal radiation, but large ore body of ruby silver ore as the primary mineral.

The radioactivity in the main fault which intersects the other cross fraction fault zones is definitely linked to a primary deposit of U_3O_8. Here the hydrothermal mode differs from the occurrences in Sections 9 and 16 of TWP 40 N, R 26 EWM, already covered by a separate geological report, because there is a depth of 2800 feet at the junction of the Batholitic contacts in this area. The Colville

rests around 2800 feet upon the Sinlahekan Batholith, which shows depth to around 4600 feet. This formation is typical of the occurrence of the pitch-blende-thucholite-uraninite-broggerite-uranium primary ores of the Blind River Canadium deposits, having a gangue of quarts, calcite, fluorite, granite, barite, hematite, classified as richer geochemical potentials due to its occurrence under such circumstances.

Exploratory work done consists of a 16 foot crosscut on the main fault displaying quartz veins, and two areas which have been coredrilled, all of which display quartz veins, and indicate greater radioactivity from the hanging and foot walls. The soda felspars solidified first, then the potash, then the quarts, lastly the uraniferous complex solidified between the walls.

Evaluation of the uraniferous ore deposit is not possible at this stage, just as the similar type Blind River uranium deposits cannot be estimated due to continuous deeper primary ores laying below and at depths. However, I do sincerely congratulate Walter S. Price, President of American Strategic Minerals Corporation, for his endeavor to mine and acquire such an area, and sincerely wish him God speed.

Dr. Douglas Wm. Rowe
Engineer and Geologist

COPY

DOUGLAS Wm. ROWE
Engineer and Geologist
MINES & MINERALS

3109 Arcade Building
Seattle 1, Wash.
April 11, 1956

Report on the Geology of an Area situated in Nighthawk District, Okanogan County, State of Washington
by Douglas Wm. Rowe

At the request of Walter S. Price, of Seattle, Washington, President of the American Strategic Minerals Corporation, the following examination has been made on certain properties located in Township 40 North, Range 26 E.W.M., Sections 9 and 16, in the Nighthawk District, Okanogan County, State of Washington.

I find their location on the Latholithic extension of the Similkameen Batholith composed of cathedral granite on the west, and Hornblende on the east, situated on the northern slope of Kilmeham Mountain, which displays a basal one-half mile simple mineralized zone to this 4500 foot peak, where it displays the same complex to a width of 100 feet between the granites and hornblende. The purpose of this mineral survey being to verify and classify this mineralized zone of radioactivity as a radio-active zone being the extension of the known Canadian radio-active series across the 49th parallel adjacent to this property. The surface indication being favorable for exploitation, this Corporation has a by-road to the area, on which they have built and acquired the necessary equipment to commence operations immediately, by cutting benches along the mineralized zone of the uranium bearing complex classified as vein fillings, also more commonly associated with hematite-quartz veinlets and carbonates associated with the rare earths and sulphides in small fractures with small and traceable uranium primary elements in these series, and which are traceable for miles.

Although there is a persistent vein of silver ore along with associated base minerals there, I find even more persistent ore bodies of uranium, which predominate very consistently throughout this mineralized zone. Samples from the surface to depths of several feet of this showed fractional values increasing and several stringers of quartz-fluorite intersecting this ore body which contains magnetic uraniferous magnetite with wolframite inclusions. This Latholith displays depths exceeding 3000 feet below the basal zone, and its contact metamorphosed zoning does not show within this mineralized ore body, and therefore displays its mineralized area both east of the granites and west of the hornblende. The hydrothermal action of this uraniferous zone accounts for the veins and vienlets and disseminated grains in the host rock, which consists of lenses lying parallel to one another, also in the deposit showing fractures set an angles to each other. This strong NE trend faulting in fracture system as seen displayed in the north and 25 air miles to the south of this property with their fractured crushing denotes the geological confirmation of its uraniferous deposit, more so since the uraniferous mineral Thucholite in its oxide to sulphide forms within this complex denotes its origin of pitchblende and uranitite. The element U_3O_8, more soluble than thorium, is more easily leached away than the actual product, therefore originating from the molten magma from which the element Uranium from the granites form as hot water hydrothermal vein deposits in cracks and zones of weakness in any sort of wall rocks of basic composition for its further deposition. The Beta particles and gamma activities are due to the granites potassium being its main constituent.

The distribution of Alpha activities are due to both uranium and thorium contents only. The radon activity being due to radium which is the radioactive gas from this complex. The distribution of the normal radioactive equilibrium in the uranium series primary minerals is brought about by two main causes (i.e.)

alteration of the mineral by which some of the uranium becomes soluble in circulating waters and is carried away relatively faster than the others and loss of Radon gas from the mineral. The process of radioactive disintegration by its chemical constitution causes incipient or actual internal shattering. In the secondary minerals not old enough to have established equilibrium, since it takes one million years to complete this, therefrom, the glacial drift in this region, occurring within the last one-fourth million years, gives this deposit a potential life of radioactive contents for some time to come. Hence the deposit is a commercial one, although the grades are not too high at this stage of development, but considering the volume therein, plus the facilities of water-road-railroad-electrification, housing, along with the able and experienced persons who handle the operation, I don't hesitate to append my signature to certify this area as described for a commercial enterprise; moreso, since the Corporation is contracting for a concentration plant at site of the mine. The associated ore bodies in themselves are a commercial proposition, whereby the following minerals have been identified: Manganese, Vanadium, Strontium, Nichel, Cobalt, Chroma, Lead, Copper, Wolfram, Aluminum, Calcium, Sodium, Potassium, Gold, Platinum, Boron, Uranium, Thorium, and Silica, being the constituents which compose this mineralized zone.

Valuation of property: Based on a ratio, taking the values of pitchblende at 50% content, with specific gravity of six, a vein one-eighth of an inch to a ratio of two and 7/8ths feet being only one-third pure pitchblende, these concentrates, even though they exceed this value, for estimating purposes, would give this property on concentrates from these low grade uranium ores a value of $7,500,000.00. If this is not understood by any of my colleagues, they are free to call upon me not only to explain to them the phenomenon of radiation, but also what constitutes radioactive ores in place.

Dr. Douglas Wm. Rowe
Engineer and Geologist

Congress of the United States

House of Representatives

Washington, D. C.

RECEIVED
MAY 11 1956

May 10, 1956

Mr. C.O. Mittendorf, Administrator
Defense Minerals Exploration Adm.
Department of the Interior
Washington 25, D.C.

Sir:

The attached communication is sent for your consideration. Please investigate the statements contained therein and forward me the necessary information for reply, returning the enclosed correspondence with your answer.

Yours truly,

Don Magnuson, M. C.
Washington at Large

Copy for Senator Warren G. Magnuson
Senator Henry Jackson
Congressman Tom Pelly
Congressman Don Magnuson

American Strategic Minerals Corporation
Nighthawk, Washington

May 8, 1956

Hon. Dennis Chavez

United States Senator (New Mexico)

Washington, D.C.

Sir:

I have just been reading one of the lead articles in "The Mining Record" for Thursday, May 3, entitled

> "SenatorAsks Help for Mines in New Mexico--Wants U.S. Mining Areas to get portion of help given foreign mines.--Senator Chavez (D.) N.M. has urged that Congress 'act firmly and soon' on a domestic mines and minerals program designed to meet the needs of the Rocky Mountain States. In a statement to the Senate Interior Committee, Chavez submitted a tabulation showing that up to 2000 men could be employed in mining within 100 miles of Lordsburg, New Mexico, if any long range, ~~rakix~~ realistic mineral development program were operating. If such a statistical report were presented by a European nation to the Foreign Operations Administration, they would have the money and 2000 miners would be at work", Chavez said.

On the basis of our own difficult experience with the present mineral development program, I wish to thank you for your interest, which I hope will be shared not only by all of the Senators and Members of Congress on the West Coast, but also our whole United States.

We have uranium properties in Okanogan County, Washington, which we have been endeavoring to open up for a year and a half. We have filed, in accordance with instructions from the DMEA, two separate loan applications thereon, in accordance with DMEA Order 1, as amended, Defense Production Act of 1950. For a year and a half nearly, we have submitted information to the government, in quadruplicate, on the one; and since last September on the second. We made a trip to Washington to confer with the DMEA. To date, without results.

A CBA reporter, who knows about my husband's struggle to get these properties in operation has stated: "I feel humiliated by Walter's courage. Indeed, there are still pioneersin the west. Because it is the doers that count...this, in the

final analysis, isthe age of the atom. And history will mark is so as one of the single outstanding accomplishments of our times. Kids will be talking about it and learning about it hundreds of years from now. And the man of the atom and its various discoveries will be remembered the longest -- and not the ** and the ** or the headline hunters!"

We have written Senators Magnuson and Jackson and Congressman Tom Pelly of Washington, about our experience. We had not enlisted their help until about two weeks ago, hoping this would be unnecessary, but apparently help is needed. And this not only in Washington, but also in the State of New Mexico.

Sincerely yours,

Ruth A. Price, Secretary

Surname copy
DMEA-3790

700

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

Ching
Ellis
Hyman

Mr. Walter S. Price, President
American Strategic Minerals Corp.
Nightmark, Washington

MAY 7 1956

Re: Docket No. DMEA-3790 (Uranium-tungsten)
McDaniel Leases
Docket No. DMEA-4022 (Uranium)
Riverside Claims
Okanogan County, Washington

Dear Mr. Price:

Reference is made to your letter of April 14, 1956, enclosing two geological reports by Dr. Douglas Wm. Rowe on the captioned properties.

These reports have added nothing to the information available to us and in no way have they demonstrated the probability that significant uranium ore reserves would be found by an exploration project. Under these circumstances, we see no justification for reconsidering your applications, which were denied only after a careful study of all the information available to the Government.

With respect to our field personnel working in and out of the Spokane office, we can only say that they are capable, conscientious, and proven engineers and geologists who have had many years of experience in their fields.

We regret that we are unable to take more favorable action on your request.

Sincerely yours,

G. O. Mittendorf

Administrator

Copies to:
Hon. Henry M. Jackson, U. S. Senate
Hon. Warren G. Magnuson, U. S. Senate
Honl Thomas M. Pelly, House of Representatives
Hon. W. Walter Williams, Under-Secretary, U. S. Department of Commerce
Hon. Jesse C. Johnson, Director, Div. of Raw Materials, AEC

cc to: Admr.'s Reading File
Docket DMEA-3790
" DMEA-4022
Mr. Ellis
Mr. Ching

Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA
DMEA Field Team, Region I, Northwest Dist.(2)

Note to Mr. Weissenborn: Copies of Mr. Price's letter and the two reports of Dr. Rowe will be forwarded when duplicated.

R.C.K.

Surname copy
DMEA-3790

700

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

Ching
Ellis

MAY 7 1956

Hon. Warren G. Magnuson
United States Senate
Washington 25, D. C.

Re: American Strategic Minerals Corporation
Docket No. DMEA-3790 (Uranium-tungsten)
Nathaniel Lawson
Docket No. DMEA-4022 (Uranium)
Riverside Claims
Okanogan County, Washington

DMEA-3790

My dear Senator Magnuson:

Reference is made to your communication, dated April 30, 1956, and enclosures, regarding the captioned applications for financial assistance in two exploration projects.

Both applications were denied on January 16, 1956, after a field examination and other pertinent information revealed that neither property offered any promise of a significant discovery.

We find that the geological reports enclosed with Mr. Walter S. Price's letter of April 14, 1956, contribute nothing to the information already available to the Government on these properties. Accordingly, we have concluded that there is no justification for reconsideration of the applications as requested by Mr. Price.

Attached are two copies of our letter of even date to Mr. Price, and the enclosures accompanying your communication.

We regret that we are unable to take favorable action on Mr. Price's request.

Sincerely yours,

C. O. Mittendorf

Administrator

Enclosures

MChing/gla
5-4-56
cc to: Admr.'s Reading File
Docket DMEA-3790
" DMEA-4022
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA

Code 700
Mr. Ching
DMEA Field Team, Region I, NWDistrict (2)

R.C.F.

Surname copy
DMEA-3790

700

Ching
EWEllis
JEJohnson

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

Hon. Jesse C. Johnson MAY 7 1956
Director, Division of Raw Materials
Atomic Energy Commission
1901 Constitution Ave., N. W.
Washington 25, D. C.

Re: American Strategic Minerals Corporation
Docket No. DMEA-3790 (Uranium-tungsten)
McDaniel Lessees
Docket No. DMEA-4022 (Uranium)
Riverside Claims
Okanogan County, Washington

Dear Mr. Johnson:

Reference is made to the letter, dated April 14, 1956, from Mr. Walter S. Price, President, American Strategic Minerals Corporation, Nighthawk, Washington, a copy of which was forwarded to you, relating to the captioned DMEA dockets. Enclosed is a copy of my letter of even date in response to Mr. Price's letter, which I believe you will find self-explanatory.

Sincerely yours,

C. O. Mittendorf

Administrator

Enclosure

EWEllis/gla
5-4-56
cc to: Admr.'s Reading File
Docket DMEA-3790
" DMEA-4022
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA
DMEA Field Team, Region I, NWDistrict (2)
Code 700
Mr. Ching

P.C.R.

Surname copy
DMEA-3790

700

Ching
Ellis
[illegible]

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

MAY 7 1956

Hon. Thomas M. Pelly
House of Representatives
Washington 25, D. C.

Re: American Strategic Minerals Corporation
Docket No. DMEA-3790 (Uranium-tungsten)
McDaniel Leases
Docket No. DMEA-4022 (Uranium)
Riverside Claims
Okanogan County, Washington

My dear Mr. Pelly:

Reference is made to the letter, dated April 14, 1956, from Mr. Walter S. Price, President, American Strategic Minerals Corporation, Nightmark, Washington, a copy of which was forwarded to you, relating to the captioned DMEA dockets. Enclosed is a copy of my letter of even date in response to Mr. Price's letter, which I believe you will find self-explanatory.

Sincerely yours,

C. O. Mittendorf

Administrator

Enclosure

EWEllis/gla
5-4-56
cc to: Admr.'s Reading File
Docket DMEA-3790
" DMEA-4022
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA
DMEA Field Team, Region I, NWDistrict (2)

P.C.L.

Surname copy
DMEA-3790

700

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

Ching
Ellis
EEJ

MAY 7 1956

Hon. Henry M. Jackson
United States Senate
Washington 25, D. C.

Re: American Strategic Minerals Corporation
Docket No. DMEA-3790 (Uranium-tungsten)
McDaniel Lease
Docket No. DMEA-4022 (Uranium)
Riverside Claims
Okanogan County, Washington

My dear Senator Jackson:

Reference is made to the letter, dated April 14, 1956, from Mr. Walter S. Price, President, American Strategic Minerals Corporation, Nightmark, Washington, a copy of which was forwarded to you, relating to the captioned DMEA dockets. Enclosed is a copy of my letter of even date in response to Mr. Price's letter, which I believe you will find self-explanatory.

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Mr. Ching
DMEA Field Team, Region I, NWDist.(2)

R.C.J.

Surname copy
DMEA-3790

700

Ching
Ellis

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

MAY 7 1956

Hon. W. Walter Williams
Under-Secretary of Commerce
U. S. Department of Commerce
Washington 25, D. C.

Re: American Strategic Minerals Corporation
Docket No. DMEA-3790 (Uranium-tungsten)
McDaniel Leases
Docket No. DMEA-4022 (Uranium)
Riverside Claims
Okanogan County, Washington

Dear Mr. Williams:

Reference is made to the letter, dated April 14, 1956, from Mr. Walter S. Price, President, American Strategic Minerals Corporation, Nightmark, Washington, a copy of which was forwarded to you, relating to the captioned DMEA dockets. Enclosed is a copy of my letter of even date in response to Mr. Price's letter, which I believe you will find self-explanatory.

Sincerely yours,

C. O. Mittendorf

Administrator

Enclosure

EWEllis/gla

5-4-56

cc to: Admr.'s Reading File
Docket DMEA-3790
" DMEA-4022
Messrs. JECrawford, Rm. 3641
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JOHosted, Rm. 3210, GSA
DMEA Field Team, Region I, NWDistrict (2)
Code 700
Mr. Ching

R.C.L.

5-2-56

AMERICAN STRATEGIC MINERALS CORPORATION

~~P.O. BOX 523~~
~~TONASKET~~, WASHINGTON
Nighthawk

WALTER S. PRICE, PRES.
GORDON D. LUTHER, VICE PRES.
RUTH A. PRICE, SEC.-TREAS.

SEATTLE ADDRESS:
104 PREFONTAINE PLACE
SEATTLE 4, WASHINGTON
PHONE: MAIN 7233

April 14, 1956

U. S. Department of the Interior
Defense Minerals Exploration Administration
Washington 25, D.C.

RECEIVED
MAY 1 - 1956

Attention: C. O. Mittendorf, Administrator
Re: Docket Nos. D.M.E.A. 3790 - and 4022 - Uranium

Dear Sir:

Reference is made to your communications dated January 16, 1956, concerning the above-cited dockets.

There are enclosed herewith copies of geological reports, made by a competent geologist and mining engineer, on the properties covered in our application for assistance under the terms of D.M.E.A. Order 1, under the Defense Production Act of 1950, as amended.

It is quite apparent that the statements made in the second and third paragraphs of the above cited communications from your office are based on hopelessly inadequate, and, in fact, erroneous information from your field office, copies of which your office declined to furnish us, as stated in your communication of January 12, 1956.

In view of the information supplied in the enclosed geological reports, if there is any sense of fair play in the present administration of the D.M.E.A., and any disposition to comply with the will of Congress as expressed in the terms of the Defense Production Act of 1950, as amended, and as expressed in the Congressional hearings thereof, then we feel sure that you will reopen our applications immediately, and process them under the terms of that Act, as should have been done in the first instance.

In order to accomplish this, it is quite evident, on the basis of our experience, and the experience of many others, the first step would be to make some drastic changes in your field office at Spokane,

Very truly yours,

Walter S. Price

Walter S. Price
President

Enclosures-2

Copies to:
Senator Henry M. Jackson; Senator Warren G. Magnuson; Representative Thomas M. Pelly; and Hon. W. Walter Williams, Under-Secretary of Commerce of the United States.
Jesse Johnson.

ROWE MANAGEMENT
DR. D. W. ROWE
President
E. H. WEIBERT
Vice President
California-Colorado-Alaska
Unalaska & Texas

DOUGLAS Wm. ROWE
Engineer and Geologist
MINES & MINERALS

TRAILS END MINES INC.
E. H. WEIBERT
President
DR. D. W. ROWE
Vice President
Washington

CONSULTANT — OPERATOR — MINES OWNER

PHONE SENECA 1760
3109 ARCADE BUILDING
SEATTLE 1, WASH.

Ref: No:-_____

April 11, 1956

DMER-4022

Report on the Geology of an Area situated in Nighthawk District, Okanogan County, State of Washington
by Douglas Wm. Rowe

At the request of Walter S. Price, of Seattle, Washington, President of the American Strategic Minerals Corporation, the following examination has been made on certain properties located in Township 40 North, Range 26 E.W.M., Sections 9 and 16 ? in the Nighthawk District, Okanogan County, State of Washington.

I find their location on the Latholithic extension of the Similkameen Batholith composed of cathedral granite on the west, and Hornblende on the east, situated on the northern slope of Ellemeham Mountain, which displays a basal one-half mile simple mineralized zone to this 4500 foot peak, where it displays the same complex to a width of 100 feet between the granites and hornblende. The purpose of this mineral survey being to verify and classify this mineralized zone of radioactivity as a radioactive zone being the extension of the known Canadian radioactive series across the 49th parallel adjacent to this property. The surface indication being favorable for exploitation, this Corporation has a by-road to the area, on which they have built and acquired the necessary equipment to commence operations immediately, by cutting benches along the mineralized zone of the uranium bearing complex

classified as vein fillings, also more commonly associated with hematite-quartz veinlets and carbonates associated with the rare earths and sulphides in small fractures with small and traceable uranium primary elements in these series, and which are traceable for miles.

Although there is a persistent vein of silver ore along with associated base minerals there, I find even more persistent ore bodies of uranium, which predominate very consistently throughout this mineralized zone. Samples from the surface to depths of several feet of this showed fractional values increasing and several stringers of quartz-fluorite intersecting this ore body which contains magnetic uraniferous magnetite with wolframite inclusions. This Latholith displays depths exceeding 3000 feet below the basal zone, and its contact metamorphosed zoning does not show within this mineralized ore body, and therefore displays its mineralized area both east of the granites and west of the hornblende. The hydrothermal action of this uraniferous zone accounts for the veins and veinlets and disseminated grains in the host rock, which consists of lenses lying parallel to one another, also in the deposit showing fractures set at angles to each other. This strong NE trend faulting in fracture system as seen displayed in the north and 25 air miles to the south of this property with their fractured crushing denotes the geological confirmation of its uraniferous deposit, more so since the uraniferous mineral Thucholite in its oxide to sulphide forms within this complex denotes its origin of pitchblende and uranitite. The element U_3O_8, more soluble than thorium, is more easily leached away than the actual product, therefore originating from the molten magma from which the element Uranium from the

granites form as hot water hydrothermal vein deposits in cracks and zones of weakness in any sort of wall rocks of basic composition for its further deposition. The Beta particles and gamma activities are due to the granites potassium being its main constituent.

The distribution of Alpha activities are due to both uranium and thorium contents only. The radon activity being due to radium which is the radioactive gas from this complex. The distribution of the normal radioactive equilibrium in the uranium series primary minerals is brought about by two main causes (i.e.) alteration of the mineral by which some of the uranium becomes soluble in circulating waters and is carried away relatively faster than the others and loss of Radon gas from the mineral. The process of radioactive disintegration by its chemical constitution causes incipient or actual internal shattering. In the secondary minerals not old enough to have established equilibrium, since it takes one million years to complete this, therefore, the glacial drift in this region, occurring within the last one-fourth million years, gives this deposit a potential life of radioactive contents for some time to come. Hence the deposit is a commercial one, although the grades are not too high at this stage of development, but considering the volume therein, plus the facilities of water-road-railroad-electrification, housing, along with the able and experienced persons who handle the operation, I don't hesitate to append my signature to certify this area as described for a commercial enterprise; moreso, since the Corporation is contracting for a concentration plant at site of the mine. The associated ore bodies in themselves are a commercial proposition, whereby the following minerals have been identified:

Manganese, Vanadium, Strontium, Nickel, Cobalt, Chrome, Lead, Copper, Wolfram, Aluminum, Calcium, Sodium, Potassium, Gold, Platinum, Boron, Uranium, Thorium, and Silica, being the constituents which compose this mineralized zone.

Valuation of property: Based on a ratio, taking the values of pitchblende at 50% content, with specific gravity of six, a vein one-eigth of an inch to a ratio of two and 7/8ths feet being only one-third pure pitchblende, these concentrates, even though they exceed this value, for estimating purposes, would give this property on concentrates from these low grade uranium ores a value of $7,500,000.00. If this is not understood by any of my colleagues, they are free to call upon me not only to explain to them the phenomenon of radiation, but also what constitutes radioactive ores in place.

Douglas Wm. Rowe
Engineer and Geologist

ROWE MANAGEMENT
DR. D. W. ROWE
President
E. H. WEIBERT
Vice President
California-Colorado-Alaska
Unalaska & Texas

TRAILS END MINES INC.
E. H. WEIBERT
President
DR. D. W. ROWE
Vice President
Washington

DOUGLAS Wm. ROWE
Engineer and Geologist
MINES & MINERALS

CONSULTANT — OPERATOR — MINES OWNER

PHONE SENECA 1760
3109 ARCADE BUILDING
SEATTLE 1, WASH.

Ref: No:-

April 11, 1956

DMEA-3790

Report on the Geology of an Area Situated in the
Horse Spring Coulee District, Okanogan County, State of Washington
by Douglas Wm. Rowe

Examination has been made on certain properties located in the unincorporated mining district 15 air miles from Sections 9 and 16 of Township 40 North, Range 26 E.W.M., situated in Sections 2, 10 to 12 15, 23 and 24, in Twp 37 N, Range 26, EWM, owned and operated by The American Strategic Minerals Corporation.

I find the area consists of two major faults, 9600 feet and 7700 feet in length, with 5 cross fraction faults, occurring between the Colville Batholith on the East and the Sinlahekan Batholith on the West.

The main fault displays lake bed deposits on its east side. The radioactive area consists of silicone shales of leached graphitic complex and pre-Cambrian quartzites intersected by north and south quartz veinlets and numerous dykes ranging from inches to many feet. This highly metamorphosed zone displays copper, strontium, vanadium, nickel, cobalt, chromium, zinc, lead, silver, as very minor fractions; manganese and boron in greater fractions; magnesium, calcium, sodium, potassium, titanium as 3%; silicon, aluminum, iron, uranium and thorium exceeding 30%. The other fault area displays less crustal radiation, but large ore body of ruby silver ore as the primary mineral.

The radioactivity in the main fault which intersects the other

cross fraction fault zones is definitely linked to a primary deposit of U_3O_8. Here the hydrothermal mode differs from the occurences in Sections 9 and 16 of TWP 40 N, R 26 EWM, already covered by a separate geological report, because there is a depth of 2800 feet at the junction of the Batholitic contacts in this area. The Colville rests around 2800 feet upon the Sinlahekan Batholith, which shows depth to around 4600 feet. This formation is typical of the occurence of the pitchblende-thucholite-uraninite-broggerite-uranium primary ores of the Blind River Canadian deposits, having a gangue of quartz, calcite, fluorite, granite, barite, hematite, classified as richer geochemical potentials due to its occurence under such circumstances.

Exploratory work done consists of a 16 foot crosscut on the main fault displaying quartz veins, and two areas which have been coredrilled, all of which display quartz veins, and indicate greater radioactivity from the hanging and foot walls. The soda felspars solidified first, then the potash, then the quartz, lastly the uraniferous complex solidified between the walls.

Evaluation of the uraniferous ore deposit is not possible at this stage, just as the similar type Blind River uranium deposits cannot be estimated due to continuous deeper primary ores laying below and at depths. However, I do sincerely congratulate Walter S. Price, president of American Stratetic Minerals Corporation, for his endeavor to mine and acquire such an area, and sincerely wish him God speed.

Douglas Wm. Rowe
Engineer and Geologist

ROWE MANAGEMENT
DR. D. W. ROWE
President
E. H. WEIBERT
Vice President
California-Colorado-Alaska
Uncle Sam & Texas

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Vice President
Washington

DOUGLAS Wm. ROWE
Engineer and Geologist
MINES & MINERALS

CONSULTANT — OPERATOR — MINES OWNER

PHONE SENECA 1760
3109 ARCADE BUILDING
SEATTLE 1, WASH.

Ref: No:-_____

April 11, 1956

DMEA-4022

Report on the Geology of an Area situated in Nighthawk District, Okanogan County, State of Washington
by Douglas Wm. Rowe

At the request of Walter S. Price, of Seattle, Washington, President of the American Strategic Minerals Corporation, the following examination has been made on certain properties located in Township 40 North, Range 26 E.W.M., Sections 9 and 16 ? in the Nighthawk District, Okanogan County, State of Washington.

I find their location on the Latholithic extension of the Similkameen Batholith composed of cathedral granite on the west, and Hornblende on the east, situated on the northern slope of Ellemeham Mountain, which displays a basal one-half mile simple mineralized zone to this 4500 foot peak, where it displays the same complex to a width of 100 feet between the granites and hornblende. The purpose of this mineral survey being to verify and classify this mineralized zone of radioactivity as a radioactive zone being the extension of the known Canadian radioactive series across the 49th parallel adjacent to this property. The surface indication being favorable for exploitation, this Corporation has a by-road to the area, on which they have built and acquired the necessary equipment to commence operations immediately, by cutting benches along the mineralized zone of the uranium bearing complex

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Although there is a persistent vein of silver ore along with associated base minerals there, I find even more persistent ore bodies of uranium, which predominate very consistently throughout this mineralized zone. Samples from the surface to depths of several feet of this showed fractional values increasing and several stringers of quartz-fluorite intersecting this ore body which contains magnetic uraniferous magnetite with wolframite inclusions. This Latholith displays depths exceeding 3000 feet below the basal zone, and its contact metamorphosed zoning does not show within this mineralized ore body, and therefore displays its mineralized area both east of the granites and west of the hornblende. The hydrothermal action of this uraniferous zone accounts for the veins and veinlets and disseminated grains in the host rock, which consists of lenses lying parallel to one another, also in the deposit showing fractures set at angles to each other. This strong NE trend faulting in fracture system as seen displayed in the north and 25 air miles to the south of this property with their fractured crushing denotes the geological confirmation of its uraniferous deposit, more so since the uraniferous mineral Thucholite in its oxide to sulphide forms within this complex denotes its origin of pitchblende and uranitite. The element U_3O_8, more soluble than thorium, is more easily leached away than the actual product, therefore originating from the molten magma from which the element Uranium from the

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Douglas Wm. Rowe
Engineer and Geologist

ROWE MANAGEMENT
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TRAILS END MINES INC.
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Vice President
Washington

DOUGLAS Wm. ROWE
Engineer and Geologist
MINES & MINERALS

CONSULTANT — OPERATOR — MINES OWNER

PHONE SENECA 1760
3109 ARCADE BUILDING
SEATTLE 1, WASH.

Ref. No:-

April 11, 1956

DMEA-3790

Report on the Geology of an Area Situated in the Horse Spring Coulee District, Okanogan County, State of Washington
by Douglas Wm. Rowe

Examination has been made on certain properties located in the unincorporated mining district 15 air miles from Sections 9 and 16 of Township 40 North, Range 26 E.W.M., situated in Sections 2, 10 to 12 15, 23 and 24, in Twp 37 N, Range 26, EWM, owned and operated by The American Strategic Minerals Corporation.

I find the area consists of two major faults, 9600 feet and 7700 feet in length, with 5 cross fraction faults, occurring between the Colville Batholith on the East and the Sinlahekan Batholith on the West.

The main fault displays lake bed deposits on its east side. The radioactive area consists of silicone shales of leached graphitic complex and pre-Cambrian quartzites intersected by north and south quartz veinlets and numerous dykes ranging from inches to many feet. This highly metamorphosed zone displays copper, strontium, vanadium, nickel, cobalt, chromium, zinc, lead, silver, as very minor fractions; manganese and boron in greater fractions; magnesium, calcium, sodium, potassium, titanium as 3%; silicon, aluminum, iron, uranium and thorium exceeding 30%. The other fault area displays less crustal radiation, but large ore body of ruby silver ore as the primary mineral.

The radioactivity in the main fault which intersects the other

cross fraction fault zones is definitely linked to a primary deposit of U_3O_8. Here the hydrothermal mode differs from the occurences in Sections 9 and 16 of TWP 40 N, R 26 EWM, already covered by a separate geological report, because there is a depth of 2800 feet at the junction of the Batholitic contacts in this area. The Colville rests around 2800 feet upon the Sinlahekan Batholith, which shows depth to around 4600 feet. This formation is typical of the occurence of the pitchblende-thucholite-uraninite-broggerite-uranium primary ores of the Blind River Canadian deposits, having a gangue of quartz, calcite, fluorite, granite, barite, hematite, classified as richer geochemical potentials due to its occurence under such circumstances.

Exploratory work done consits of a 16 foot crosscut on the main fault displaying quartz veins, and two areas which have been coredrilled, all of which display quartz veins, and indicate greater radioactivity from the hanging and foot walls. The soda felspars solidified first, then the potash, then the quartz, lastly the uraniferous complex solidified between the walls.

Evaluation of the uraniferous ore deposit is not possible at this stage, just as the similar type Blind River uranium deposits cannot be estimated due to continuous deeper primary ores laying below and at depths. However, I do sincerely congratulate Walter S. Price, president of American Stratetic Minerals Corporation, for his endeavor to mine and acquire such an area, and sincerely wish him God speed.

Douglas Wm. Rowe
Engineer and Geologist

Surname copy

700

Ching

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

FEB 13 1956

Hon. Henry M. Jackson
United States Senate
Washington 25, D. C.

Re: American Strategic Minerals Corporation
Docket No. DMEA-3790 (Uranium-tungsten)
McDaniel Lease
Docket No. DMEA-4022 (Uranium)
Riverside Claims
Okanogan County, Washington

My dear Senator Jackson:

Reference is made to your letter of February 9 regarding the subject company's applications for financial assistance in two proposed exploration projects in Okanogan County, Washington.

We have recently completed an investigation and examination of these properties and have concluded that the probability of disclosing minable ore reserves by the proposed work is not sufficiently promising to justify Government participation. Consequently, under date of January 16, 1956, we advised the American Strategic Minerals Corporation that its applications for exploration assistance are denied.

We regret that we were unable to take favorable action on these proposed projects. The copy of our letter of January 12, 1956, to Mr. Walter S. Price, President of American Strategic Minerals Corporation, is being returned herewith.

Sincerely yours,

C. O. Mitcheltree

Administrator

Enclosure

MChing/gla
cc to: Admr.'s Reading File
Docket No. DMEA-3790
Docket No. DMEA-4022
Code 700
Mr. Ching
DMEA Field Team, Region I, Northwest District

R.G.B.

UNITED STATES SENATE

Committee on Armed Forces

February 9, 1956

RECD
FEB 10 1956

DMEA-4022

Honorable C. O. Mittendorf
Administrator
Defense Minerals Exploration Administration
Department of the Interior
Washington 25, D. C.

Dear Mr. Mittendorf:

Mr. Walter S. Price, President of the American Strategic Minerals Corporation, Tonasket, Washington, has written to me concerning applications filed by his company.

The enclosed copy of a communication from you to Mr. Price will serve to identify these applications.

Because Mr. Price has brought this matter to my attention I will appreciate being advised of any action taken.

Sincerely yours,

/s/ Henry M. Jackson

Henry M. Jackson, U.S.S.

HMJ:sm

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y

Copy of enclosure with this letter not made for DMEA docket, since it was a copy of Mr. Mittendorf's letter dated January 12, 1956, to Walter S. Price, stating a copy of the report of examination could not be furnished to him.

706

FILE COPY
Surname:
Ching
Kelly
Gerson
Nelson
Jilmer

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

Mr. Walter S. Price, President
American Strategic Minerals Corporation
Post Office Box 523
Tonasket, Washington

Re: Docket No. DMEA-4022 (Uranium)
Riverside Claims
Okanogan County, Washington

Dear Mr. Price:

Your application for aid in an exploration project and other information available to us in Washington concerning the above-named property have been reviewed.

Projects approved by the Defense Minerals Exploration Administration must, in its judgment, show definite promise of yielding materials of acceptable grade in quantities that will significantly improve the mineral supply position for the National Defense Program.

Careful study of all our information indicates to us that the probability of disclosing minable ore reserves is not sufficiently promising to justify Government participation. We regret to advise you that, under these circumstances, your application for exploration assistance is denied.

We wish to thank you for your interest in the Defense Minerals Program and for bringing your property to our attention.

Sincerely yours,

C. O. Mittendorf

Administrator

MChing/ism 1-10-56
cc to: Admr.'s Reading File
Operating Committee
Docket
Code 700
Mr. Ching
DMEA Field Team Region I - NW District (2)
Messrs. JECrawford, Rm. 3641
THKiilsgard, Rm. 5224
JOHosted, Rm. 3210, GSA

700

FILE COPY
Surname: Ching

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

Mr. Walter S. Price, President
American Strategic Minerals Corporation
Post Office Box 523
Tonasket, Washington

Re: Docket No. DMEA-4022 (Uranium)
Riverside Claims
Okanogan County, Washington

Dear Mr. Price:

Reference is made to your letter of January 1, 1956, regarding the subject docket.

In regard to your request that a copy of the report of examination be furnished to you, such reports are for the use of the Government only and are not made available to the public.

Your application for aid in an exploration project and other information available to us in Washington concerning the above-named property have been reviewed.

Projects approved by the Defense Minerals Exploration Administration must, in its judgment, show definite promise of yielding materials of acceptable grade in quantities that will significantly improve the mineral supply position for the National Defense Program.

Careful study of all our information indicates to us that the probability of disclosing minable ore reserves is not sufficiently promising to justify Government participation. We regret to advise you that, under these circumstances, your application for exploration assistance is denied.

We wish to thank you for your interest in the Defense Minerals Program and for bringing your property to our attention.

Sincerely yours,

Administrator

MChing/izm 1-5-56
cc to: Admr.'s Reading File
Operating Committee
Docket
Code 700
Mr. Ching
DMEA Field Team Region I - NW District (2)
Messrs. JECrawford, Rm. ~~3210~~ 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA

700

FILE COPY
Surname:
Ching
Ellis
Schofield
Mathendorf

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

JAN 13 1956

Mr. Walter S. Price, President
American Strategic Minerals Corporation
Post Office Box 523
Tonasket, Washington

Re: Docket No. DMEA-3790 (Uranium-Tungsten)
McDaniel Leases

and

Docket No. DMEA-4022 (Uranium)
Riverside Claims
Okanogan County, Washington

Dear Mr. Price:

Reference is made to your letter of January 1, 1956, regarding the subject dockets, and enclosed assay report.

In regard to your request that a copy of the report of examination be furnished you, we regret to advise that such reports are for the use of the Government only and are not made available to the public.

The report of examination and other information available to us concerning your properties are currently under study by this office. We will advise you very shortly of our decisions concerning both applications.

Sincerely yours,

S. G. Mittenhart

Administrator

MChing/izm 1-10-56
cc to: Admr.'s Reading File
Docket 3790 & 4022
Code 700
Mr. Ching
DMEA Field Team Region I - NW District (2)

Docket Copy
700

Ching
Ellis

January 5, 1956

Summary of Proposed Project

Object: Denial of application for an exploration project.

Docket No.: DMEA-4022

Commodity: Uranium

Applicant: American Strategic Minerals Corporation
P. O. Box 523
Tonasket, Washington

Property: Riverside claims, consisting of 14 unpatented Riverside claims numbered 1 through 14, in Section 9, T. 40 N., R. 26 E., W.M., Okanogan County, Washington. Applicant holds the claims under the terms of an Option Agreement dated August 31, 1955.

Date of Application: October 10, 1955

Amount of Application: $63,050.00

Work Proposed:

1.	Excavate 3 open cuts by drilling, blasting and bulldozing	$16,000.00
2.	5,000 feet core drilling to various depths	35,000.00
3.	Supervision, consultants, equipment, buildings, etc.	12,050.00
	Total estimated cost	$63,050.00
	Government participation @ 75%	$47,287.50

Field Team Report: December 14, 1955, James J. Quinlan, USGS
Co-examiner, Paul Weis, USGS

The property lies within an area where the Similkameen batholith is in contact with rocks of the Anarchist series. The contact zone is well exposed in a railroad cut near the northern boundary of the property.

The background count in areas underlain by rocks of the Anarchist series is about 0.007 MR/HR, whereas the background count in areas underlain by granitic rocks is two to three times higher. The radioactivity of the granite is within the normal range found in granitic rocks elsewhere. Much of the difference in radioactivity may be attributed to the difference in the amount of potash in the rocks, but it is the Applicant's contention that the higher background in the areas underlain by the granitic rocks represents a large uranium ore body.

The highest radioactivity noted was in alaskitic and feldspathic dikes, sills and lenses. A count of 0.40 MR/HR was noted on a 0.5 to 2.0 inch alaskitic stringer in No. 1 pit.

Seven samples were taken in areas showing the highest radioactivity on the property. The highest assay was on the alaskitic stringer material from No. 1 pit, and amounted to 0.031% uranium. It is clearly evident that the property is of no interest as a uranium prospect. It is recommended that the application be denied.

Commodity Group Comments:

Geological Survey - N. E. Nelson - December 30, 1955:

The examiners appear to have given the application the "benefit of the doubt" and to have subjected the radioactive showings to a severe examination. Concurs with the Field Team recommendation of denial.

Bureau of Mines - James Paone - January 3, 1956:

Reviewed the Report of Examination and discussed it with the AEC representative. Concurs in the recommendation that the application be denied.

Rare and Miscellaneous Metals Division - Michael Ching - January 5, 1956:

This property was visited by AEC personnel on November 7, 1955. Ernest E. Thurlow, Chief, Salt Lake Exploration Branch, Division of Raw Materials, indicated in a letter dated November 18, 1955, that DMEA assistance is not warranted.

The Applicant is definitely not qualified to carry out a DMEA project. He is either unwilling or unable to recognize the fundamental requirements connected with an adequate application for exploration aid.

The property itself appears to be devoid of any merit as far as uranium is concerned.

Conclusions and Recommendations:

The indications of radioactive materials on the property are insignificant. It is recommended that the application be denied.

Ernest Wm. Ellis

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

1/3/56 gla

RECEIVED JAN 3 1956

AMERICAN STRATEGIC MINERALS CORPORATION

P. O. BOX 523
TONASKET, WASHINGTON

WALTER S. PRICE, PRES.
GORDON D. LUTHER, VICE PRES.
RUTH A. PRICE, SEC.-TREAS.

SEATTLE ADDRESS:
104 PREFONTAINE PLACE
SEATTLE 4, WASHINGTON
PHONE: MAIN 7233

January 1, 1956

U. S. Department of the Interior
Defense Minerals Exploration Administration
Washington 25, D.C.

In re: Docket Nos. 3790 and 4022

Dear Sirs:

Reference is made to the field examination made by examination team from the Spokane Office of the DMEA on November 1 and 2, 1955, on the properties covered by the above cited Dockets. The examination was made by Messrs. James J. Quinlan and Paul L. Weiss.

Since the A.E.C., upon application, now releases the reports made by their field examiners, it would seem that the DMEA might be able to do the same. If this is the case, it would be appreciated if the undersigned could be furnished a copy of the report showing the results of the field examination on the properties indicated above.

With reference to our communication of November 9, 1955, with which was enclosed copies of assays, we have received confirmation of these assays, with respect to the U308 content, from the Grand Junction Office of the A.E.C., copy of which is enclosed.

Since we have fairly conclusively proven minimum commercial grade ore being present almost on the surface, it would seem imperative to proceed immediately as soon as weather conditions will permit with the exploration program outlined in our application dated October 10, 1955.

With reference to the option dated August 31, 1955, which accompanied our application, the lease accompanying said option has been executed, and was effective December 21, 1955.

Since the properties covered by Docket No. 4022 would seem to completely qualify for aid as an exploration project pursuant to DMEA Order 1, under the Defense Production Act of 1950, as amended, it is kindly requested that prompt action be taken on our application in order that the contracts be negotiated now, so that the work may proceed as soon as weather conditions will permit.

Very truly yours,

Walter S. Price

Walter S. Price

Copy to
Spokane Office DMEA

UNITED STATES
ATOMIC ENERGY COMMISSION
Grand Junctions Operations Office
Grand Junction, Colorado
November 30, 1955

In reply refer to
MD:AWS

American Strategic Mining Corp.
P.O. Box 523
Tonasket, Washington

Gentlemen:

Please be advised that your recently submitted sample has been assayed by this office, the chemical assay showing your sample to contain 0.10% U_3O_8.

If this office can be of any further assistance to you, feel free to call on us at any time.

Very truly yours,

(signed)

Charles A. Rasor, Chief
Ore Procurement Branch
Mining Division

Certified true copy
of signed original
Walter S. Price
Walter S. Price

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

December 30, 1955

Re: DMEA 3790
American Strategic Minerals Corporation
Riverside and McDaniel properties
Okanogan County, Washington
$150,000 Uranium-Tungsten

Memorandum

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

From: N. E. Nelson, U. S. Geological Survey

Subject: Review of Field Team Report.

The applicant requested aid in exploring in a large way 2 properties by drifting, drilling, and bulldozing. The proposal was based on radioactivity detected by a special instrument built by a so-called geophysicist.

The examiner appears to have given the application the "benefit of the doubt" and to have subjected the radioactive showings to a severe examination. He found some signs of radioactivity, but sampling and assaying indicate the material is very much below ore grade, the highest assay having been rock from a ½"-4" stringer of alaskitic material in Pit No. 1. The assay shows 0.045% eU.

I conclude, with the examiner, that there are no significant occurrences of radioactive minerals on either property and concur with the recommendation of denial of the Field Team.

N. E. Nelson

N. E. Nelson

NENelson:jeh
G-12/30/55
cc: Director's reading 4212
Branch reading 4212
DMEA (3) ✓
Docket file
J.E.Crawford, 3641 Int.
J.O.Hosted, 3210,GSA

RECEIVED
JAN 3 1956

12-28-55 gm

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D.C.~~
So. 157 Howard Street
Spokane 4, Washington

December 15, 1955

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-3790 (Uranium-Tungsten)
American Strategic Minerals Corporation
McDaniel Lease
and
Docket No. DMEA-4022 (Uranium-Zirconium)
Riverside Claims
Okanogan County, Washington

Dear Mr. Selfridge:

Enclosed are four copies of a report by Mr. James J. Quinlan, Geological Survey, on the American Strategic Minerals Corporation properties.

In our opinion the properties have no merit as uranium prospects. Mr. Ernest E. Thurlow, Chief, Salt Lake Exploration Branch, Division of Raw Materials, Atomic Energy Commission, has the same opinion as expressed in his letter of November 18, 1955, copies enclosed.

Neither does the McDaniel property have merit as a tungsten prospect; outcrops were lamped, and the applicant was urged to show the examiners any tungsten occurrences which he was unwilling or unable to do.

We recommend that these applications be denied.

By Field Team, Region I, NW District

Reviewed by
DMEA OPERATING COMMITTEE

12-30-55
(date)

(original copy in DMEA-3790)

A. L. Weissenborn, Executive Officer
U. S. Geological Survey

Thomas E. Howard, Acting Member
U. S. Bureau of Mines

Enclosures
cc: USBM(2)
USGS(SRO)
AEC, Salt Lake(2)
Quinlan

REFER TO	ACTION	NOTED	DATE
ANSWERED			

UNITED STATES
ATOMIC ENERGY COMMISSION
DIVISION OF RAW MATERIALS
Salt Lake Exploration Branch

ADDRESS REPLY TO:

U. S. Atomic Energy Commission
P. O. Box 2196
Salt Lake City, Utah

AND REFER TO:

SLEB:DLD:af

November 18, 1955

RECEIVED
DEC 27 1955

Mr. A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region I, NW District
South 157 Howard Street
Spokane 4, Washington

DMEA

Dear Al:

Reference is made to your letter of October 28 concerning Docket No. DMEA-4022 (uranium-zirconium), American Strategic Minerals Corporation, Riverside Claims, Okanogan County, Washington.

These properties were visited by Atomic Energy Commission personnel November 7, 1955. We concur in your conclusion that DMEA assistance is not warranted.

Very truly yours,

Ernest E. Thurlow, Chief
Salt Lake Exploration Branch
Division of Raw Materials

Reviewed by
DMEA OPERATING COMMITTEE
12-30-55
(date)

cc: L. D. Jarrard
D. L. Hetland

RECEIVED
NOV 23 1955
U. S. G. S.
SPOKANE, WASH.

RECEIVED
DEC 27 1955

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
So. 157 Howard Street
Spokane 4, Washington

December 14, 1955

MEMORANDUM

To: DMEA Field Team, Region I, Northwest District

From: James J. Quinlan, Geologist, U. S. Geological Survey

Subject: Field Examination Report, Docket No. DMEA-3790 (Uranium-Tungsten), McDaniel Lease, and Docket No. DMEA-4022 (Uranium), Riverside Claims, properties of the American Strategic Minerals Corporation, Okanogan County, Washington

INTRODUCTION

The McDaniel and Riverside properties of the American Strategic Minerals Corporation were examined by Mr. Paul Weis, Geological Survey, and the writer on November 1 and 2, 1955. Mr. Walter S. Price, President of the American Strategic Minerals Corporation, accompanied the field examiners during the examination. Mr. F. B. Satterlee, employed by the applicant as a consultant geophysicist, also accompanied the examiners the first morning of the examination.

A snowstorm on November 2 caused some inconvenience, but it did not greatly hamper field work as most of the outcrops of the reported uranium structures and other exposures were relatively free from snow.

Neither the McDaniel nor the Riverside properties are of any interest as uranium prospects as there are no significant radioactive anomalies on either property.

Lamping of the McDaniel property with an ultraviolet lamp failed to confirm the presence of scheelite as reported by the applicant, and no other tungsten minerals were recognized at any of the outcrops examined. In fact, Mr. Price was unable to furnish a specimen of tungsten ore from the main area in which it was reported. He did, however, show us a small specimen of hubnerite with a few specks of scheelite on it which reportedly came from an area about a mile east of the area examined. Although we expressed a desire to examine the outcrop where this specimen came from, Mr. Price's attitude indicated

Reviewed by
DMEA OPERATING COMMITTEE

12-30-55
(date)

that he did not care to show us the area, and we believe that he may have been stalling because he was uncertain as to whether he could find the tungsten showing this specimen came from.

Zirconium is listed in the Riverside application as one of the metals to be explored for, but it is not a metal which qualifies for DMEA assistance.

Twenty samples were taken during the examination of the applicant's properties. Although it was evident that most of these samples did not contain a significant amount of radioactivity, chemical assays were made on all samples in order to provide reliable data on the reported radioactive showings on the properties. The samples were assayed by the Geological Survey's Geochemistry and Petrology Branch laboratory at Denver, Colorado.

RECOMMENDATION

It is recommended that the application of the American Strategic Minerals Corporation for exploration assistance on the McDaniel and Riverside properties be denied.

APPLICANT

The applicant is the American Strategic Minerals Corporation, P. O. Box 523, Tonasket, Washington. Officers of the corporation are Walter S. Price, president, Gordon D. Luther, vice-president, and Ruth A. Price, secretary-treasurer. These officials are residents of Seattle, Washington, and as far as it is known none has had a great amount of mining experience.

Corporation affairs and operations are under the direct supervision of Walter Price. Although Mr. Price appears to be sincere, he is misguided and is not considered qualified to supervise a mining operation. He depends for the most part on F. B. Satterlee, a "self-styled geophysicist," for technical assistance. Satterlee's recommendations are reportedly based on the readings obtained on an instrument of his own invention, which allegedly can detect deposits of any substance at any distance or depth.

At one time Mr. Price hired Mr. Forbes Robertson, a consulting geologist from Seattle, Washington, to examine the McDaniel property. A copy of Mr. Robertson's report on the property, with the exception of one section, is a part of the application. Although Mr. Robertson offers some encouragement for a small exploration project which the writer believes is not warranted, it is clearly evident that he does not think highly of the property. At the time of the examination Mr. Price stated his dissatisfaction with Mr. Robertson's report, mostly because of derogatory statements made in it about Mr. Satterlee's

instrument. That section of Robertson's report dealing with Mr. Satterlee's instrument has been deleted from the copy of the report furnished DMEA.

McDANIEL PROPERTY

Property

The McDaniel property is in the Horse Springs Coulee area about 3 to 5 miles west of Tonasket, Washington. It is reported to consist of 2,040 acres of land in secs. 2, 10, 11, 13, 14, and 24, T. 37 N., R. 26 E., W.M., Okanogan County, Washington. The mineral rights to the property are held by Mr. Price under the terms of lease and option agreements with the owners, Loy J. and Tessie M. McDaniel. Copies of the lease and option agreements which contain a detailed description of the property are a part of the application. Although the application is filed in the name of the American Strategic Minerals Corporation, there are no documents accompanying the application that indicate that Mr. Price has assigned his lease and option agreement to the corporation.

Although the Horse Springs Coulee area has been adequately prospected and exploration undertaken to test the more favorable mineral showings, no mine has as yet been found. Several pits, a shallow shaft, and a 35-foot long adit were driven on the McDaniel property many years ago in the search for gold. In the last year the applicant has also dug several trenches and drilled two shallow diamond drill holes to test the uranium possibilities of the property. None of this work has, however, given any indication that the property contains any ore deposits of economic interest.

Geology

The McDaniel property is within the area mapped and described by A. C. Waters and Konrad Krauskopf in the Bulletin of the Geological Society of America, vol. 52, pp. 1355-1418, September 1941, "Protoclastic Border of the Colville Batholith." The property is principally underlain by metamorphic rocks and glacial material. The metamorphic rocks in the area are a part of the Lower Anarchist series which is believed to be of Permian age. The glacial material is mainly glaciofluvial and glaciolacustrine sediments of Quaternary age.

Forbes Robertson mapped the property when he examined it for Mr. Price. Robertson divided the Lower Anarchist series into three members: lower, middle, and upper. The lower member consists of graphitic phyllites, chloritic phyllites, and greenstone with a massive dark-gray dolomite unit as the topmost member. The middle unit consists mainly of chloritic phyllites and greenstones with some interbedded

argillite and quartzite bands. The upper unit is characterized by black carbonaceous argillite and contains bands of chloritic phyllites, gray phyllites, and greenstones. The rocks of the Lower Anarchist strike north to northwest and dip 20°-75° E. or NE.

Robertson's map of the property was used as a base during the examination and on it has been plotted the description of the so-called radioactive anomalies (pl. 1).

Robertson recognizes two and possibly three probable faults on the property. The two main faults are shown on plate 1.

Radioactivity

The background count in areas of the McDaniel property underlain by glacial material is very low, 0.005 MR/HR. Although there is considerable range in the count in the areas of metamorphic rock, at no place can the count be considered abnormally high for metamorphic rocks; in fact, the range of radioactivity is, if anything, somewhat below normal. In places, the background in areas of the metamorphic rocks is as low as 0.002 MR/HR, but the average is about 0.010-0.015 MR/HR. Locally, some zones of radioactivity as high as 0.025-0.031 MR/HR occur. For the most part, the areas with the highest radioactivity are within bands of chloritic phyllite.

Thirteen samples were taken at places showing the highest radioactivity on the property; the location and assay results of these samples are shown on plate 1X and in the table tabulated below. Chemically, the highest assay only showed 0.001 percent U.

Sample No.	Width (feet)	%eU	%U	Location
822	0.1	0.003	<0.001	Robertson's Area No. 8
823	1.0	0.003	<0.001	Robertson's Area No. 2
824	1.0	0.004	<0.001	Satterlee's Area No. 3
825	2.5	0.006	<0.001	Satterlee's Tungsten Area
826	0.5	0.002	<0.001	Robertson's Area No. 1
827	1.0	0.003	<0.001	Robertson's Area No. 1
828	10.0	0.004	0.001	Robertson's Area No. 6
829	20.0	0.003	<0.001	Robertson's Area No. 4
830	1.0	0.006	<0.001	Robertson's Area No. 10
831	8.0	0.003	<0.001	Robertson's Area No. 3
840	3.0	< 0.001	<0.001	Undesignated Area on Satterlee's Map
841	2.0	< 0.001	<0.001	Satterlee's Area No. 5
842	5.0	0.001	<0.001	Satterlee's Area No. 1

RIVERSIDE PROPERTY

Property

The Riverside property is about 20 miles north of the McDaniel property and only a mile south of the Canadian border. It is on the south side of the Similkameen River about 7 miles northwest of Oroville, Washington, and can easily be reached over fair roads from this town.

The property consists of 14 unpatented quartz lode mining claims, Riverside Nos. 1 through 14. These claims are reported to be in sec. 9, T. 40 N., R. 26 E., W.M., Nighthawk Mining District, Okanogan County, Washington. The claims are held by the applicant under the terms of an option agreement with the owners, Percy Eastman, Ray Silvers, George Dixon, W. J. Schildgen and Emil Twait, all of Loomis, Washington. A copy of the option agreement accompanies the application.

Gold placers on the Similkameen River are reported to have been worked as early as 1859; although lode deposits must have been recognized at the time, no known locations were made. Shortly after the early but brief activity, the area was made a part of an Indian reservation and withdrawn from mineral entry. It was again open to mineral entry in 1890. Production from the district is of the magnitude of one to two million dollars in gold, silver, lead, and copper.

Geology

The geology of the Nighthawk district is described by Joseph B. Umpleby in Part II of Washington Geological Survey Bulletin No. 5, "Geology and Ore Deposits of the Oroville-Nighthawk District."

The Riverside property lies along the eastern margin of the Similkameen batholith and is within the contact area of the batholith with rocks of the Anarchist series (pl. 2). The Anarchist series in the vicinity of the contact zone on the property consists of black carbonaceous argillites and light-gray to black silty quartzites. These rocks strike within a few degrees either direction of north and dip 65°-80° W.

The contact zone of the batholith is well exposed in a railroad cut near the northern boundary of the property (pl. 2). The contact area contains a variety of igneous rocks which for the purposes of discussion can be divided into the following groups: (1) diorites, (2) granites, and (3) alaskites and other feldspathic rocks. In addition to the igneous rocks, the contact zone contains a number of sedimentary rock inclusions in various stages of modification and recrystallization.

The most abundant rock type in the contact area is amphibole diorite. While some of the diorite is massive, most is distinctly banded. The banding in the diorite as well as the bedding in the sedimentary inclusions strike a few degrees either direction of north and dip 65°-80° W. which is parallel to the bedding in the Anarchist rocks immediately outside the contact area. The granite for the most part occurs as distinct bands parallel to the banding in the diorite. The maximum thickness of an individual granite band is about 35 feet. The diorite, granite, and sedimentary inclusions within the contact zone are cut by a number of alaskitic and feldspathic sills, dikes, and irregular lenses. These alaskitic and feldspathic structures range in width from less than an inch to about 2 feet but most are less than a foot wide. The greatest number of dikes of this group are of alaskitic composition, but in places they contain little quartz and are mostly of feldspathic composition.

Radioactivity

The background count in areas of the Riverside property underlain by rocks of the Anarchist series is about 0.007 MR/HR, whereas the background count in areas underlain by granitic rocks is about two to three times higher. The radioactivity of the granite is within the normal range found in granitic rocks elsewhere; much of the differences in radioactivity may be attributed to the differences in the amount of potash (including its radioactive isotope, K40) in the rocks, but it is the applicant's contention that the higher background in the areas underlain by the granitic rocks represents a large uranium ore body.

Within the area underlain by the granitic rocks the granite has a slightly higher background count than the diorite; generally, the background count in areas of diorite was 0.015-0.020 MR/HR and in granite 0.020-0.025 MR/HR. The highest radioactivity noted was in the alaskitic and feldspathic dikes, sills, and irregular lenses. The highest count noted was 0.40 MR/HR on a 1/2- to 2-inch alaskitic stringer in the No. 1 pit (pl. 2).

Seven samples were taken in areas showing the highest radioactivity on the property; the locations where these samples were taken are shown on plate 2, and the results are tabulated on the next page.

Sample No.	Width (feet)	%eU	%U	Description
R-1	0.15	0.045	0.031	1/2"-4" stringer of alaskitic material in Pit No. 1
R-2	6.0	0.004	<0.001	Zone of irregular pods and lenses along west wall of Pit No. 1
R-3	3.2	0.007	0.003	Sample across north wall of Pit No. 1
R-4	Grab	0.027	0.020	Grab of small pile of alaskitic material on dump of Pit No. 1
R-5	35.0	0.004	0.001	Sample across granite band in railroad cut
R-6	1.0	0.012	0.006	Sample across small feldspathic dike in railroad cut
R-7	0.3	0.002	0.001	Small quartz pod in No. 3 pit

When one considers that the above samples represent the highest grade material that can be obtained from the property, it is clearly evident that the property is of no interest as a uranium prospect.

Thorium assays of the above samples were not made because the highest theoretical thorium content of the best sample, R-1, would be only 0.07 percent thorium.

CONCLUSIONS

Neither the McDaniel nor Riverside properties are of any possible interest as uranium prospects as there are no significant occurrences of radioactive minerals on either property.

Lamping of the McDaniel property with an ultraviolet lamp failed to confirm the presence of scheelite as reported by the applicant.

The applicant has no great knowledge of mining or geology and should the applicant--or for that matter any responsible officer of the American Strategic Minerals Corporation--present another application for DMEA assistance at some future date, it would be well to require them to present a reliable geologic or engineering report on the property before a field examination is considered.

Enclosures (2)
Distribution:
DMEA(4) ✓ Docket No. DMEA-3790
USBM(2) Docket No. DMEA-4022
USGS(SRO)
AEC, Salt Lake (2)
Quinlan

11/15/55-gla

AMERICAN STRATEGIC MINERALS CORPORATION

P. O. BOX 523
TONASKET, WASHINGTON

WALTER S. PRICE, PRES.
GORDON D. LUTHER, VICE PRES.
RUTH A. PRICE, SEC.-TREAS.

SEATTLE ADDRESS:
104 PREFONTAINE PLACE
SEATTLE 4, WASHINGTON
PHONE: MAIN 7233

November 9, 1955

United States Department of the Interior
Defense Minerals Exploration Administration
Washington 25, D.C.

Re: Docket No. DMEA-4022 (Uranium
Riverside Claims - Okanogan County, Washington

Dear Sirs:

There are transmitted herewith certified true copies of uranium and zirconium oxide assays. These assays were made from a cross-cut of the mineralized zone at five feet of depth. The scintillometer reading on a one-pound pulp sample was .05%. Further tests indicate that chemical content of this ore is approximately twice the radiometric assay. Tests have been made indicating that the U_3O_8 content of the ore roughly doubles each five feet of depth down to fifty feet. These determinations have been made on the basis of physical examination to fifteen feet and by geophysical examination to greater depths.

Since the field examination was performed by the field crew from the Spokane office of the D.M.E.A. on November 2, the points brought up in the first three paragraphs of your communication of October 20, 1955, would appear to be more or less academic.

With regard to the penultimate and final paragraphs of the above cited letter, specific targets are outlined on the claim map superimposed on the outlines of a township map which accompanied our application. The specific targets are shown as three open cuts and ten core drill holes. Accompanying this map is a township map, which together with the geologic map of the Oroville-Nighthawk District, which itself is imprinted upon the outlines of the sections in the township involved, should enable anyone to determine within a few feet the exact location of the targets outlined.

In any case, the field crew from the Spokane office has field notes, and an outline of the proposed exploratory work, together with ore samples from the areas involved.

Very truly yours,

Walter S. Price

Walter S. Price

Copy to
Spokane Office, D.M.E.A.

WSP:RP

Enclosure - 1

RECEIVED
NOV 14 1955

COPY

SMITH'S LABORATORY

Chemist and Assayer

MOAB, UTAH

American Strategic Minerals Corp.
Tonasket,
Washington.

October 14, 1955.

666

Sample Description Riverside No. 1	% U_3O_8
Original	o.102
Non-magnetic	0.126
Magnetic	0.078

/s/J. Earl Smith
Chemist

Total charges $10.00 Paid.

Certified to be a true copy of the signed original.

Walter S. Price

Walter S. Price

RECEIVED
NOV 14 1955

COPY

REPORT OF ASSAY

ABBOT A. HANKS, INC.
Assayers, Chemists, Engineers
624 Sacramento Street
San Francisco,

October 24, 1955.

Deposited by American Strategic Minerals
P. O. Box 523,
Tonasket, Washington.

Sample of ORE

Labty. No.	Mark	Percentages
90085	Riverside No. 1	ZIRCONIUM OXIDE 0.15%

bob

ABBOT A. HANKS, INC.

/s/Ralph A. Nice

Certified to be a true copy of the signed original.

Walter S. Price

Walter S. Price

AMERICAN STRATEGIC MINERALS CORPORATION
P. O. BOX 523
TONASKET, WASHINGTON

WALTER S. PRICE, PRES.
GORDON D. LUTHER, VICE PRES.
RUTH A. PRICE, SEC.-TREAS.

SEATTLE ADDRESS:
104 PREFONTAINE PLACE
SEATTLE 4, WASHINGTON
PHONE: MAIN 7233

November 9, 1955

United States Department of the Interior
Defense Minerals Exploration Administration
Washington 25, D.C.

Re: Docket No. DMEA-4022 (Uranium
Riverside Claims - Okanogan County, Washington

Dear Sirs:

There are transmitted herewith certified true copies of uranium and zirconium oxide assays. These assays were made from a cross-cut of the mineralized zone at five feet of depth. The scintillometer reading on a one-pound pulp sample was .05%. Further tests indicate that chemical content of this ore is approximately twice the radiometric assay. Tests have been made indicating that the U_3O_8 content of the ore roughly doubles each five feet of depth down to fifty feet. These determinations have been made on the basis of physical examination to fifteen feet and by geophysical examination to greater depths.

Since the field examination was performed by the field crew from the Spokane office of the D.M.E.A. on November 2, the points brought up in the first three paragraphs of your communication of October 20, 1955, would appear to be more or less academic.

With regard to the penultimate and final paragraphs of the above cited letter, specific targets are outlined on the claim map superimposed on the outlines of a township map which accompanied our application. The specific targets are shown as three open cuts and ten core drill holes. Accompanying this map is a township map, which together with the geologic map of the Oroville-Nighthawk District, which itself is imprinted upon the outlines of the sections in the township involved, should enable anyone to determine within a few feet the exact location of the targets outlined.

In any case, the field crew from the Spokane office has field notes, and an outline of the proposed exploratory work, together with ore samples from the areas involved.

Very truly yours,

Walter S. Price

Walter S. Price

Copy to
Spokane Office, D.M.E.A.

WSP:RP

Enclosure - 1

COPY

SMITH'S LABORATORY

Chemist and Assayer

MOAB, UTAH

American Strategic Minerals Corp.
Tonasket,
Washington.

October 14, 1955.

666

Sample Description Riverside No. 1	% U_3O_8
Original	0.102
Non-magnetic	0.126
Magnetic	0.078

/s/J. Earl Smith
Chemist

Total charges $10.00 Paid.

Certified to be a true copy of the signed original.

Walter S. Price

Walter S. Price

COPY

REPORT OF ASSAY

ABBOT A. HANKS, INC.
Assayers, Chemists, Engineers
624 Sacramento Street
San Francisco,

October 24, 1955.

Deposited by American Strategic Minerals
P. O. Box 523,
Tonasket, Washington.

Sample of ORE

Labty. No.	Mark	Percentages
90085	Riverside No. 1	ZIRCONIUM OXIDE 0.15%

bcb

ABBOT A. HANKS, INC.

/s/Ralph A. Nice

Certified to be a true copy of the signed original.

Walter S. Price

Walter S. Price

AMERICAN STRATEGIC MINERALS CORPORATION
P. O. BOX 523
TONASKET, WASHINGTON

WALTER S. PRICE, PRES.
GORDON D. LUTHER, VICE PRES.
RUTH A. PRICE, SEC.-TREAS.

SEATTLE ADDRESS:
104 PREFONTAINE PLACE
SEATTLE 4, WASHINGTON
PHONE: MAIN 7233

November 9, 1955

United States Department of the Interior
Defense Minerals Exploration Administration
Washington 25, D.C.

Re:Docket No. DMEA-4022 (Uranium)
Riverside Claims - Okanogan County, Washington

Dear Sirs:

There are transmitted herewith certified true copies of uranium and zirconium oxide assays. These assays were made from a cross-cut of the mineralized zone at five feet of depth. The scintillometer reading on a one-pound pulp sample was .05. Further tests indicate that chemical content of this ore is approximately twice the radiometric assay. Tests have been made indicating that the U_3O_8 content of the ore roughly doubles each five feet of depth down to fifty feet. These determinations have been made on the basis of physical examination to fifteen feet and by geophysical examination to greater depths.

Since the field examination was performed by the field crew from the Spokane office of the D.M.E.A. on November 2, the points brought up in the first three paragraphs of your communication of October 20, 1955, would appear to be more or less academic.

With regard to the penultimate and final paragraphs of the above cited letter, specific targets are outlined on the claim map superimposed on the outlines of a township map which accompanied our application. The specific targets are shown as three open cuts and ten core drill holes. Accompanying this map is a township map, which together with the geologic map of the Oroville-Nighthawk District, which itself is imprinted upon the outlines of the sections in the township involved, should enable anyone to determine within a few feet the exact location of the targets outlined.

In any case, the field crew from the Spokane office has field notes, and an outline of the proposed exploratory work, together with ore samples from the area involved.

Very truly yours,

Walter S. Price

Walter S. Price

Copy to
Spokane Office, D.M.E.A.

WSP:RP

Enclosure - 1

COPY

SMITH'S LABORATORY

Chemist and Assayer

MOAB, UTAH

American Strategic Minerals Corp.
Tonasket,
Washington.

October 14, 1955.

Sample Description	%
Riverside No. 1	U_3O_8
Original	0.102
Non-magnetic	0.126
Magnetic	0.078

/s/J. Earl Smith
Chemist

Total charges $10.00 Paid.

Certified to be a true copy of the signed original.

Walter S. Price

Walter S. Price

COPY

REPORT OF ASSAY

ABBOT A. HANKS, INC.
Assayers, Chemists, Engineers
624 Sacramento Street
San Francisco, October 24, 1955.

Deposited by American Strategic Minerals
P. O. Box 523,
Tonasket, Washington.

Sample of ORE

Labty. No.	Mark	Percentages
90385	Riverside No. 1	ZIRCONIUM OXIDE 0.15%

bob

ABBOT A. HANKS, INC.

/c/Ralph A. Nice

Certified to be a true copy of the signed original.

Walter S. Price

Walter S. Price

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.
~~[illegible]~~
No. 157 Howard Street
Spokane 4, Washington

RECEIVED
NOV 4 1955

October 28, 1955

Mr. Ernest R. Thurlow
U. S. Atomic Energy Commission
P. O. Box 2196
Salt Lake City, Utah

Re: Docket No. DMEA-4022 (uranium-zirconium)
American Strategic Minerals Corporation
Riverside Claims
and
Docket No. DMEA-3790 (uranium-tungsten)
McDaniel Lease
Okanogan County, Washington

Dear Mr. Thurlow:

We have been requested to make field examinations of the McDaniel leases and Riverside group of claims in Okanogan County, Washington. The claims are owned by the American Strategic Minerals Corporation of Seattle, Washington; Mr. Walter S. Price is the president.

Copies of the applications are enclosed. We would greatly appreciate any comments you may have about the properties, particularly if any of your people have seen them. As you may suspect, we are not favorably impressed with the application but will have to see it in the field anyway.

Sincerely yours,

A. R. Weissenborn
Executive Officer, DMEA
Field Team, Region I, NW District

Enclosure

cc: DMEA (2)
DMEM (2)
Q. Jones

10/31/55 gla

IN REPLY REFER TO

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

RECEIVED
OCT 31 1955

October 28, 1955

Memorandum

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

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

Subject: Review of Application, DMEA 4022 (uranium and zirconium), American Strategic Minerals Corporation, Riverside claims, Okanogan County, Washington.

The applicant, in a vague and poorly prepared application, proposes to explore for uranium and zirconium at an estimated cost of $63,050.00.

There is little to justify approval of the proposal in the application. In a letter to DMEA dated October 10, 1955, the applicant states, "The applicant has had surface material assayed which ran .024 U_3O_8. . . . now have much higher grade ore in process of being analyzed and assayed at Moab, Utah." The application is documented with U.S.G.S. Bulletin No. 5, which covers the area in question. No mention is made of zircon or uranium minerals. The general vicinity, however, is richly mineralized, and the author of Bulletin No. 5 admits that his mineral list is incomplete.

Experience with DMEA Docket 3790, by the same applicant, shows that requesting the applicant for more information would probably not bring the desired results.

Inasmuch as the Field Team has been requested to make a field examination of DMEA 3790, the locale of which is only a few miles south of the subject property, I recommend that the Field Team be requested to examine also the subject property. Since the properties are not far apart perhaps they could be examined during the same trip.

WPWilliams

W. P. Williams

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

RECEIVED
OCT 31 1955

October 28, 1955

Memorandum

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

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

Subject: Review of Application, DMEA 4088 (uranium and zirconium), American Strategic Minerals Corporation, Riverside claims, Okanogan County, Washington.

The applicant, in a vague and poorly prepared application, proposes to explore for uranium and zirconium at an estimated cost of $63,050.00.

There is little to justify approval of the proposal in the application. In a letter to DMEA dated October 10, 1955, the applicant states, "The applicant has had surface material assayed which ran .08% U_3O_8. . . . now have much higher grade ore in process of being analyzed and assayed at Moab, Utah." The application is documented with U.S.G.S. Bulletin No. 5, which covers the area in question. No mention is made of zircon or uranium minerals. The general vicinity, however, is richly mineralized, and the author of Bulletin No. 5 admits that his mineral list is incomplete.

Experience with DMEA Docket 3790, by the same applicant, shows that requesting the applicant for more information would probably not bring the desired results.

Inasmuch as the Field Team has been requested to make a field examination of DMEA 3790, the locale of which is only a few miles north of the subject property, I recommend that the Field Team be requested to examine also the subject property. Since the properties are not far apart perhaps they could be examined during the same trip.

WPWilliams:iml
G-10/28/55

W. P. Williams

cc: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
J. E. Crawford, 3641
J. O. Kosted, 3210

Surname copy

700

Ching
Ellis
Selfridge
Bjornson

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

OCT 27 1955

Mr. A. E. Weissenborn
Executive Officer, Northwest District
DMEA Field Team, Region I
South 157 Howard Street
Spokane 4, Washington

Re: Docket No. DMEA-4022 (Uranium)
American Strategic Minerals Corporation
Riverside claims
Okanogan County, Washington

Dear Mr. Weissenborn:

Reference is made to your letter of October 17 requesting a copy of a geologic report by Mr. Forbes Robertson on the subject property.

Your attention is called to Mr. Ernest Wm. Ellis' letter of October 20 to the Applicant, pointing out the deficiencies in the application. To date, the geologic report in question has not been received in Washington. All supplemental information received in this office will be forwarded to you when received.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (GCS)

APPROVED:

/s/ O. M. Bishop (GCS)
Member, Bureau of Mines

Thor H. Kiilsgaard
Member, Geological Survey (GCS)

MChing/gla
10-25-55
cc to: Admr.'s Reading File
Operating Committee
Docket
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA
Code 700
Mr. Ching

RCB.

10/31/55 gla

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D.C.~~
So. 157 Howard Street
Spokane 4, Washington

RECEIVED
OCT 28 1955

October 25, 1955

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-3790 (uranium-tungsten)
McDaniel Lease
and
Docket No. DMEA 4022 (uranium-zirconium)
Riverside Claims
American Strategic Minerals Corporation
Okanogan County, Washington

Dear Mr. Selfridge:

In reply to your teletype of October 25, 1955, we had already scheduled examination of properties on November 1 and 2, 1955. Mr. Paul Weis, who is in charge of this area's radioactive reconnaissance project, will accompany Mr. J. J. Quinlan of the DMEA group.

Sincerely yours,

Verne C. Fryklund Jr.

Verne C. Fryklund, Jr.
For: A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region I, NW District

cc: USBM (2)
Quinlan

Surname copy

Ching
Ellis
Selfridge
Johnson

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

OCT 25 1955

Department of the Interior

DMEA

14X1401(G1) Revolving Fund,
Defense Production Act, Interior
(Allocated Working Fund to the
Office of the Secy.)

(Uranium)

TELETYPE

A. E. WEISSENBORN, EXECUTIVE OFFICER
NORTHWEST DISTRICT
DMEA FIELD TEAM, REGION I
SOUTH 157 HOWARD STREET
SPOKANE 4, WASHINGTON

RE AMERICAN STRATEGIC MINERALS CORPORATION DOCKET 4082.

IN VIEW LATENESS OF SEASON SUGGEST EXAMINATION BE MADE SAME TIME AS

DOCKET 3790 UNLESS FIELD TEAM HAS SERIOUS OBJECTIONS.

George C. Selfridge (2/5)

GEORGE C. SELFRIDGE
CHAIRMAN, OPERATING COMMITTEE

MChing/gla
10-25-55
cc to: Admr.'s Reading File
Operating Committee
Docket
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA
Code 700
Mr. Ching
Confirmation to Region I, NW Dist.

R.C.S.

Surname copy

700

Ching
Ellis
Fitzsimmons

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

Mr. Walter S. Price, President OCT 20 1955
American Strategic Minerals Corporation
P. O. Box 523
Tonasket, Washington

Re: Docket No. DMEA-4022 (Uranium)
Riverside Claims
Okanogan County, Washington

Dear Mr. Price:

A review of the subject application for Government aid in an exploration project discloses that it is too incomplete to process further at this time.

As in the case of your first application (Docket No. DMEA-3790), you have failed to describe to our satisfaction the various features listed in Articles 4 (a), 4(c), and 5(b) of the application form. For instance, under 4(a) you state that sufficient drilling and excavating have been done to verify that the ore body is 800 feet wide and about 1½ miles long and that by geophysical examination it has been determined that the ore body runs from 5,000 to 6,000 feet deep. However, you did not describe fully the drilling and excavating that was done or show their location on a workable-size map of the property. Neither did you present information in the form of radiometric survey data, sampling procedure, or assay returns that would indicate the presence of an ore body, the minerals contained, and the degree of mineralization.

Under 4(c) you refer only to Bulletin No. 5, Washington Geological Survey. No property map showing details of geology was enclosed. Bulletin No. 5 describes the general and economic geology of a comparatively large area which includes six mining districts. A general description of the disseminated copper deposits, and of the gold, silver, and copper vein deposits of the area is given. No mention is made of uranium mineralization in the area, and no specific information on your property is given.

With respect to 5(b), we refer you to the fifth paragraph of our letter of May 12, 1955, under Docket No. DMEA-3790. You have failed to demonstrate the presence of specific targets for exploration and you have not related the proposed exploration work to such features as contacts, veins, ore-bearing beds, etc.

R.C.S.

In short, your application does not contain the specific information and supporting evidence that is required by us to justify a field examination of your property. We shall hold your application in abeyance until such information is supplied. However, since we cannot hold the application open indefinitely, it would be appreciated if you will advise us promptly as to the feasibility of supplying the required information.

Sincerely yours,

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

MChing/gla
10/19/55
cc to: Admr.'s Reading File
Docket
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA
Code 700, Mr.Ching
DMEA Field Team, Region I, Northwest District (2)

10/21/55 gla

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

October 19, 1955

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee, Room 4445

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

Subject: Application for Assistance, DMEA Docket 4022, American Strategic Minerals Corporation, Riverside claims, Okanogan County, Washington

I have reviewed the attached application, American Strategic Minerals Corporation, DMEA Docket 4022; and I have discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

The American Strategic Minerals Corporation wishes to explore for uranium on Mt. Ellemeham, Okanogan County, Nighthawk District, Washington.

The applicant reports that a possible uraniferous magnetite deposit has been discovered covering an area 800 feet wide by 1½ miles long and extending to a depth of 5,000 to 6,000 feet. It is also inferred by the applicant that samples of representative material taken from outcroppings assayed .024 percent U_3O_8. Some drilling and excavating has apparently been carried out by the company on the subject claims.

The applicant desires to prepare a series of excavations to expose the ore body to determine its amenability to open-cut mining methods. It has also been requested to allow some core drilling to ascertain the grade of the uranium-bearing material at depth. Excavation costs appear to be reasonable, but drilling costs seem excessive, as do some other operating and maintenance costs listed.

Because (1) the geology and mineralization of the claims and surrounding area has been inadequately described, (2) the drilling and excavation project has not been correlated with the mineralized zone on a suitable sketch map, and (3) insufficient

analyses of representative material were provided, we suggest that the application be denied.

John E Crawford
John E. Crawford

Attachment

10/20/55 gla

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

So. 157 Howard Street
Spokane 4, Washington

October 17, 1955

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

DMEA-4022

Re: New application (uranium & zirconium)
American Strategic Minerals Corp.
Riverside claims
Okanogan County, Washington

Dear Mr. Selfridge:

This is a further comment about the American Strategic Metals Corporation application.

Mr. Price showed us a copy of a geologic report by Mr. Forbes Robertson on his property and said copies had been sent to Washington. The report seemed quite complete and as we have confidence in Mr. Robertson's geology, we would appreciate having a copy.

Very truly yours,

Verne C. Frykland, Jr.
For: A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region I, NW Dist.

cc: USGS (2)
Kellum

October 18, 1955

Subject: DMEA-4022
Re: Exploration

American Strategic Minerals Corp.
P.O. Box 523
Tonasket, Washington

Gentlemen:

The receipt of your application dated October 10, 1955 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-4022 and referred to the Rare & Miscellaneous Metals Division.

Kindly identify all future correspondence relating to your application by this docket number.

Sincerely yours,

Robert E. Adams, Chief
Operations Control and
Statistics Division

60932

October 18, 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region I (NW)

From: Chief, Operation's Control and Statistics Division

Subject: Assignment of Docket Number

There is listed below the assigned docket number to an application recently received from Region I (NW).

DMEA-4022 American Strategic Minerals Corp.

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D.C.~~
So. 157 Howard Street
Spokane 4, Washington

October 13, 1955

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Re: New application (uranium & zirconium)
American Strategic Minerals Corporation
Riverside claims
Okanogan County, Washington

Dear Mr. Selfridge:

Enclosed are three copies of a new application by American Strategic Minerals Corporation, three copies of a letter from Mr. Walter S. Price with one copy of a map and three copies of a letter from Mr. Lewie Williams to Mr. Price. This map is the product of a "geophysical survey" made by Mr. Satterlee and we have not attempted to make additional copies.

Mr. Price and Mr. Satterlee talked with Mr. Weissenborn and myself for over an hour October 11, 1955. The deposit is apparently unique in that the contained uranium is largely "non-radioactive".

The new application is no more complete than the first (Docket No. DMEA-3790, McDaniel Leases, Okanogan County, Washington) submitted by the company. We do not plan to schedule an examination unless requested.

Sincerely yours,

Verne C. Fryklund Jr.

Verne C. Fryklund, Jr.
For: A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region I, NW District

Enclosures

cc: USBM (2)
Kellum

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D.~~ C.
No. 157 Howard Street
Spokane 4, Washington

October 13, 1955

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

4022

Re: New application (uranium & zirconium)
American Strategic Minerals Corporation
Riverside claims
Okanogan County, Washington

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Sincerely yours,

Verne C. Fryklund, Jr.
For: A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region I, NW District

Enclosures

cc: DMEA (2)
Kallum

AMERICAN STRATEGIC MINERALS CORPORATION
P. O. BOX 523
TONASKET, WASHINGTON

WALTER S. PRICE, PRES.
GORDON D. LUTHER, VICE PRES.
RUTH A. PRICE, SEC.-TREAS.

SEATTLE ADDRESS:
104 PREFONTAINE PLACE
SEATTLE 4, WASHINGTON
PHONE: MAIN 7233

RECEIVED OCT 17 1955

October 10, 1955

U. S. Department of the Interior
Defense Minerals Exploration Administration
Washington, D.C.

Attention, Mr. Ernest Wm. Ellis, Chief
Rare and Miscellaneous Metals Division

Dear Sirs:

Reference is made to previous D.M.E.A. application, Docket No. 3790, dated March 30, 1955.

Based on oral suggestion of Mr. Ernest Wm. Ellis in his office on September 19, 1955, we are submitting herewith a new application, rather than an amendment to Docket No. 3790, to cover additional radioactive properties that we have recently acquired.

There are enclosed herewith (in quadruplicate):

1. Application
2. Owners' Consent to Lien
3. Option with Lease and Purchase Agreement
4. Certified true copies of Notice of Mining Location, covering fourteen claims. (Note: We also have a quarter section of State School Lands included in the Option; however, we do not plan to explore these properties at this time).
5. Copy of Power of Attorney of Ray Silvers
6. Map of Claims, indicating target areas
7. Township map
8. Geological Map of Oroville-Nighthawk District
9. Reprint from Part II of Washington Geological Survey, Bulletin No. 5.

The State Geologist of the State of Washington has tentatively identified this ore as "uraniferous magnetite". He states "such a material is reported rather rarely, but, so far, we have found nothing in the literature to prove its existence and indicate that such identifications have been accurate."

The applicant has had surface material assayed which ran .024 U_3O_8. Since that time we have done considerable exploratory work, and now have much higher grade ore in process of being analyzed and assayed at Moab, Utah.

Since acquiring these properties, applicant has built a four mile road across the face of Mt. Ellemeham to the operating site.

On the basis of preliminary work, it appears likely that this ore can at least be partially concentrated by electro-magnetic separation.

It is also indicated that the tailings, after the electro-magnetic separation, can be washed to eliminate calcium, sodium, potassium, and a part of the aluminum and silicon, leaving a fairly high grade concentrate of zirconium. Laboratory work on this is being accomplished at various places, the results of which will be communicated to you when received.

Since the season is so far advanced, prompt action on this application will be greatly appreciated.

Very truly yours,

Walter S. Price

Walter S. Price, President.

WSP:RP

Enclosures.

AMERICAN STRATEGIC MINERALS CORPORATION
P. O. BOX 523
TONASKET, WASHINGTON

WALTER S. PRICE, PRES.
GORDON D. LUTHER, VICE PRES.
RUTH A. PRICE, SEC.-TREAS.

SEATTLE ADDRESS:
104 PREFONTAINE PLACE
SEATTLE 4, WASHINGTON
PHONE: MAIN 7233

RECEIVED
OCT 11 1955
U. S. G. S.
SPOKANE, WASH.

October 19, 1955

U. S. Department of the Interior
Defense Minerals Exploration Administration
Washington, D.C.

Attention, Mr.Ernest Wm. Ellis, Chief
Rare and Miscellaneous Metals Division

Dear Sirs:

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Since the season is so far advanced, prompt action on this application will be greatly appreciated.

Very truly yours,

Walter S. Price

Walter S. Price, President.

WSP:RP

Enclosures.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

RECEIVED
OCT 1 7 1955

RECEIVED
OCT 11 1955
U. S. G. S.
SPOKANE, WASH.

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

Not to be filled in by applicant

Docket No. 4022
Metal or Mineral Uranium
Date Received 10-17-55
Estimated Cost 63,050.00
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: American Strategic Minerals Corporation
P. O. Box 523,
Tonasket, Washington.

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

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

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

2. *General.*—Read DMEA Order 1, "Government Aid in Defense Exploration Projects," before completing this application. Submit this application and all accompanying papers in quadruplicate (four copies), with your name and address on each sheet of the application and on all accompanying papers. Where sufficient space is not provided on the form for all required information, state it on an accompanying paper, with a reference in each case to the instruction to which it refers by number. Comply with all applicable instructions; or, if not applicable, so state. File the application with Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C., or with the nearest field executive officer thereof.

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract See attached.

(*b*) State any mine name by which the property is known.

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

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property. Attached herewith.

(*e*) If you own the land, describe any liens or encumbrances on it Not applicable.

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

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

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

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

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

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

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

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

(*c*) The work will start within 30 days and be completed within 12 months from the date of an exploration project contract.

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

6. *Estimate of costs.*—Furnish a detailed estimate of the costs of the proposed work (you will have to use a separate sheet), under the following headings. Add the totals under all headings to give the estimated total cost of the project:

(*a*) *Independent contracts.*—(Note.—If the applicant does not intend to let any of the work to contractors, write "none" after this item. To the extent that the work is to be contracted, do not repeat the cost of the contract-work in subsequent items.) State the cost of any proposed independent contracts for the performance of all or any part of the work, expressed in terms of units of work (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved, etc.).

(*b*) *Labor, supervision, consultants.*—Include an itemized schedule of numbers, classes and rates of wages, salaries or fees for necessary labor, supervision and engineering and geological consultants.

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel.

(*d*) *Operating equipment.*—Furnish an itemized list of any operating equipment to be rented, purchased, or which is owned and will be furnished by the Operator, with the estimated rental, purchase price, or suggested use-allowance based on present value, as the case may be.

(*e*) *Rehabilitation and repairs.*—Furnish a detailed list showing the cost of any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures, and movable operating equipment, now owned by the Operator and which will be devoted to the exploration project.

(*f*) *New buildings, improvements, installations.*—Furnish a detailed list showing the cost of any necessary buildings, fixed improvements, or installations to be purchased, installed or constructed for the benefit of the exploration project.

(*g*) *Miscellaneous.*—Furnish a detailed list showing the cost of repairs to and maintenance of operating equipment (not including initial rehabilitation or repairs of the Operator's equipment), analytical work, accounting, workmen's compensation and employers' liability insurance, and payroll taxes.

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

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

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

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

[X] Money [X] Use of equipment owned by you [ ] Other

Explain in detail on acompanying paper.

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief.

Dated October 10, 1955.

American Strategic Minerals Corp.
(Applicant)

By Walter S. Price
Walter S. Price, President.
P. O. Box 523,
Tonasket, Washington.

Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

U. S. GOVERNMENT PRINTING OFFICE 16—66551-1

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APPLICATION OF AMERICAN STRATEGIC MINERALS CORPORATION.

Replies to Instructions contained in Form MF-103 attached.

1. (b) Corporation organized in the State of Washington.
(c) Walter S. Price, President, P.O. Box 523, Tonasket, Washington.
(2) Gordon D. Luther, Vice-President 3727 Bagley Ave., Seattle 3, Washington.
(3) Mrs. Ruth A. Price, Secretary-Treasurer 903-9th Avenue, Seattle 4, Washington.

(d) Not applicable.

3. (a) Option with lease and purchase agreement on 14 unpatented claims located in Section 9, Township 40 N., Range 26 E.W.M., Okanogan County, Washington. (Township map attached.)

(b) Riverside Claims.
(c) Option providing for lease (5 years or more) and Purchase Agreement.
(d) Copies of Option, Lease and Purchase Agreement submitted herewith.
(e) Not applicable,
(f) Claim No. 1 filed Book 13, page 201;
No. 2 " Book 13, page 202;
No. 3 " Book 13, page 203;
No. 4 " Book 13, page 204;
No. 5 " Book 13, page 205;
No. 6 " Book 13, page 206;
No. 7 " Book 13, page 207;
No. 8 " Book 13, page 208;
No. 9 " Book 13, page 209;
No.10 " Book 13, page 210;
No.11 " Book 13, page 211;
No.12 " Book 13; page 212;
No.13 " Book 13, page 213;
No.14 " Book 13, page 214;
all recorded in Okanogan County, Washington.

4. (a) Sufficient drilling and excavating have been done to verify that the ore body is 800 feet wide and about 1½ miles long. By geophysical examination it has been determined that the ore body runs from 5,000 to 6,000 feet deep. We have just completed a road into the property over which a four wheel drive vehicle can operate. The properties are accessible from Nighthawk, Washington.
(b) There has been no production.
(c) See Bulletin No. 5, Washington Geological Survey, and map enclosed herewith.
(d) Properties are quite accessible; a branch of the Great Northern Railroad runs through the property. For the time being it is not plannedto do any building on the property since employees can live at Oroville (8 miles) or Nighthawk (4½ miles).

(g) Manpower is available at Nighthawk or Oroville. Materials, supplies and equipment are available from various points on the Okanogan River Valley and at Spokane. Water can be obtained from the Similkameen River which runs through the properties; and power is available through the Okanogan P.U.D. The main power line traverses the area about a quarter mile from the property.

5. (a) Uranium and Zirconium.

(b) It is proposed to expose the ore body by a series of excavations and core drilling. The excavations to be accomplished for the purpose of exposing the ore body and for the determination as to whether the ore is amenable to open cut methods of development. The core drilling to be accomplished to verify values at various depths.

It is believed that $13,000 should be budgeted for drilling and bull-dozing three open cuts: one on the foot wall(east) side of ore body; one in the middle of Location No. 1, and one on the hanging wall (west) side of the ore body. These open cuts to be approximately 100 feet wide across the ore body, 25 feet deep, developing a 100 foot bench; roughly 10,000 cubic yards of rock and overburden.

Very little preliminary work will be required for setting up core-drill rigs, since it is quite level in most areas where core-drilling may be programmed. $35,000 for 5,000 feet of core hole should be budgeted.

(c) See form.

(d) See Docket No. 3790.

6. Estimate of costs:

(a) Independent contracts:	
(1) D-6 Bulldozer, 600 hrs. @ $12 pr hr.	$7,200.00
(2) Wagon Drill rig with compressor (210 cu. ft.)and 2 man crew, 600 hrs. at $8.00 per hr.	4,800.00
(3) 5,000 feet of core drilling @ $7.00 per foot	35,000.00
(b) Labor, supervision and consultants (The amount of this figure will depend on the disposition of Docket 3790, since the management and supervision will be the same for both projects).	6,000.00
(c) Operating materials and supplies:	
Powder (10,000 yds. @ .25 per yd.)	2,500.00
Drill steel and tools	1,500.00
(d) Operating equipment: The operator has an Atlas Diesel Compressor, Copco Jack Hammer and drill steel, 4 wheel drive Wilys Pick-up, total value $10,000 - use allowance based on present value $150 per month fro 12 months	1,800.00
(e) Rehabilitation and repairs:	None.
(f) New buildings, improvements and installations: The only building that will be required at this stage will be a field tool house, and storage shed,	1,000.00
(g) Miscellaneous:	
Assays and laboratory work (See docket No. 3790)	1,000.00
Workmen's Compensation, insurance, and payroll taxes	750.00
(h) Reserve for contingencies	1,500.00
	$63,050.00

7. (b) We will furnish about $10,000 worhh of equipment either on a purchase price basis or use allowance basis, depending upon the disposition of Docket No. 3790. The balance to be furnished in cash deposited in the Pacific National Bank of Seattle.

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OWNER'S CONSENT TO LIEN

WHEREAS, the undersigned, as owners and in possession of certainlode mining claims and a prospecting lease from the State of Washington, more particularly described as follows:

Six (6) Lode mining claims, known as Riverside No. 1 to 6 inclusive, and filed in the Recorder's Office of said Okanogan County, Washington, on or about July 25, 1955; and Eight (8) Lode Mining Claims, known as Riverside No. 7 to 14 inclusive, filed on or about August 27, 1955, in said Recorder's Office. All of said claims being located in Section Nine (9), Township Forty (40) North, Range 26 EWM. All of said claims being subject to whatever overlap there may be on the North One-half (1/2) of the Southeast One-fourth (1/4) of said Section Nine (9); provided the mineral rights on said subdivision is not subject to mineral location. There is also included herein any additional claims which are being or will be located by the lessors adjoining the above claims. There is also included all of the rights of the lessors in and to a certain prospecting lease from the State of Washington on the Northwest Quarter (NW¼) of Section Sixteen (16), Township Forty North (40N), Range 26 EWM, to be sublet or transferred in accordance with the rules and regulations prescribed by the State of Washington.

Which are the subject of a proposed exploration contract, hereinafter called the "contract" between the United States of America, hereinafter called the "Government" and American Strategic Minerals Corporation, a Washington corporation, hereinafter called the "Operator"; and

WHEREAS, under the provisions of said Contract, the Government is entitled to a percentage royalty on production and to other rights and equities which do or may conflict with or be adverse to the rights of the undersigned;

NOW, THEREFORE, the undersigned, in consideration of said contract, and as an inducement to the Government to enter into same, undertake and agree as follows:

1. The Government's equity in and right to dismantle, sever, take possession of, and remove and dispose of facilities, buildings, fixtures, equipment, or other items as provided in the contract or any amendment thereof shall prevail over and be prior and superior to any conflicting or adverse rights of the undersigned, and theGovernment is authorized to enter upon the land for such purposes.

2. To secure the payment to the Government of the percentage royalty on production, provided for under the terms of said exploration project contract or any amendment thereof, there is hereby granted to the Government a lien upon the land above referred to and upon any production of minerals therefrom until said royalty is fully paid or ten years have elapsed from the date of the contract, whichever occurs first.

3. The undersigned shall commit no act nor assert any claim that may contravene or conflict with the lien, claim, or rights of the Government under the provisions of said contract. This agreement shall be binding upon the heirs, executors, administrators, successors, and assigns of the undersigned.

4. Changes and added provisions: The phrase "a lien upon the land" occurring in paragraph 2 shall be construed to cover only the certain lode mining claims, and prospecting lease above described, held by the undersigned.

Dated this _____ day of September, 1955.

_____ Seal
Percy Eastman

_____ Seal
Ray Silvers

_____ Seal
George Dixon

_____ Seal
W. J. Schildgen

_____ Seal
Emil Twait

O P T I O N

THIS AGREEMENT, made and entered into this 31st day of August, 1955, by and between PERCY EASTMAN, RAY SILVERS, GEORGE DIXON, W. J. SCHILDGEN, and EMIL TWAIT of Loomis, Washington, hereinafter called "First Parties", and AMERICAN STRATEGIC MINERALS CORPORATION, a corporation organized and existing under the laws of the State of Washington, with its principal place of business at Tonasket, Washington, hereinafter called "Second Party,"

W I T NE S S E T H:

WHEREAS, First Parties are the owners and in possession of certain lode mining claims and a prospecting lease from the State of Washington hereinafter more particularly mentioned and described; and

WHEREAS, First Parties believe that said lode mining claims, ground, and premises disclose mineral deposits of great value as well as potential development of great ore bodies; and

WHEREAS, the proper development of such ore bodies, both present and in expectancy and the proper reduction and treatment thereof will necessitate the outlay of large sums of money; and

WHEREAS, Second Party is able and willing to furnish the money for such development work, but only under and in accordance with the terms and subject to the conditions hereinafter set forth;

NOW, THEREFORE, for and in consideration of Six hundred ($600.00) Dollars by Second Party, receipt whereof is hereby acknowledged, and for and in consideration of the mutual covenants of the parties by each to the other made and herein contained, the parties hereto agree as follows:

1. First Parties grant to Second Party for nine months from the date hereof an option on the terms and conditions in this agreement set forth, to receive a mining lease in the form hereto annexed and hereby referred to and made a part hereof, of said above mentioned mineral properties, being all of those certain lode mining claims and prospecting lease, lying and being in the Nighthawk Mining District, in the County of Okanogan, State of Washington, more particularly described as follows:

Six (6) Lode mining claims, known as Riverside No. 1 to 6 inclusive, and filed in the Recorder's office of said Okanogan County, Washington, on or about July 25, 1955; and Eight (8) Lode Mining Claims, known as Riverside No. 7 to 14 inclusive, filed on or about August 27, 1955, in said Recorder's Office. Allof said claims being

located in Section Nine (9), Township Forty (40) North, Range 26 EWM. All of said claims being subject to whatever overlap there may be on the North One-Half (1/2) of the Southeast One-Fourth (1/4) of said Section Nine (9); provided the mineral rights on said subdivision is not subject to mineral location. There is also to be included herein any additional claims which are being or will be located by the lessors adjoining the above claims. There is also included all of the rights of the lessors in and to a certain prospecting lease from the State of Washington on the Northwest Quarter (NW¼) of Section Sixteen (16), Township Forty North (40N), Range 26 EWM, to be sublet or transferred in accordance with the rules and regulations prescribed by the State of Washington.

Second party agrees to do location work on the first six above described laims.

2. That at any time during the period of said option Second Party shall have the right to enter into and take exclusive possession of all and singular said above described property and may as consideration for said option, prospect and explore, test, develop and work at its own discretion and at its own proper charge and expense said lode mining claims and prospecting lease and any one or more of them, provided all work done and all improvements made by Second Party on said property, or any part thereof, under the terms hereof during the period of said option shallbe done in a miner-like and proper manner to enable said premises and all thereof to be carefully operated, and so that the minerals therein contained may be extracted in an economical and miner-like manner. All equipment, tools, machinery, structures, improvements and personal property of every nature and description brought or placed upon said premises prior to the exercise of said option by Second Party for use in said work shall not become a fixture but shallremain the property of Second Party and subject to removalby Second Party and in the event Second Party shallnot exercise said option it shall be entitled to remove all of said equipment, tools, machinery, structures, improvements and personal property from said premises within sixty (60) days from the expiration of said option. And in further consideration for said option Second Party hereby agrees to enter said premises and undertake to carry out such investigation and exploration work at its own cost.

3. All ores extracted by Second Party during the aforesaid time prior to the exercise of said option shall be and remain the property of First Parties; provided, the Second Party is hereby given the right to take and have as its own for assay samples and mill tests from said mining claims and prospecting lease, ore or ores to the amount of one carload. In furtherance of the work contemplated in this and the preceding paragraphs, Second Party shall be entitled to use and enjoy any and all improvements, structures,

machinery, tools, equipment, or other personal property now situated on said premises and properties belonging to First Parties.

4. If at or before the expiration of said period of nine months the Second Party shall elect to exercise said above mentioned option and receive a mining lease to said premises as hereinabove provided, it shallso notify First Parties and it shall on such notice be entitled to receive in accordance with and subject to the terms of this contract a lease in the form of lease attached hereto and by reference made a part hereof, and First Parties hereby agree on cuch notice to make, execute and deliver such a lease to Second Party. In the event Second Party shall elect not to exercise said option, it shallpeaceably surrender and turn over said properties to First Parties in as good condition as they now are in, reasonable wear and tear excepted, and free and clear of any and allliens and incumbrances incurred by Second Party in its operations on or about the same.

5. First Parties represent and agree that the properties covered by this agreement are free from allliens and incumbrances of every nature and description, and during the period of said option First Parties agree to proect said properties from any and all liens and/or the possibility thereof, except such as may arise from the acts of Second Party on said property, and not to encumber said property or any part thereof; and the First Parties further agree to furnish Second Party satisfactory evidence of good title.

6. Second Party during its possession of said property and allthereof, agrees to protect said property and all thereof against all claims of labor and materialmen and against all liens and liabilities arising out of the acts of Second Party on said property, and to permit First Parties to place and maintain such notices thereon as shall be lawfully necessary to protect First Parties against cuch claims; and Second Party further agrees to hold harmless First Parties against any and all claims for damages for injury incurred by workmen in its employ at said properties,or any other person or persons.

7. It is agreed that during the possession of said property by Second Party under said option, Second Party shall permit a duly authorized representative of First Parties to be and remain on the property hereby demised, to represent First Parties and observe the performance by Second Party of each and all the terms of this agreement; provided that if said representative shall fail to work harmoniously with the superintendent of Second Party, or should the presence of said representative become a source of trouble, then on written request by Second Party to First Parties, First Parties shall see that such objectionable conduct shall cease or shall replace such representative with another so that the work may continue harmoniously and in the event that after such request such objectionable conduct on the part of such representative shall not cease, Second Party shall

be entitled to remove such representative from the premises and First Parties shall be entitled to appoint another representative to take the place of the representative so removed, as often as any particular representative shall become such source of trouble.

8. It is agreed that any time lost by reason of strikes, riots, acts of God or inevitable delays, is not to run against the time herein specified.

IN WITNESS WHEREOF, the said parties hereto have hereunto set their hands and seals this 31st day of August, 1955.

(signed)

PERCY EASTMAN

RAY SILVERS

WILLIAM J. SCHILDGEN

GEORGE DIXON

EMIL TWAIT
First Parties

Attest:
RUTH A. PRICE
Its Secretary
(Corporate Seal
American Strategic Minerals Corporation)

AMERICAN STRATEGIC MINERALS CORPORATION
By WALTER S. PRICE
Its President

State of Washington)
County of Okanogan) ss

On this day personally appeared before me Percy Eastman, Ray Silvers, George Dixon, W. J. Schildgen, and Emil Twait, to me known to be the individuals described in and who executed the within and foregoing instrument and acknowledged that they signed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 31st day of August, 1955.

H. A. DAVIS
Notary Public in and for the State of Washington, residing at Okanogan

State of Washington)
County of Okanogan)ss

On this 31st day of August, 1955, before me personally appeared Walter S. Price, to me known to be the President of the American Strategic Minerals Corporation, that executed the within and foregoing instrument, and acknowledged said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that he was authorized to execute said instrument, and that the seal affixed is the corporate seal of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

H.A. DAVIS
Notary Public in and for the State of Washington, residing at Okanogan.

RECEIVED
OCT 17 1955

MINING LEASE WITH OPTION TO PURCHASE

THIS IDENTURE, Made this 31st day of August, in the year of our Lord one thousand nine hundred and fifty-five, between PERCY EASTMAN, RAY SILVERS, GEORGE DIXON, W.J. SCHILDGEN, and EMIL TWAIT, of Loomis, Washington, hereinafter designated the lessors and AMERICAN STRATEGIC MINERALS CORPORATION, a corporation organized and existing under the laws of the State of Washington, with its principal place of business at Tonasket, Washington, hereinafter designated the lessee.

WITNESSETH, that the lessors for and in consideration of rents, royalties, covenants, and agreements hereinafter reserved, and by the lessee to be paid, kept and performed, have granted, demised, leased and let and by these presents do grant, demise, lease and let unto the lessee American Strategic Minerals Corporation, that certain mine and mining property situated in Nighthawk Mining District, Okanogan County, State of Washington, and more particularly described as follows, to-wit:

> Six (6) Lode mining claims, known as Riverside No. 1 to 6 inclusive, and filed in the Recorder's Office of said Okanogan County, Washington, on or about July 25, 1955; and Eight (8) Lode Mining Claims, known as Riverside No. 7 to 14 inclusive, filed on or about August 27, 1955, in said Recorder's Office. All of said claims being located in Section Nine (9), Township Forty (40) North, Range 26 EWM. All of said claims being subject to whatever overlap there may be on the North One-half (1/2) of the Southeast One-fourth (1/4) of Section Nine (9); provided the mineral rights on said subdivision is not subject to mineral location.
>
> There is also included all of the rights of the lessors in and to a certain prospecting lease from the State of Washington on the Northwest Quarter (NW¼) of Section Sixteen (16), Township Forty North (40N), Range 26 EWM, to be sublet or transferred in accordance with the rules and regulations prescribed by the State of Washington.

Together with the appurtenances, and rights and privileges to prospect the same for gold, precious metals and minerals, and mine and extract the same, and to sell, mill or smelt or otherwise reduce the same, including uranium and allother similar metals.

To have and to hold the same unto the said lessee for the term of five(5) years from date hereof and so long thereafter as said property is mined at a profit, unless sooner forfeited or determined through the violation of any covenant hereinafter against the said lessee reserved.

And in consideration of the said lease, demise and privileges, the lessee does covenant and agree with the lessor, as follows, to-wit:

To enter upon said mining claim and premises and work the same mining fashion, in manner necessary go good economical mining, so as to take out the greatest amount of ore, gold, precious metals and minerals, practicable with due regard to safety, development and preservation of the same premises as a workable mine, and to include uranium and all other similar minerals.

To work and mine said premises as aforesaid steadily and continuously from the date of this lease as weather and the season of the year will permit.

To keep all sluices, ditches, drains, waterways and passageways clearned of loose rock and rubbish, and to do allthings necessary to promote the usefulness of said mining property as a whole mine, and to develop the same and do no act thereon during the term of this lease, which would impede mining operations or impair the operating condition of said mining claim, and generally to so conduct operations as to conform to the laws of the United States and the State of Washington, and the local rules and regulations of miners in said mining district, and to do no act and suffer no default which might in any manner involve the said lessor, or their ownershipin said mining property, in liability of any kind or character.

To perform all necessary assessment work for each assessment year required to be done on said mining claims, and to record the same at least thirty (30) days before the end of each annual assessment period during the life of this lease.

To not locate or record said mining property, or allow the same to be recorded by anyone except the said lessor or agent. To not allow or permit any person or persons, except the said lessee, agent or workmen, to take or hold possession of said premises, or any part thereof, under any pretense whatever,

To not assign this lease, or any interest thereunder, and to not sublet the said premises or any part thereof, without written notice to said lessors.

To pay and deliver to said lessors, as rent and royalty, ten (10) per cent of the net yield of uranium, or similar metals, and of all gold, minerals, and precious metals to be extracted from said premises during said term, of like assay as that retained by said lessee, at such place as such lessors shall direct. And the lessee agrees to direct the smelter or purchaser of all ores to pay to lessors direct the above royalty, and if for any reason said purchaser or smelter refuses to do so, the lessee shall pay said royalty forthwith as returns are received by it.

To make no claims of any kind for bonuses paid by the United States Government on account of discovery of uranium on the said properties; and lessee hereby waives any right thereto.

To allow said lessors to be present at each and every cleanup, or sampling of ore extracted, and to inspect and examine the same.

To deliver up to said lessors the said premises with the appurtenances and all improvements in good order and condition, and the mine in allpoints ready for continued working (accidents not arising from negligence alone excusing) without demand of further notice, on said first day of September, A.D., 1960, at noon, unless mining operations continue at a profit, or at any time previous, upon demand for forfeiture,

Finally, upon the violation or failure to perform by said lessee, or any person under it, of any covenant or covenants hereinbefore reserved, the term of this lease, and all the rights and privileges thereunder, shall, at the option of said lessors, expire, and the same and said premises with the appurtenances shall at once become forfeited to said lessors, and the said lessors or their agent may thereupon, at the demand of possession in writing to be delivered to said lessee, or in its absence by posting said demand in a conspicuous place on said premises for the term of three days, enter upon said premises and dispossess all persons occupying the same, with or without force, and with or without process of law; or, at the option of said lessors, the said lessee and all persons found in occupation may be proceeded against as trespassers from the beginning of said term, both as to realty and the metals and minerals severed therefrom; or as guilty of unlawful detainer.

All notices required to be given hereunder by lessee to lessors may be delivered to Herbert A.Davis, Attorney, Okanogan, Washington, or Ray Silvers, Loomis, Washington, and the same shall constitute sufficient notice to each and all lessors herein.

It is further agreed that the lessee shall have the right and option to purchase the above described property at any time during the term of this lease, upon the payment to the lessors or their assigns on or before said date, the sum of Five hundred thousand ($500,000) Dollars, provided that the lessee has heretofore performed and fulfilled all the conditions of this lease.

Time is of the essence of this agreement, and if said purchase and full payment shall not be made on or before the expiration of this lease, then all the right of the lessee to purchase said property shall without further action on the part of the lessors entirely and completely terminate and be at an end.

Each and every clause and covenant of this indenture shall extend to the heirs, executors and administrators of all parties hereto;and to the assigns of said lessors;and as said lessors may elect to the assigns of said lessee.

IN WITNESS WHEREOF, the said parties, lessors and lessee have hereunto set their hands and seals.

Signed, Sealed & delivered
in presence of

_____ (Seal)

430174 NOTICE OF MINING LOCATION Book 13 page 201

State of Washington, Okanogan County, Night Hawk Mining District

NOTICE IS HEREBY GIVEN, That the undersigned, having complied with the requirements of Chapter 6 of Title 32 of the revised statutes of the U.S., and the above state, and the local customs and regulations of said District have located and do hereby locate 1500 linear feet in length, and 600 feet in width on the Riverside No. 1 lode, vein, ledge or deposit situated in the above State, County and Mining District, and further described as follows: Commencing at post marked No. 1 at the Discovery, from

thence 300 feet in a N direction to an end post marked No. 2,
thence 300 feet in a W direction to a corner post marked No. 3,
thence 1500 feet in a S direction to a corner post marked No. 4,
thence 600 feet in a E direction to a corner post marked No. 5,
thence 1500 feet in a N direction to a corner post marked No. 6,
thence 300 feet in a W direction to end post No. 2; hereby

locating and intending to claim 300 feet in a N direction from discovery to the N end line, and 1200 feet in the opposite direction from discovery to the S end line and 300 feet on each side

of the middle of said lode or ledge, for the purpose of mining the same and claiming all surface rights, privileges, minerals, with all dips, spurs, angles and variations. This claim is further described as follows:

In Section No. 9, R 26, TWP 40, South side Similkameen River.

This notice is placed at discovery on post No. 1; posts are placed at each corner, and the name of this lode, is placed on each post.

Located this 20th day of July, A.D. 1955.

Locators: Emil Twait
William J. Schildgen
Ray Silvers
Percy Eastman
George Dixon

No. 430174 Recorded Sep 6, 1955, Okanogan County, Wash. Filed by Percy Eastman. Aug 30 1955 10:15 A.M. Book 13 Quartz, Page 201. By B, Deputy.

Certified a true copy

Ruth A. Price
Notary Public in and for the State of Washington residing at Seattle.

Book 13 page 202
430175

Filed for record 8/30 1955 at 10:15am
Request of Eastman
Recorded 9/6/55
Coleman R. Walls, Okanogan Co. Auditor

NOTICE OF MINING LOCATION
State of Washington
Okanogan County
Nighthawk Mining District

NOTICE IS HEREBY GIVEN, That the undersigned, having complied with the requirements of Chapter Six of Title thirty-two of the Revised Statutes of the United States, and the Laws of the above State, and the local customs and regulations of said District have located and do hereby locate 1500 linear feet in length, and 600 feet in width on the Riverside No. 2 lode, vein, ledge or deposit (or placer ground) situated in the above State, County and Mining District, and further described as follows: Commencing at a post marked No. 1 at the Discovery shaft (cut or tunnel), from
thence 600 feet in a Northerly direction to an end post marked No.2,
thence 300 feet in a West " direction to a corner post marked No.3,
thence 1500 feet in a S. " direction to a corner post marked No.4,
thence 600 feet in a E. direction to a corner post marked No.5,
thence 1500 feet in a N. " direction to a corner post marked No.6,
thence 300 feet in a W. " direction to said end post No. 2;
hereby locating and intending to claim 600 feet in a Northerly direction from discovery to the North end line, and 900 feet in the opposite direction from discovery to the South end line and 300 feet on each side of the middle of said lode or ledge, for the purposes of mining the same and claiming all surface rights, privileges, and minerals, with all dips, spurs, angles and variations, and other rights granted by existing laws and customs. This claim is further described as follows:

The North 600 feet bounding on the Similkameen River.
Sect. # 9, R-26, TWP 40 N.

This notice is placed at Discovery on Post No. 1; posts are placed at each corner, and the name of this lode, the date of location, are placed on allposts.

Located 23rd day of July A.D. 1955.

Emil Twait
William J. Schildgen
Ray Silvers
Percy Eastman
George Dixon

Reverse side

No. 430175. Mining Location Riverside # 2. Geo.Dixon, Percy Eastman, Emil Twait, Ray Silvers, Wm. J. Schildgen, locators. Dated July 23, 1955. Filed for Record at Request of Percy Eastman, Loomis, on the 30th day of Aug. 1955, 10:15 a.m. and recorded in Volume 13 of Quartz, page 202, records of Okanogan County, State of Washington. Coleman R. Walls, Okanogan County Auditor. Auditor of said County, by B, deputy. Recorded Sep 6 1955.

Certified a true copy

Ruth A. Price
Notary Public in and for the State
of Washington residing at Seattle.

Book 13 Page 203
430176

RECEIVED
OCT 1 1955

NOTICE OF MINING LOCATION
State of Washington
Okanogan County
Nighthawk Mining District

NOTICE is hereby given, That the undersigned, having complied with the requirements of Chapter six of Title thirty-two of the Revised Statutes of the United States, and the laws of the above State, and the local customs and regulations of said District, have located and do hereby locate 1500 linear feet in length, and 600 feet in width on the Riverside No. 3 lode, vein, ledge or deposite (or placer ground) situated in the above State, County and Mining District, and further described as follows: Commencing at a post marked No. 1 at the Discovery shaft (cut or tunnel), from thence 400 feet in a N direction to an end post marked No. 2, thence 300 feet in a W direction to a corner post marked No. 3, thence 1500 feet in a S direction to a corner post marked No. 4 thence 600 feet in a E direction to a corner post marked No. 5, thence 1500 feet in a N direction to a corner post marked No. 6, thence 300 feet in a W direction to said end post No. 2; hereby locating and intending to claim 400 feet in a North direction from discovery to the North end line, and 1100 feet in the opposite direction from discovery to the South end line and 300 feet on each side of the middle of said lode or ledge, for the purpose of mining the same and claiming all surface rights, privileges and minerals, with all dips, spurs, angles and variations, and other rights granted by existing laws and customs. This claim is further described as follows:

Situated South of Similkameen River in Section No. 9, R. 26, TWP 40 N.

This notice is placed at Discovery on post No. 1; posts are placed at each corner, and the name of this lode, the date of location, are placed on allposts.

Located 23rd day of July, A.D. 1955.

Witnesses
Ronald Silvers

Percy Eastman
Emil Twait
William J. Schildgen
Ray Silvers
George Dixon

Filed for record 8/30 1955 at 10:15 a.m.
Request of Eastman
Recorded 9/6/55 Coleman R. Walls, Okanogan Co. Auditor

Reverse side

No. 430176. Mining Location. Riverside # 3 Mining Claim Percy Eastman et al locators. Recorded Sept 6 1955. State of Washington County County of Okanogan ss. This is to certify that this instrument was filed for record in the office of the Auditor of Okanogan County on Aug 30 1955 at 10 o'clock and 15 min. a. at the request of Percy Eastman and recorded in volume 13 of Quartz of said County. on pages 203 to ... inclusive. Coleman R. Walls, Okanogan County Auditor. Auditor Okanogan County, Wash. By B Deputy.

Certified a true copy

Ruth A. Price
Notary Public in and for the State
of Washington residing at Seattle

Book 13, Page 204
430177

NOTICE OF MINING LOCATION
State of Washington
Okanogan County
Nighthawk Mining District

NOTICE IS HEREBY GIVEN, that the undersigned, having complied with the requirements of Chapter six of Title thirty-two of the Revised Statutes of the United States, and the laws of the above State and the local customs and regulations of said District have located and do hereby locate 100 linear feet in length, and 1400 feet in width on the Riverside No. 4 lode, vein, ledge or deposite (or placer ground) situated in the above State, County and Mining District, and further described as follows:

Commencing at a post Marked No. 1 at the Discovery shaft (cut or tunnel), from
thence North 100 feet in a N direction to an end post marked No. 2
thence 300 feet in a W direction to a corner post marked No. 3,
thence 1500 feet in a S direction to a corner post marked No. 4,
thence 600 feet in an E direction to a corner post marked No. 5,
thence 1500 feet in a N direction to a corner post marked No. 6,
thence 300 feet in a W direction to said end post No. 2; hereby

locating and intending to claim 100 feet in a N direction from discovery to the N. end line, and 1400 feet in the opposite direction from discovery to the S. end line and 300 feet on each side of the middle of said lode or ledge, for the purpose of mining the same and claiming all surface rights, privileges, and minerals, with all dips, spurs, angles and variations, and other rights granted by existing laws and customs. This claim is further described as follows:
Sect. 9 R. 26, TWP 40 N.

This notice is placed at Discovery on Post No. 1; posts are placed at each corner, and the name of this lode, the date of location, are placed on allposts.

Located 25th day of July, A.D. 1955.

(Signed)
Ray Silvers
Emil Twait
Percy Eastman
William J. Schildgen
George Dixon
Locators

Filed for record 8/30 1955 at 10:15 a.m.
Request of Eastman. Recorded 9/6/55 Coleman R. Walls, Okanogan Co. Auditor

~~No.430177~~

Reverse side

MINING LOCATION. Riverside # 4. Mining claim of Percy Eastman, et al. Recorded Sep 6. 1955.
State of Washington County of Okanogan) ss. This is to certify that this instrument was filed for record in the office of the Auditor of Okanogan County on Aug 30 1955 at 10:15 a.m. o'clock at the request of Percy Eastman, Loomis, and recorded in volume 13 record of Quarts of said County, on pages 204 to..inclusive. Coleman R. Walls, Okanogan County Auditor. Auditor Okanogan County, Wash. By B Deputy.

Certified a true copy

Ruth A. Price
Notary Public in and for the State of Washington, residing at Seattle

430178 NOTICE OF MINING LOCATION Book 13 page 205
State of Washington, Okanogan County, Night Hawk Mining District

NOTICE IS HEREBY GIVEN, That the undersigned, having complied with the requirements of Chapter 6 of Title 32 of the revised Statutes of the U.S., and the above state, and the local customs and regulations of said District have located and do hereby locate 1500 linear feet in length, and 600 feet in width on the Riverside No. 5 lode, vein, ledge or deposit situated in the above State, County and Mining District, and further described as follows: Commencing at post marked No. 1 at the Discovery, from

thence 300 feet in a N direction to an end post marked No. 2,
thence 300 feet in a W direction to a corner post marked No. 3,
thence 1500 feet in a S direction to a corner post marked No. 4,
thence 600 feet in a E direction to a corner post marked No. 5,
thence 1500 feet in a N direction to a corner post marked No. 6,
thence 300 feet in a W direction to end post No. 2; hereby

locating and intending to claim 300 feet in a Northerly direction from discovery to the North end line, and 1200 feet in the opposite direction from discovery to the South end line and 300 feet on each side of the middle of said lode or ledge, for the purpose of mining the same and claiming all surface rights, privileges, minerals, with all dips, spurs, angles, and variations, and other rights granted by existing laws and customs. This claim is further described as follows:

Situated in Section # 9, R 26, TWP 40, N.

This notice is placed at discovery on post No. 1; post are placed at each corner, and the name of this lode, is placed on each post.

Located this 25 day of July, A.D. 1955.

Locators: Emil Twait
William J. Schildgen
Ray Silvers
Percy Eastman
George Dixon

430178. Recorded Sep 6 1955 Okanogan County, Wash. Filed by Percy Eastman Aug 30, 1955 10:15 a.m. Book 13 of Quartz, page 205. Coleman R. Walls, Auditor, by B, Deputy.

Certified a true copy

Ruth A. Price
Notary Public in and for the State of Washington residing at Seattle

Book 13, page 206
430179

NOTICE OF MINING LOCATION
Washington State
Okanogan County
Nighthawk Mining District

NOTICE IS HEREBY GIVEN, That the undersigned, having complied with the requirements of Chapter six of Title thirty-two of the Revised Statutes of the United States, and the laws of the above State, and the local customs and regulations of said District, ha.. located and do hereby locate 1500 linear feet in length, and 600 feet in width on the Riverside No. 6 lode, vein, ledge or deposit (or placer ground), situated in the above State, County and Mining District, and further described as follows:
Commencing at a post marked No. 1 at the Discovery shaft (cut or tunnel), from thence
100 feet in a North direction to an end post marked No. 2, thence
300 feet in a West direction to a corner post marked No. 3, thence
1500 feet in a South direction to a corner post marked No. 4, thence
600 feet in an East direction to a corner post marked No. 5, thence
1500 feet in a North direction to a corner post marked No. 6, thence
300 feet in a West direction to said end post No. 2; hereby locating and intending to claim 100 feet in a north direction from discovery to the north end line, and 1400 feet in the opposite direction from discovery to the south end line, and 300 feet on each side of the middle of said lode or ledge, for the purpose of mining the same and claiming all surface rights, privileges, and minerals, with all dips, spurs, angles and variations, and other rights granted by existing laws and customs. This claim is further described as follows:
Riverside Claim No. 6. In Section No. 9, R-26, TWP 40 N.

This notice is placed at Discovery on post No. 1; posts are placed at each corner, and the name of this lode, and date of location, are placed on all posts.
Located 25th day of July, A.D. 1955.

Emil Twait
William J. Schildgen
Ray Silvers
Percy Eastman
George Dixon
Locators.

Filed for record 8/30 1955 at 10:15 a.m. Request of Eastman.
Recorded 9/6/55. Coleman R. Walls, Okanogan Co. Auditor.

Reverse side
No. 430179. Mining Location. Riverside # 6. Mining Claim. Locators Percy Eastman, et al. Recorded Sep 6 1955.
State of Washington County of Okanogan) ss. This is to certify that this instrument was filed for record in the office of the Auditor of Okanogan County on Aug 30 1955 at 10:15 a.m. at the request of Percy Eastman and recorded in volume 13 record of Quartz of said County, on pages 206 inclusive. Auditor Okanogan County, Wash. Coleman R. Walls, Okanogan County Auditor. By B Deputy.

Certified a true copy
Ruth G. Price
Notary Public in and for the State of Washington residing at Seattle

430180

Book 13, page 207

NOTICE OF LOCATION

NOTICE IS HEREBY GIVEN, That the undersigned, having complied with the requirements of SECTION 2324 of the REVISED STATUTES of the United States, and the local laws, customs, and regulations of the District, has located Fifteen hundred feet in length by 600 feet in width, on the Riverside No. 7 Lode, Vein or Deposit, bearing Uranium, Vanadium, Gold, Silver, Copper, Lead and other valuable minerals, situated

S. 9 - R. 26 - TWP 40, South Side, Similkameen River, in the Nighthawk Mining District, Okanogan County, State of Washington, the location being described and marked on the ground as follows, to-wit:

Beginning 200 feet North of this location discovery Monument, at the North and center monument, Post No. 1, and running thence west 300 feet in a W direction to an end post marked No. 2, thence NW 1500 feet in a S. direction to a corner, thence S.W. 600 feet in a E. direction to a corner post marked No. 4, thence S.E. 1500 feet in a N.direction to a corner Post No. 5, thence N.E. 300 feet in a W. direction to end post No. 2; with all dips, spurs, angles and variations. This claim is further described as follows:

North West corner claim of the Riverside Group of Claims.

This notice is placed at discovery on post No. 1; posts are placed at each corner, and the name of this lode is placed on each post.

The above described mining claim shall be known as the Riverside No. 7.

Located this 27 day of Aug 1955.

Name of Locators: Emil Twait
Ray Silvers
Percy Eastman
George Dixon
William J. Schildgen

Slip attached:

430180. Location Riverside # 7. Percy Eastman et al. Recorded Sep 6, 1955 Okanogan County, Wash. Filed by Percy Eastman, Aug 30 1955, 10:15 a.m. Book 13 Quartz, page 207. Coleman R.Walls, Auditor. By D, deputy.

Certified a true copy

Ruth A. Price

Notary Public in and for the State of Washington, residing at Seattle

NOTICE OF LOCATION.

NOTICE IS HEREBY GIVEN, That the undersigned, having complied with the requirements of SECTION 2324 of the REVISED STATUTES of the United States, and the Local Laws, Customs and Regulations of the District, has located Fifteen hundred feet in length by 600 feet in width, on this
the RIVERSIDE NO. 8 Lode, Vein, or Deposit, bearing Uranium, Vanadium, Gold, Silver, Copper, Lead, and other valuable minerals situated
S. 9 - R. 26, TWP 40 South Side
Similkameen River, in the Nighthawk
Mining District, Okanogan County, State of Washington, the location being described and marked on the ground as follows, to-wit:

Beginning 100 feet North of this location (discovery) Monument, at the North end center monument Post No. 1, and running thence West 300 feet in a W direction to an end post marked No. 2, thence N.W. 1500 feet in a S direction to a corner post marked No. 3, thence S.W. 600 feet in a E direction to a corner post marked No. 4, thence S.E. 1500 feet in a N direction to a corner post marked No. 5, thence N.E. 300 feet in a W direction to end post No. 2; with all dips, spurs, angles and variations. This claim is further described as follows:

This notice is placed at discovery on post No. 1; posts are placed at each corner, and the name of this lode is placed on each post.

The above described Mining Claim shall be known as the Riverside No. 8.

Located this 27 day of August, 1955.

Name of Locators: Percy Eastman
Ray Silvers
George Dixon
Emil Twait
William J.Schildgen

Slip attached. 430818. Riverside # 8. Percy Eastman et al. Recorded Sep 6 1955, Okanogan County, Wash. Filed by Percy Eastman Aug 30, 1955. 10:15 a.m. Book 13 Quartz, page 208. Coleman R. Walls, Auditor, by B ,Deputy.

Certified a true copy

Ruth A. Price
Notary Public in and for the State of Washington residing at Seattle

Book 13, page 209
430182

NOTICE OF MINING LOCATION
State of Washington
Okanogan County
Nighthawk Mining District

NOTICE IS HEREBY GIVEN, That the undersigned, having complied with the requirements of Chapter six of Title thirty-two of the Revised Statutes of the United States, and the laws of the above State, and the local customs and regulations of said District have located and do hereby locate 1500 linear feet in length, and 600 feet in width on the Riverside No. 9 lode, vein, ledge or deposite, (or placer ground) situated in the above State, County and Mining District, and further described as follows: Commencing at a post marked No. 1 at the Discovery shaft (cut or tunnel), from
thence 200 feet in a N direction to an end post marked No. 2,
thence 300 feet in a W direction, to a corner post marked No. 3,
thence 1500 feet in a S direction to a corner post marked No. 4,
thence 600 feet in a E direction to a corner post marked No. 5,
thence 1500 feet in a N direction to a corner post marked No. 6,
thence 300 feet in a W direction to said end post No. 2; hereby locating and intending to claim 200 feet in a North direction from discovery to the North end line, and 1300 feet in the opposite direction from discovery to the south end line and 300 feet on each side of the middle of said lode or ledge, for the purpose of mining the same and claiming all surface rights, privileges, and minerals, with all dips, spurs, angles and variations, and other rights granted by existing laws and customs. This claim is further described as follows:
Bounding up to the N. side of Section 16, claim situated in Section 9, R-26, TWP 40 N.

This notice is placed at Discovery on post No. 1; posts are placed at each corner, and the name of this lode, the date of location, are placed on all posts.
Located 27th day of August, A.D. 1955.

William J. Schildgen
Emil Twait
Percy Eastman
Ray Silvers
George Dixon
Locators.

Witness
Ronald Silvers

Filed for record 8/30 1955 at 10:15 a.m. Request of Eastman.
Recorded 9/6/55 Coleman R. Walls Okanogan Co. Auditor.

Reverse side

No. 430182. Mining Location. Riverside # 9. Mining Claim Percy Eastman, locators et al. Recorded Sep 6 1955. State of Washington County of Okanogan) ss. This is to certify that this instrument was filed for record in the office of the Auditor of Okanogan County on Aug 30 1955 at 10:15 a.m. at the request of Percy Eastman and recorded in volume 13 record of Quarts of said County, on pages 209 to..inclusive. Coleman R. Walls, Okanogan County Auditor. Auditor Okanogan County, Washington. By B, Deputy.

Certified a true copy

Ruth A. Price
Notary Public in and for the State of Washington residing at Seattle.

Book 13 page 210
430183

NOTICE OF MINING LOCATION
State of Washington
Okanogan County
Nighthawk Mining District

NOTICE IS HEREBY GIVEN, That the undersigned, having complied with the requirements of Chapter six of Title thirty-two of the Revised Statutes of the United States, and the laws of the above State, and the local customs and regulations of said District have located and do hereby locate 1500 linear feet in length, and 600 feet in width on the Riverside No. 10 lode, vein ledge or deposite (or placer ground) situated in the above State, County and Mining District, and further described as follows: Commencing at a post marked No. 1 at the Discovery shaft (cut or tunnel), from
thence 250 feet in a N direction to an end post marked No. 2,
thence 300 feet in a W direction to a corner post marked No. 3,
thence 1500 feet in a S direction to a corner post marked No. 4,
thence 600 feet in a E direction to a corner post marked No. 5,
thence 1500 feet in a N direction to a corner post marked No. 6,
thence 300 feet in a W direction to said end post No. 2; hereby locating and intending to claim 250 feet in a North direction from discovery to the North end line, and 1250 feet in the opposite direction from discovery to the South end line and 300 feet on each side of the middle of said lode or ledge, for the purpose of mining the same and claiming all surface rights, privileges, and minerals, with all dips, spurs, angles and variations, and other rights granted by existing laws and customs. This claim is further described as follows:

Joining Section No. 16, situated in Section No. 9, R. 26, TWP 40 N.

This notice is placed at Discovery on post No. 1; posts are placed at each corner, and the name of this lode, the date of location, are placed on all posts.

Located 27th day of August, A.D. 1955.

William J. Schildgen
Roy Silvers
Percy Eastman
Emil Twait
George Dixon
Locators

Witnesses
Roland L. Silvers

Filed for record 8/30 1955 at 10:15 a.m. Request of Eastman. Recorded 9/6/55 Coleman R.Walls, Okanogan Co. Auditor.

Reverse side

No. 430183. Mining Location Riverside # 10. Percy Eastman et al locators. Recorded Sep 6 1955. State of Washington County of Okanogan) ss. This is to certify that this instrument was filed for record in the office of the Auditor of Okanogan County on the day of Aug 30 1955 at 10:15 a.m. at the request of Percy Eastman and recorded in volume 13 record of Quarts of said County, on pages 210 to..inclusive. Coleman R.Walls Okanogan County Auditor. Auditor Okanogan County, Wash. By B, Deputy.

Certified a true copy

Ruth A. Price
Notary Public in and for the State
of Washington residing at Seattle

430184 Book 13 Page 211

NOTICE OF MINING LOCATION
State of Washington, Okanogan County, Nighthawk District.

NOTICE IS HEREBY GIVEN, that the undersigned, having complied with the requirements of Chapter 6 of Title 32 of the Revised Statutes of the U.S., and the above state, and the local customs and regulations of said District, have located and do hereby locate 1500 linear feet in length, and 600 feet in width on the Riverside No. 11 lode, vein, ledge or deposit situated in the above State, County and Mining District, and further described as follows: Commencing at post marked No. 1 at the Discovery, from

thence 350 feet in a N direction to an end post marked No. 2,
thence 300 feet in a W direction to a corner post marked No. 3,
thence 1500 feet in a S direction to a corner post marked No. 4,
thence 600 feet in a E direction to a corner post marked No. 5,
thence 1500 feet in a N direction to a corner post marked No. 6,
thence 300 feet in a W direction to end post No. 2; hereby

locating and intending to claim 350 feet in a North direction from discovery to the North end line, and 1150 feet in the opposite direction from discovery to the south end line and 300 feet on each side of the middle of said lode or ledge, for the purpose of mining the same and claiming all surface rights, privileges, minerals, with all dips, spurs, angles and variations, and other rights granted by existing laws and customs.

This claim is further described as follows:
Joining north side of Section 16, situated in Section 9, R-26, TWP 40 N.

This notice is placed at discovery on Post No. 1; posts are placed at each corner, and the name of this lode is placed on each post.
Located this 27th day of August, A.D. 1955.

Locators: Emil Twait
Ray Silvers
Percy Eastman
William Jl Schildgen
George Dixon

430184. Location. Recorded Sept. 6 1955 Okanogan County, Wash. Percy Eastman. Aug 30, 1955, 10:15 a.m. Book 13 Quartz 211. Coleman R. Walls, Auditor. B, Deputy.

Certified a true copy

Ruth A. Price
Notary Public in and for the State of Washington residing at Seattle

Book 13 page 212 NOTICE OF MINING LOCATION 430185
State of Washington, Okanogan County, Nighthawk District.

NOTICE IS HEREBY GIVEN, that the undersigned, having complied with the requirements of Chapter 6 of Title 32of the revised Statutes of the U.S., and the above state, and the local customs and regulations of said District have located and do hereby locate 1500 linear feet in length, and 600 feet in width on the Riverside No. 12 lode, vein, ledge or deposit situated in the above State, County, and Mining District, and further described as follows:

Commencing at post marked No. 1 at the Discovery, from
thence 450 feet in a N direction to an end post marked No. 2,
thence 300 feet in a W direction to a corner post marked No. 3,
thence 1500 feet in a S direction to a corner post marked No. 4,
thence 600 feet in a E direction to a corner post marked No. 5,
thence 1500 feet in a N direction to a corner post marked No. 6,
thence 300 feet in a W direction to end post No. 2; hereby locating and intending to claim 450 feet in a North direction from discovery to the North end line, and 1050 feet in the opposite direction from discovery to the south end line, and 300 feet on each side of the middle of said lode or ledge, for the purpose of mining the same and claiming all surface rights, privileges, minerals, with all dips, spurs, angles and variations, and other rights granted by existing laws and customs.

This claim is further described as follows:
Joining Section No. 16 on the South end of the claim, and situated in Section No. 9, R-26, TWP 49 N.

This notice is placed at discovery on post No. 1; posts are placed at each corner, and the name of this lode is placed on each post.

Located this 27th day of August, A.D. 1955.

LOCATORS:

Ray Silvers
Percy Eastman
Emil Twait
William J. Schildgen
George Dixon

430185. Location. Recorded Sep 6, 1955. Okanogan County, Wash.
Percy Eastman Aug 30, 1955, 10:15 a.m. Book 13 of Quartz, page 212.
Coleman R. Walls, Auditor, by B, Deputy.

Certified a true copy

Ruth A. Price
Notary Public in and for the State
of Washington residing at Seattle

430186 NOTICE OF MINING LOCATION Book 13 page 213

State of Washington, Okanogan County, Nighthawk District

NOTICE IS HEREBY GIVEN, that the undersigned, having complied with the requirements of Chapter 6, of Title 32, of the Revised Statutes of the U.S., and the above state, and the local customs and regulations of said District, have located and do hereby locate 1500 linear feet in length, and 600 feet in width, on the Riverside No. 13 lode, vein, ledge or deposit situated in the above State, County and Mining District, and further described as follows:

Commencing at post marked No. 1 at the Discovery, from
thence 600 feet in a N direction to an end post marked No. 2,
thence 300 feet in a W direction to a corner post marked No. 3
thence 1500 feet in a S diredtion to a corner post marked No. 4
thence 600 feet in a E direction to a corner post marked No. 5
thence 1500 feet in a N direction to a corner post marked No. 6,
thence 300 feet in a W direction to end post No. 2; hereby locating and intending to claim 600 feet in a North direction from discovery to the North end line, and 900 feet in the opposite direction from discovery to the South end line and 300 feet on each side of the middle of said lode or ledge, for the purpose of mining the same, and claiming all surface rights, privileges, minerals, with all dips, spurs, angles and variations, and other rights granted by existing laws and customs.

This claim is further described as follows:
Joining North Side of Section 16, situated in
Section 9, R-26, TWP 40 N.

This notice is placed at discovery on post No. 1; posts are placed at each corner, and the name of this lode is placed on each post.

Located this 27th day of August, A.D. 1955.

LOCATORS

Emil Twait
Percy Eastman
William J. Schildgen
Ray Silvers
George Dixon

430186. Locators. Recorded Sep 6 1955. Okanogan County, Wash. Filed by Percy Eastman Aug 30, 1955, 10:15 a.m. Book 13 of Quarts 213. Coleman R. Walls, Auditor, by B, Deputy.

Certified a true copy

Ruth A. Price

Notary Public in and for the State of Washington residing at Seattle.

NOTICE OF MINING LOCATION
State of Washington, Okanogan County, Nighthawk District

NOTICE IS HEREBY GIVEN, that the undersigned, having complied with the requirements of Chapter 6 of Title 32 of the Revised Statutes of the U.S., and the above state, and the local customs and regulations of said District, have located and do hereby locate 1500 linear feet in length, and 600 feet in width on the Riverside No. 14 lode, vein, ledge or deposit situated in above State, County, and Mining District, and further described as follows:

Commencing at post marked No. 1 at the Discovery, from

thence 550 feet in a N direction to an end post marked No. 2,
thence 300 feet in a W direction to a corner post marked No. 3,
thence 1500 feet in a S direction to a corner post marked No. 4
thence 600 feet in a E direction to a corner post marked No. 5,
thence 1500 feet in a N direction to a corner post marked No. 6,
thence 300 feet in a W direction to end post No. 2; hereby locating and intending to claim 550 feet in a North direction from discovery to the North end line, and 950 feet in the opposite direction from discovery to the south end line and 300 feet on each side of the middle of said lode or ledge, for the purpose of mining the same and claiming all surface rights, privileges, minerals, with all dips, spurs, angles and variations, and other rights granted by existing laws and customs.

This claim is further described as follows:
Joining the North Side of Section 16,
situated in Section 9, R. 26, TWP 40 N.

This notice is placed at discovery on post No. 1; posts are placed at each corner, and the name of this lode is placed on each post.

Located this 27th day of August, A.D. 1955.

Locators Percy Eastman
Ray Silvers
Emil Twait
William Schildgen
George Dixon

430187. Location. Recorded Sep 6 1955. Okanogan County, Wash. Filed by Percy Eastman Aug 30, 1955, 10:15 a.m. Book 13 Quartz Page 214. Coleman R. Walls, Auditor, by B, Deputy.

Certified a true copy

Ruth A. Price
Notary Public in and for the State
of Washington residing at Seattle

- TO WHOM IT MAY CONCERN -

This is an instrument where the undersigned appoint and authorize Mr. Ray Silvers of Loomis, Wash., in the partnership of George Dixon, Percy Eastman, Ray Silvers, William J. Schildgen and Emil Twait, owners and locators of the Riverside mining claims No. 1 to 15 inclusive, to sign and execute all papers and documents necessary to lease and operate said mining claims.

Loomis, Wash., Sept. 10 - 1955

Witnesses:

Floyd W. Hill

Signed: Emil Twait

Percy Eastman

William J. Schildgen

George Dixon

Certified a true copy

Ruth A. Price

Notary Public in and for the State of Washington, residing at Seattle.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

RECEIVED
OCT 11 1955
U. S. G. S.
SPOKANE, WASH.

RECEIVED
OCT 17 1955

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

Not to be filled in by applicant

Docket No. 4022
Metal or Mineral Uranium
Date Received 10-17-55
Estimated Cost 63,050.00
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: American Strategic Minerals Corporation
P. O. Box 523,
Tonasket, Washington.

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

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

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

2. *General.*—Read DMEA Order 1, "Government Aid in Defense Exploration Projects," before completing this application. Submit this application and all accompanying papers in quadruplicate (four copies), with your name and address on each sheet of the application and on all accompanying papers. Where sufficient space is not provided on the form for all required information, state it on an accompanying paper, with a reference in each case to the instruction to which it refers by number. Comply with all applicable instructions; or, if not applicable, so state. File the application with Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C., or with the nearest field executive officer thereof.

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract See attached.

(*b*) State any mine name by which the property is known.

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

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property. Attached herewith.

(*e*) If you own the land, describe any liens or encumbrances on it Not applicable.

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

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

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

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

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

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

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

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

(*c*) The work will start within 30 days and be completed within 12 months from the date of an exploration project contract.

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

6. *Estimate of costs.*—Furnish a detailed estimate of the costs of the proposed work (you will have to use a separate sheet), under the following headings. Add the totals under all headings to give the estimated total cost of the project:

(*a*) *Independent contracts.*—(Note.—If the applicant does not intend to let any of the work to contractors, write "none" after this item. To the extent that the work is to be contracted, do not repeat the cost of the contract-work in subsequent items.) State the cost of any proposed independent contracts for the performance of all or any part of the work, expressed in terms of units of work (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved, etc.).

(*b*) *Labor, supervision, consultants.*—Include an itemized schedule of numbers, classes and rates of wages, salaries or fees for necessary labor, supervision and engineering and geological consultants.

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel.

(*d*) *Operating equipment.*—Furnish an itemized list of any operating equipment to be rented, purchased, or which is owned and will be furnished by the Operator, with the estimated rental, purchase price, or suggested use-allowance based on present value, as the case may be.

(*e*) *Rehabilitation and repairs.*—Furnish a detailed list showing the cost of any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures, and movable operating equipment, now owned by the Operator and which will be devoted to the exploration project.

(*f*) *New buildings, improvements, installations.*—Furnish a detailed list showing the cost of any necessary buildings, fixed improvements, or installations to be purchased, installed or constructed for the benefit of the exploration project.

(*g*) *Miscellaneous.*—Furnish a detailed list showing the cost of repairs to and maintenance of operating equipment (not including initial rehabilitation or repairs of the Operator's equipment), analytical work, accounting, workmen's compensation and employers' liability insurance, and payroll taxes.

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

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

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

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

[X] Money [X] Use of equipment owned by you [ ] Other

Explain in detail on acompanying paper.

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief.

Dated October 10, 1955.

American Strategic Minerals Corp.
(Applicant)

By Walter S. Price

Walter S. Price, President.
P. O. Box 523,

Tonasket, Washington.

Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

U. S. GOVERNMENT PRINTING OFFICE 16—66551-1

RECEIVED
OCT 17 1955

APPLICATION OF AMERICAN STRATEGIC MINERALS CORPORATION.

Replies to Instructions contained in Form MF-103 attached.

1. (b) Corporation organized in the State of Washington.
(c) Walter S. Price, President, P.O. Box 523, Tonasket, Washington.
(2) Gordon D. Luther, Vice-President 3727 Bagley Ave., Seattle 3, Washington.
(3) Mrs. Ruth A. Price, Secretary-Treasurer 903-9th Avenue, Seattle 4, Washington.

(d) Not applicable.

3. (a) Option with lease and purchase agreement on 14 unpatented claims located in Section 9, Township 40 N., Range 26 E.W.M., Okanogan County, Washington. (Township map attached.)

(b) Riverside Claims.
(c) Option providing for lease (5 years or more) and Purchase Agreement.
(d) Copies of Option, Lease and Purchase Agreement submitted herewith.
(e) Not applicable,
(f) Claim No. 1 filed Book 13, page 201;
No. 2 " Book 13, page 202;
No. 3 " Book 13, page 203;
No. 4 " Book 13, page 204;
No. 5 " Book 13, page 205;
No. 6 " Book 13, page 206;
No. 7 " Book 13, page 207;
No. 8 " Book 13, page 208;
No. 9 " Book 13, page 209;
No.10 " Book 13, page 210;
No.11 " Book 13, page 211;
No.12 " Book 13; page 212;
No.13 " Book 13, page 213;
No.14 " Book 13, page 214;
all recorded in Okanogan County, Washington.

4. (a) Sufficient drilling and excavating have been done to verify that the ore body is 800 feet wide and about 1½ miles long. By geophysical examination it has been determined that the ore body runs from 5,000 to 6,000 feet deep. We have just completed a road into the property over which a four wheel drive vehicle can operate. The properties are accessible from Nighthawk, Washington.
(b) There has been no production.
(c) See Bulletin No. 5, Washington Geological Survey, and map enclosed herewith.
(d) Properties are quite accessible; a branch of the Great Northern Railroad runs through the property. For the time being it is not plannedto do any building on the property since employees can live at Oroville (8 miles) or Nighthawk (4½ miles).

(g) Manpower is available at Nighthawk or Oroville. Materials, supplies and equipment are available from various points on the Okanogan River Valley and at Spokane. Water can be obtained from the Similkameen River which runs through the properties; and power is available through the Okanogan P.U.D. The main power line traverses the area about a quarter mile from the property.

5. (a) Uranium and Zirconium.

(b) It is proposed to expose the ore body by a series of excavations and core drilling. The excavations to be accomplished for the purpose of exposing the ore body and for the determination as to whether the ore is amenable to open cut methods of development. The core drilling to be accomplished to verify values at various depths.

It is believed that $13,000 should be budgeted for drilling and bull-dozing three open cuts: one on the foot wall(east) side of ore body; one in the middle of Location No. 1, and one on the hanging wall (west) side of the ore body. These open cuts to be approximately 100 feet wide across the ore body, 25 feet deep, developing a 100 foot bench; roughly 10,000 cubic yards of rock and overburden.

Very little preliminary work will be required for setting up core-drill rigs, since it is quite level in most areas where core-drilling may be programmed. $35,000 for 5,000 feet of core hole should be budgeted.

(c) See form.

(d) See Docket No. 3790.

6. Estimate of costs:

(a) Independent contracts:	
(1) D-6 Bulldozer, 600 hrs. @ $12 pr hr.	$7,200.00
(2) Wagon Drill rig with compressor (210 cu. ft.)and 2 man crew, 600 hrs. at $8.00 per hr.	4,800.00
(3) 5,000 feet of core drilling @ $7.00 per foot	35,000.00
(b) Labor, supervision and consultants (The amount of this figure will depend on the disposition of Docket 3790, since the management and supervision will be the same for both projects).	6,000.00
(c) Operating materials and supplies:	
Powder (10,000 yds. @ .25 per yd.)	2,500.00
Drill steel and tools	1,500.00
(d) Operating equipment: The operator has an Atlas Diesel Compressor, Copco Jack Hammer and drill steel, 4 wheel drive Wilys Pick-up, total value $10,000 - use allowance based on present value $150 per month fro 12 months	1,800.00
(e) Rehabilitation and repairs:	None.
(f) New buildings, improvements and installations: The only building that will be required at this stage will be a field tool house, and storage shed,	1,000.00
(g) Miscellaneous:	
Assays and laboratory work (See docket No. 3790)	1,000.00
Workmen's Compensation, insurance, and payroll taxes	750.00
(h) Reserve for contingencies	1,500.00
	$63,050.00

7. (b) We will furnish about $10,000 worth of equipment either on a purchase price basis or use allowance basis, depending upon the disposition of Docket No. 3790. The balance to be furnished in cash deposited in the Pacific National Bank of Seattle.

OWNER'S CONSENT TO LIEN

WHEREAS, the undersigned, as owners and in possession of certain lode mining claims and a prospecting lease from the State of Washington, more particularly described as follows:

Six (6) Lode mining claims, known as Riverside No. 1 to 6 inclusive, and filed in the Recorder's Office of said Okanogan County, Washington, on or about July 25, 1955; and Eight (8) Lode Mining Claims, known as Riverside No. 7 to 14 inclusive, filed on or about August 27, 1955, in said Recorder's Office. All of said claims being located in Section Nine (9), Township Forty (40) North, Range 26 EWM. All of said claims being subject to whatever overlap there may be on the North One-half (1/2) of the Southeast One-fourth (1/4) of said Section Nine (9); provided the mineral rights on said subdivision is not subject to mineral location. There is also included herein any additional claims which are being or will be located by the lessors adjoining the above claims. There is also included all of the rights of the lessors in and to a certain prospecting lease from the State of Washington on the Northwest Quarter (NW¼) of Section Sixteen (16), Township Forty North (40N), Range 26 EWM, to be sublet or transferred in accordance with the rules and regulations prescribed by theState of Washington.

Which are the subject of a proposed exploration contract, hereinafter called the "contract" between the United States of America, hereinafter called the "Government", and American Strategic Minerals Corporation, a Washington corporation, hereinafter called the "Operator"; and

WHEREAS, under the provisions of said Contract, theGovernment is entitled to a percentage royalty on production and to other rights and equities which do or may conflict with or be adverse to the rights of the undersigned;

NOW, THEREFORE, the undersigned, in consideration of said contract, and as an inducement to the Government to enter into same, undertake and agree as follows:

1. The Government's equity in and right to dismantle, sever, take possession of, and remove and dispose of facilities, buildings, fixtures, equipment, or other items as provided in the contract or any amendment thereof shall prevail over and be prior and superior to any conflicting or adverse rights of the undersigned, and the Government is authorized to enter upon the land for such purposes.

2. To secure the payment to the Government of the percentage royalty on production, provided for under the terms of said exploration project contract or any amendment thereof, there is hereby granted to the Government a lien upon the land above referred to and upon any production of minerals therefrom until said royalty is fully paid or ten years have elapsed from the date of the contract, whichever occurs first.

3. The undersigned shall commit no act nor assert any claim that may contravene or conflict with the lien, claim, or rights of the Government under the provisions of said contract. This agreement shall be binding upon the heirs, executors, administrators, successors, and assigns of the undersigned.

4. Changes and added provisions: The phrase "a lien upon the land" occurring in paragraph 2 shall be construed to cover only the certain lode mining claims, and prospecting lease above described, held by the undersigned.

Dated this 12 day of September, 1955.

_____ Seal
Percy Eastman

Ray Silvers, Power of Attorney for _____ Seal
Ray Silvers
Percy Eastman, George Dixon,

_____ Seal
George Dixon
W. J. Schildgen and Emil Twait

_____ Seal
W. J. Schildgen

_____ Seal
Emil Twait

RECEIVED

OCT 17 1955

OPTION

THIS AGREEMENT, made and entered into this 31st day of August, 1955, by and between PERCY EASTMAN, RAY SILVERS, GEORGE DIXON, W. J. SCHILDGEN, and EMIL TWAIT of Loomis, Washington, hereinafter called "First Parties", and AMERICAN STRATEGIC MINERALS CORPORATION, a corporation organized and existing under the laws of the State of Washington, with its principal place of business at Tonasket, Washington, hereinafter called "Second Party,"

W I T NE S S E T H:

WHEREAS, First Parties are the owners and in possession of certain lode mining claims and a prospecting lease from the State of Washington hereinafter more particularly mentioned and described; and

WHEREAS, First Parties believe that said lode mining claims, ground, and premises disclose mineral deposits of great value as well as potential development of great ore bodies; and

WHEREAS, the proper development of such ore bodies, both present and in expectancy and the proper reduction and treatment thereof will necessitate the outlay of large sums of money; and

WHEREAS, Second Party is able and willing to furnish the money for such development work, but only under and in accordance with the terms and subject to the conditions hereinafter set forth;

NOW, THEREFORE, for and in consideration of Six hundred ($600.00) Dollars by Second Party, receipt whereof is hereby acknowledged, and for and in consideration of the mutual covenants of the parties by each to the other made and herein contained, the parties hereto agree as follows:

1. First Parties grant to Second Party for nine months from the date hereof an option on the terms and conditions in this agreement set forth, to receive a mining lease in the form hereto annexed and hereby referred to and made a part hereof, of said above mentioned mineral properties, being all of those certain lode mining claims and prospecting lease, lying and being in the Nighthawk Mining District, in the County of Okanogan, State of Washington, more particularly described as follows:

Six (6) Lode mining claims, known as Riverside No. 1 to 6 inclusive, and filed in the Recorder's office of said Okanogan County, Washington, on or about July 25, 1955; and Eight (8) Lode Mining Claims, known as Riverside No. 7 to 14 inclusive, filed on or about August 27, 1955, in said Recorder's Office. Allof said claims being

located in Section Nine (9), Township Forty (40) North, Range 26 EWM. All of said claims being subject to whatever overlap there may be on the North One-Half (1/2) of the Southeast One-Fourth (1/4) of said Section Nine (9); provided the mineral rights on said subdivision is not subject to mineral location. There is also to be included herein any additional claims which are being or will be located by the lessors adjoining the above claims. There is also included all of the rights of the lessors in and to a certain prospecting lease from the State of Washington on the Northwest Quarter (NW¼) of Section Sixteen (16), Township Forty North (40N), Range 26 EWM, to be sublet or transferred in accordance with the rules and regulations prescribed by the State of Washington.

Second party agrees to do location work on the first six above described laims.

2. That at any time during the period of said option Second Party shall have the right to enter into and take exclusive possession of all and singular said above described property and may as consideration for said option, prospect and explore, test, develop and work at its own discretion and at its own proper charge and expense said lode mining claims and prospecting lease and any one or more of them, provided all work done and all improvements made by Second Party on said property, or any part thereof, under the terms hereof during the period of said option shallbe done in a miner-like and proper manner to enable said premises and all thereof to be carefully operated, and so that the minerals therein contained may be extracted in an economical and miner-like manner. All equipment, tools, machinery, structures, improvements and personal property of every nature and description brought or placed upon said premises prior to the exercise of said option by Second Party for use in said work shall not become a fixture but shallremain the property of Second Party and subject to removalby Second Party and in the event Second Party shallnot exercise said option it shall be entitled to remove all of said equipment, tools, machinery, structures, improvements and personal property from said premises within sixty (60) days from the expiration of said option. And in further consideration for said option Second Party hereby agrees to enter said premises and undertake to carry out such investigation and exploration work at its own cost.

3. All ores extracted by Second Party during the aforesaid time prior to the exercise of said option shall be and remain the property of First Parties; provided, the Second Party is hereby given the right to take and have as its own for assay samples and mill tests from said mining claims and prospecting lease, ore or ores to the amount of one carload. In furtherance of the work contemplated in this and the preceding paragraphs, Second Party shall be entitled to use and enjoy any and all improvements, structures,

machinery, tools, equipment, or other personal property now situated on said premises and properties belonging to First Parties.

4. If at or before the expiration of said period of nine months the Second Party shall elect to exercise said above mentioned option and receive a mining lease to said premises as hereinabove provided, it shallso notify First Parties and it shall on such notice be entitled to receive in accordance with and subject to the terms of this contract a lease in the form of lease attached hereto and by reference made a part hereof, and First Parties hereby agree on cuch notice to make, execute and deliver such a lease to Second Party. In the event Second Party shall elect not to exercise said option, it shallpeaceably surrender and turn over said properties to First Parties in as good condition as they now are in, reasonable wear and tear excepted, and free and clear of any and allliens and incumbrances incurred by Second Party in its operations on or about the same.

5. First Parties represent and agree that the properties covered by this agreement are free from allliens and incumbrances of every nature and description, and during the period of said option First Parties agree to proect said properties from any and all liens and/or the possibility thereof, except such as may arise from the acts of Second Party on said property, and not to encumber said property or any part thereof; and the First Parties further agree to furnish Second Party satisfactory evidence of good title.

6. Second Party during its possession of said property and allthereof, agrees to protect said property and all thereof against all claims of labor and materialmen and against all liens and liabilities arising out of the acts of Second Party on said property, and to permit First Parties to place and maintain such notices thereon as shall be lawfully necessary to protect First Parties against cuch claims; and Second Party further agrees to hold harmless First Parties against any and all claims for damages for injury incurred by workmen in its employ at said properties,or any other person or persons.

7. It is agreed that during the possession of said property by Second Party under said option, Second Party shall permit a duly authorized representative of First Parties to be and remain on the property hereby demised, to represent First Parties and observe the performance by Second Party of each and all the terms of this agreement; provided that if said representative shall fail to work harmoniously with the superintendent of Second Party, or should the presence of said representative become a source of trouble, then on written request by Second Party to First Parties, First Parties shall see that such objectionable conduct shall cease or shall replace such representative with another so that the work may continue harmoniously and in the event that after such request such objectionable conduct on the part of such representative shall not cease, Second Party shall

be entitled to remove such representative from the premises and First Parties shall be entitled to appoint another representative to take the place of the representative so removed, as often as any particular representative shall become such source of trouble.

8. It is agreed that any time lost by reason of strikes, riots, acts of God or inevitable delays, is not to run against the time herein specified.

IN WITNESS WHEREOF, the said parties hereto have hereunto set their hands and seals this 31st day of August, 1955.

(signed)

PERCY EASTMAN

RAY SILVERS

WILLIAM J. SCHILDGEN

GEORGE DIXON

EMIL TWAIT
First Parties

Attest:
RUTH A. PRICE
Its Secretary
(Corporate Seal
American Strategic Minerals Corporation)

AMERICAN STRATEGIC MINERALS CORPORATION
By WALTER S. PRICE
Its President

State of Washington)
County of Okanogan) ss

On this day personally appeared before me Percy Eastman, Ray Silvers, George Dixon, W. J. Schildgen, and Emil Twait, to me known to be the individuals described in and who executed the within and foregoing instrument and acknowledged that they signed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 31st day of August, 1955.

H. A. DAVIS
Notary Public in and for the State of Washington, residing at Okanogan

State of Washington)
County of Okanogan)ss

On this 31st day of August, 1955, before me personally appeared Walter S. Price, to me known to be the President of the American Strategic Minerals Corporation, that executed the within and foregoing instrument, and acknowledged said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that he was authorized to execute said instrument, and that the seal affixed is the corporate seal of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

H.A. DAVIS
Notary Public in and for the State of Washington, residing at Okanogan.

MINING LEASE WITH OPTION TO PURCHASE

THIS IDENTURE, Made this 31st day of August, in the year of our Lord one thousand nine hundred and fifty-five, between PERCY EASTMAN, RAY SILVERS, GEORGE DIXON, W.J. SCHILDGEN, and EMIL TWAIT, of Loomis, Washington, hereinafter designated the lessors and AMERICAN STRATEGIC MINERALS CORPORATION, a corporation organized and existing under the laws of the State of Washington, with its principal place of business at Tonasket, Washington, hereinafter designated the lessee.

WITNESSETH, that the lessors for and in consideration of rents, royalties, covenants, and agreements hereinafter reserved, and by the lessee to be paid, kept and performed,have granted, demised, leased and let and by these presents do grant, demise, lease and let unto the lessee American Strategic Minerals Corporation, that certain mine and mining property situated in Nighthawk Mining District, Okanogan County, State of Washington, and more particularly described as follows, to-wit:

Six (6) Lode mining claims, known as Riverside No. 1 to 6 inclusive, and filed in the Recorder's Office of said Okanogan County, Washington, on or about July 25, 1955; and Eight (8) Lode Mining Claims, known as Riverside No. 7 to 14 inclusive, filed on or about August 27, 1955, in said Recorder's Office. All of said claims being located in Section Nine (9), Township Forty (40) North, Range 26 EWM. All of said claims being subject to whatever overlap there may be on the North One-half (1/2) of the Southeast One-fourth (1/4) of Section Nine (9); provided the mineral rights on said subdivision is not subject to mineral location.

There is also included all of the rights of the lessors in and to a certain prospecting lease from the State of Washington on the Northwest Quarter (NW$\frac{1}{4}$) of Section Sixteen (16), Township Forty North (40N), Range 26 EWM, to be sublet or transferred in accordance with the rules and regulations prescribed by the State of Washington.

Together with the appurtenances, and rights and privileges to prospect the same for gold, precious metals and minerals, and mine and extract the same, and to sell, mill or smelt or otherwise reduce the same, including uranium and allother similar metals.

To have and to hold the same unto the said lessee for the term of five(5) years from date hereof and so long thereafter as said property is mined at a profit, unless sooner forfeited or determined through the violation of any covenant hereinafter against the said lessee reserved.

And in consideration of the said lease, demise and privileges, the lessee does covenant and agree with the lessor, as follows, to-wit:

To enter upon said mining claim and premises and work the same mining fashion, in manner necessary go good economical mining, so as to take out the greatest amount of ore, gold, precious metals and minerals, practicable with due regard to safety, development and preservation of the same premises as a workable mine, and to include uranium and all other similar minerals.

To work and mine said premises as aforesaid steadily and continuously from the date of this lease as weather and the season of the year will permit.

To keep all sluices, ditches, drains, waterways and passageways clearned of loose rock and rubbish, and to do allthings necessary to promote the usefulness of said mining property as a whole mine, and to develop the same and do no act thereon during the term of this lease, which would impede mining operations or impair the operating condition of said mining claim, and generally to so conduct operations as to conform to the laws of the United States and the State of Washington, and the local rules and regulations of miners in said mining district, and to do no act and suffer no default which might in any manner involve the said lessor, or their ownershipin said mining property, in liability of any kind or character.

To perform all necessary assessment work for each assessment year required to be done on said mining claims, and to record the same at least thirty (30) days before the end of each annual assessment period during the life of this lease.

To not locate or record said mining property, or allow the same to be recorded by anyone except the said lessor or agent. To not allow or permit any person or persons, except the said lessee, agent or workmen, to take or hold possession of said premises, or any part thereof, under any pretense whatever,

To not assign this lease, or any interest thereunder, and to not sublet the said premises or any part thereof, without written notice to said lessors.

To pay and deliver to said lessors, as rent and royalty, ten (10) per cent of the net yield of uranium, or similar metals, and of all gold, minerals, and precious metals to be extracted from said premises during said term, of like assay as that retained by said lessee, at such place as such lessors shall direct. And the lessee agrees to direct the smelter or purchaser of all ores to pay to lessors direct the above royalty, and if for any reason said purchaser or smelter refuses to do so, the lessee shall pay said royalty forthwith as returns are received by it.

To make no claims of any kind for bonuses paid by the United States Government on account of discovery of uranium on the said properties; and lessee hereby waives any right thereto.

To allow said lessors to be present at each and every cleanup, or sampling of ore extracted, and to inspect and examine the same.

To deliver up to said lessors the said premises with the appurtenances and all improvements in good order and condition, and the mine in allpoints ready for continued working (accidents not arising from negligence alone excusing) without demand of further notice, on said first day of September, A.D., 1960, at noon, unless mining operations continue at a profit, or at any time previous, upon demand for forfeiture,

Finally, upon the violation or failure to perform by said lessee, or any person under it, of any covenant or covenants hereinbefore reserved, the term of this lease, and all the rights and privileges thereunder, shall, at the option of said lessors, expire, and the same and said premises with the appurtenances shall at once become forfeited to said lessors, and the said lessors or their agent may thereupon, at the demand of possession in writing to be delivered to said lessee, or in its absence by posting said demand in a conspicuous place on said premises for the term of three days, enter upon said premises and dispossess all persons occupying the same, with or without force, and with or without process of law; or, at the option of said lessors, the said lessee and all persons found in occupation may be proceeded against as trespassers from the beginning of said term, both as to realty and the metals and minerals severed therefrom; or as guilty of unlawful detainer.

All notices required to be given hereunder by lessee to lessors may be delivered to Herbert A.Davis, Attorney, Okanogan, Washington, or Ray Silvers, Loomis, Washington, and the same shall constitute sufficient notice to each and all lessors herein.

It is further agreed that the lessee shall have the right and option to purchase the above described property at any time during the term of this lease, upon the payment to the lessors or their assigns on or before said date, the sum of Five hundred thousand ($500,000) Dollars, provided that the lessee has heretofore performed and fulfilled all the conditions of this lease.

Time is of the essence of this agreement, and if said purchase and full payment shall not be made on or before the expiration of this lease, then all the right of the lessee to purchase said property shall without further action on the part of the lessors entirely and completely terminate and be at an end.

Each and every clause and covenant of this indenture shall extend to the heirs, executors and administrators of all parties hereto;and to the assigns of said lessors;and as said lessors may elect to the assigns of said lessee.

IN WITNESS WHEREOF, the said parties, lessors and lessee have hereunto set their hands and seals.

Signed, Sealed & delivered
in presence of

_____ (Seal)

430174 NOTICE OF MINING LOCATION Book 13 page 201

State of Washington, Okanogan County, Night Hawk Mining District

NOTICE IS HEREBY GIVEN, That the undersigned, having complied with the requirements of Chapter 6 of Title 32 of the revised statutes of the U.S., and the above state, and the local customs and regulations of said District have located and do hereby locate 1500 linear feet in length, and 600 feet in width on the Riverside No. 1 lode, vein, ledge or deposit situated in the above State, County and Mining District, and further described as follows: Commencing at post marked No. 1 at the Discovery, from

thence 300 feet in a N direction to an end post marked No. 2,
thence 300 feet in a W direction to a corner post marked No. 3,
thence 1500 feet in a S direction to a corner post marked No. 4,
thence 600 feet in a E direction to a corner post marked No. 5,
thence 1500 feet in a N direction to a corner post marked No. 6,
thence 300 feet in a W direction to end post No. 2; hereby

locating and intending to claim 300 feet in a N direction from discovery to the N end line, and 1200 feet in the opposite direction from discovery to the S end line and 300 feet on each side

of the middle of said lode or ledge, for the purpose of mining the same and claiming all surface rights, privileges, minerals, with all dips, spurs, angles and variations. This claim is further described as follows:

In Section No. 9, R 26, TWP 40, South side Similkameen River.

This notice is placed at discovery on post No. 1; posts are placed at each corner, and the name of this lode, is placed on each post.

Located this 20th day of July, A.D. 1955.

Locators: Emil Twait
William J. Schildgen
Ray Silvers
Percy Eastman
George Dixon

No. 430174 Recorded Sep 6, 1955, Okanogan County, Wash. Filed by Percy Eastman. Aug 30 1955 10:15 A.M. Book 13 Quarts, Page 201. By B, Deputy.

Certified a true copy

Ruth A. Rice
Notary Public in and for the State of Washington residing at Seattle.

Book 13 page 202
430175

Filed for record 8/30 1955 at 10:15am
Request of Eastman
Recorded 9/6/55
Coleman R. Walls, Okanogan Co. Auditor

NOTICE OF MINING LOCATION
State of Washington
Okanogan County
Nighthawk Mining District

NOTICE IS HEREBY GIVEN, That the undersigned, having complied with the requirements of Chapter Six of Title thirty-two of the Revised Statutes of the United States, and the Laws of the above State, and the local customs and regulations of said District have located and do hereby locate 1500 linear feet in length, and 600 feet in width on the Riverside No. 2 lode, vein, ledge or deposit (or placer ground) situated in the above State, County and Mining District, and further described as follows: Commencing at a post marked No. 1 at the Discovery shaft (cut or tunnel), from
thence 600 feet in a Northerly direction to an end post marked No.2,
thence 300 feet in a West " direction to a corner post marked No.3,
thence 1500 feet in a S. " direction to a corner post marked No.4,
thence 600 feet in a E. direction to a corner post marked No.5,
thence 1500 feet in a N. " direction to a corner post marked No.6,
thence 300 feet in a W. " direction to said end post No. 2;
hereby locating and intending to claim 600 feet in a Northerly direction from discovery to the North end line, and 900 feet in the opposite direction from discovery to the South end line and 300 feet on each side of the middle of said lode or ledge, for the purposes of mining the same and claiming all surface rights, privileges, and minerals, with all dips, spurs, angles and variations, and other rights granted by existing laws and customs. This claim is further described as follows:

The North 600 feet bounding on the Similkameen River.
Sect. # 9, R-26, TWP 40 N.

This notice is placed at Discovery on Post No. 1; posts are placed at each corner, and the name of this lode, the date of location, are placed on allposts.

Located 23rd day of July A.D. 1955.

Emil Twait
William J. Schildgen
Ray Silvers
Percy Eastman
George Dixon

Reverse side

No. 430175. Mining Location Riverside # 2. Geo.Dixon, Percy Eastman, Emil Twait, Ray Silvers, Wm. J. Schildgen, locators. Dated July 23, 1955. Filed for Record at Request of Percy Eastman, Loomis, on the 30th day of Aug. 1955, 10:15 a.m. and recorded in Volume 13 of Quartz, page 202, records of Okanogan County, State of Washington. Coleman R. Walls, Okanogan County Auditor. Auditor of said County, by B, deputy. Recorded Sep 6 1955.

Certified a true copy

Ruth A. Price
Notary Public in and for the State
of Washington residing at Seattle.

Book 13 Page 203
430176

RECEIVED
OCT 17 1955

NOTICE OF MINING LOCATION
State of Washington
Okanogan County
Nighthawk Mining District

NOTICE is hereby given, That the undersigned, having complied with the requirements of Chapter six of Title thirty-two of the Revised Statutes of the United States, and the laws of the above State, and the local customs and regulations of said District, have located and do hereby locate 1500 linear feet in length, and 600 feet in width on the Riverside No. 3 lode, vein, ledge or deposite (or placer ground) situated in the above State, County and Mining District, and further described as follows: Commencing at a post marked No. 1 at the Discovery shaft (cut or tunnel), from thence 400 feet in a N direction to an end post marked No. 2, thence 300 feet in a W direction to a corner post marked No. 3, thence 1500 feet in a S direction to a corner post marked No. 4 thence 600 feet in a E direction to a corner post marked No. 5, thence 1500 feet in a N direction to a corner post marked No. 6, thence 300 feet in a W direction to said end post No. 2; hereby locating and intending to claim 400 feet in a North direction from discovery to the North end line, and 1100 feet in the opposite direction from discovery to the South end line and 300 feet on each side of the middle of said lode or ledge, for the purpose of mining the same and claiming all surface rights, privileges and minerals, with all dips, spurs, angles and variations, and other rights granted by existing laws and customs. This claim is further described as follows:

Situated South of Similkameen River in Section No. 9, R. 26, TWP 40 N.

This notice is placed at Discovery on post No. 1; posts are placed at each corner, and the name of this lode, the date of location, are placed on allposts.

Located 23rd day of July, A.D. 1955.

Percy Eastman
Emil Twait
William J. Schildgen
Ray Silvers
George Dixon

Witnesses
Ronald Silvers

Filed for record 8/30 1955 at 10:15 a.m.
Request of Eastman
Recorded 9/6/55 Coleman R. Walls, Okanogan Co. Auditor

Reverse side

No. 430176. Mining Location. Riverside # 3 Mining Claim Percy Eastman et al locators. Recorded Sept 6 1955. State of Washington County County of Okanogan ss. This is to certify that this instrument was filed for record in the office of the Auditor of Okanogan County on Aug 30 1955 at 10 o'clock and 15 min. a. at the request of Percy Eastman and recorded in volume 13 of Quartz of said County. on pages 203 to ... inclusive. Coleman R. Walls, Okanogan County Auditor. Auditor Okanogan County, Wash. By B Deputy.

Certified a true copy

Ruth A. Price
Notary Public in and for the State
of Washington residing at Seattle

Book 13, Page 204
430177

NOTICE OF MINING LOCATION
State of Washington
Okanogan County
Nighthawk Mining District

NOTICE IS HEREBY GIVEN, that the undersigned, having complied with the requirements of Chapter six of Title thirty-two of the Revised Statutes of the United States, and the laws of the above State and the local customs and regulations of said District have located and do hereby locate 100 linear feet in length, and 1400 feet in width on the Riverside No. 4 lode, vein, ledge or deposite (or placer ground) situated in the above State, County and Mining District, and further described as follows:

Commencing at a post Marked No. 1 at the Discovery shaft (cut or tunnel), from
thence North 100 feet in a N direction to an end post marked No. 2
thence 300 feet in a W direction to a corner post marked No. 3,
thence 1500 feet in a S direction to a corner post marked No. 4,
thence 600 feet in an E direction to a corner post marked No. 5,
thence 1500 feet in a N direction to a corner post marked No. 6,
thence 300 feet in a W direction to said end post No. 2; hereby

locating and intending to claim 100 feet in a N direction from discovery to the N. end line, and 1400 feet in the opposite direction from discovery to the S. end line and 300 feet on each side of the middle of said lode or ledge, for the purpose of mining the same and claiming all surface rights, privileges, and minerals, with all dips, spurs, angles and variations, and other rights granted by existing laws and customs. This claim is further described as follows:
Sect. 9 R. 26, TWP 40 N.

This notice is placed at Discovery on Post No. 1; posts are placed at each corner, and the name of this lode, the date of location, are placed on allposts.

Located 25th day of July, A.D. 1955.

(Signed)
Ray Silvers
Emil Twait
Percy Eastman
William J. Schildgen
George Dixon
Locators

Filed for record 8/30 1955 at 10:15 a.m.
Request of Eastman. Recorded 9/6/55 Coleman R. Walls, Okanogan Co. Auditor

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No430177 Reverse side
MINING LOCATION. Riverside # 4. Mining claim of Percy Eastman, et al.
Recorded Sep 6. 1955.
State of Washington County of Okanogan) ss. This is to certify that this instrument was filed for record in the office of the Auditor of Okanogan County on Aug 30 1955 at 10:15 a.m. o'clock at the request of Percy Eastman, Loomis, and recorded in volume 13 record of Quarts of said County, on pages 204 to..inclusive. Coleman R. Walls, Okanogan County Auditor. Auditor Okanogan County, Wash. By B Deputy.

Certified a true copy
Ruth A. Price
Notary Public in and for the State
of Washington, residing at Seattle

430178 NOTICE OF MINING LOCATIO Book 13 page 205

State of Washington, Okanogan County, Night Hawk Mining Distric

NOTICE IS HEREBY GIVEN, That the undersigned, having complied with the requirements of Chapter 6 of Title 32 of the revised Statutes of the U.S., and the above state, and the local customs and regulations of said District have located and do hereby locate 1500 linear feet in length, and 600 feet in width on the Riverside No. 5 lode, vein, ledge or deposit situated in the above State, County and Mining District, and further described as follows: Commencing at post marked No. 1 at the Discovery, from

thence 300 feet in a N direction to an end post marked No. 2,
thence 300 feet in a W direction to a corner post marked No. 3,
thence 1500 feet in a S direction to a corner post marked No. 4,
thence 600 feet in a E direction to a corner post marked No. 5,
thence 1500 feet in a N direction to a corner post marked No. 6,
thence 300 feet in a W direction to end post No. 2; hereby

locating and intending to claim 300 feet in a Northerly direction from discovery to the North end line, and 1200 feet in the opposite direction from discovery to the South end line and 300 feet on each side of the middle of said lode or ledge, for the purpose of mining the same and claiming all surface rights, privileges, minerals, with all dips, spurs, angles, and variations, and other rights granted by existing laws and customs. This claim is further described as follows:

Situated in Section # 9, R 26, TWP 40, N.

This notice is placed at discovery on post No. 1; post are placed at each corner, and the name of this lode, is placed on each post.

Located this 25 day of July, A.D. 1955.

Locators: Emil Twait
William J. Schildgen
Ray Silvers
Percy Eastman
George Dixon

430178. Recorded Sep 6 1955 Okanogan County, Wash. Filed by Percy Eastman Aug 30, 1955 10:15 a.m. Book 13 of Quartz, page 205. Coleman R. Walls, Auditor, by B, Deputy.

Certified a true copy

Ruth A. Price

Notary Public in and for the State of Washington residing at Seattle

Book 13, page 206
430179

NOTICE OF MINING LOCATION
Washington State
Okanogan County
Nighthawk Mining District

NOTICE IS HEREBY GIVEN, That the undersigned, having complied with the requirements of Chapter six of Title thirty-two of the Revised Statutes of the United States, and the laws of the above State, and the local customs and regulations of said District, ha.. located and do hereby locate 1500 linear feet in length, and 600 feet in width on the Riverside No. 6 lode, vein, ledge or deposit (or placer ground), situated in the above State, County and Mining District, and further described as follows:
Commencing at a post marked No. 1 at the Discovery shaft (cut or tunnel), from thence
100 feet in a North direction to an end post marked No. 2, thence
300 feet in a West direction to a corner post marked No. 3, thence
1500 feet in a South direction to a corner post marked No. 4, thence
600 feet in an East direction to a corner post marked No. 5, thence
1500 feet in a North direction to a corner post marked No. 6, thence
300 feet in a West direction to said end post No. 2; hereby locating and intending to claim 100 feet in a north direction from discovery to the north end line, and 1400 feet in the opposite direction from discovery to the south end line, and 300 feet on each side of the middle of said lode or ledge, for the purpose of mining the same and claiming all surface rights, privileges, and minerals, with all dips, spurs, angles and variations, and other rights granted by existing laws and customs. This claim is further described as follows:
Riverside Claim No. 6. In Section No. 9, R-26, TWP 40 N.

This notice is placed at Discovery on post No. 1; posts are placed at each corner, and the name of this lode, and date of location, are placed on all posts.
Lodated 25th day of July, A.D. 1955.

Emil Twait
William J. Schildgen
Ray Silvers
Percy Eastman
George Dixon
Locators.

Filed for record 8/30 1955 at 10:15 a.m. Request of Eastman.
Recorded 9/6/55. Coleman R. Walls, Okanogan Co. Auditor.

Reverse side
No. 430179. Mining Location. Riverside # 6. Mining Claim. Locators. Percy Eastman, et al. Recorded Sep 6 1955.
State of Washington County of Okanogan) ss. This is to certify that this instrument was filed for record in the office of the Auditor of Okanogan County on Aug 30 1955 at 10:15 a.m. at the request of Percy Eastman and recorded in volume 13 record of Quartz of said County, on pages 206 inclusive. Auditor Okanogan County, Wash. Coleman R. Walls, Okanogan County Auditor. By B Deputy.

Certified a true copy Ruth A. Price
Notary Public in and for the State of Washington residing at Seattle

430180 Book 13, page 207

NOTICE OF LOCATION

NOTICE IS HEREBY GIVEN, That the undersigned, having complied with the requirements of SECTION 2324 of the REVISED STATUTES of the United States, and the local laws, customs, and regulations of the District, has located Fifteen hundred feet in length by 600 feet in width, on the Riverside No. 7 Lode, Vein or Deposit, bearing Uranium, Vanadium, Gold, Silver, Copper, Lead and other valuable minerals, situated

S. 9 - R. 26 - TWP 40, South Side, Similkameen River, in the Nighthawk Mining District, Okanogan County, State of Washington, the location being described and marked on the ground as follows, to-wit:

Beginning 200 feet North of this location discovery Monument, at the North and center monument, Post No. 1, and running thence west 300 feet in a W direction to an end post marked No. 2, thence NW 1500 feet in a S. direction to a corner, thence S.W. 600 feet in a E. direction to a corner post marked No. 4, thence S.E. 1500 feet in a N.direction to a corner Post No. 5, thence N.E. 300 feet in a W. direction to end post No. 2; with all dips, spurs, angles and variations. This claim is further described as follows:

North West corner claim of the Riverside Group of Claims.

This notice is placed at discovery on post No. 1; posts are placed at each corner, and the name of this lode is placed on each post.

The above described mining claim shall be known as the Riverside No. 7.

Located this 27 day of Aug 1955.

Name of Locators: Emil Twait
Ray Silvers
Percy Eastman
George Dixon
William J. Schildgen

Slip attached:

430180. Location Riverside # 7. Percy Eastman et al. Recorded Sep 6, 1955 Okanogan County, Wash. Filed by Percy Eastman, Aug 30 1955, 10:15 a.m. Book 13 Quarts, page 207. Coleman R.Walls, Auditor. By B, deputy.

Certified a true copy

Ruth A. Price

Notary Public in and for the State of Washington, residing at Seattle

NOTICE OF LOCATION.

NOTICE IS HEREBY GIVEN, That the undersigned, having complied with the requirements of SECTION 2324 of the REVISED STATUTES of the United States, and the Local Laws, Customs and Regulations of the District, has located Fifteen hundred feet in length by 600 feet in width, on this
the RIVERSIDE NO. 8 Lode, Vein, or Deposit, bearing Uranium, Vanadium, Gold, Silver, Copper, Lead, and other valuable minerals situated
S. 9 - R. 26, TWP 40 South Side
Similkameen River, in the Nighthawk
Mining District, Okanogan County, State of Washington, the location being described and marked on the ground as follows, to-wit:

Beginning 100 feet North of this location (discovery) Monument, at the North end center monument Post No. 1, and running thence West 300 feet in a W direction to an end post marked No. 2, thence N.W. 1500 feet in a S direction to a corner post marked No. 3, thence S.W. 600 feet in a E direction to a corner post marked No. 4, thence S.E. 1500 feet in a N direction to a corner post marked No. 5, thence N.E. 300 feet in a W direction to end post No. 2; with all dips, spurs, angles and variations. This claim is further described as follows:

This notice is placed at discovery on post No. 1; posts are placed at each corner, and the name of this lode is placed on each post.

The above described Mining Claim shall be known as the Riverside No. 8.

Located this 27 day of August, 1955.

Name of Locators: Percy Eastman
Ray Silvers
George Dixon
Emil Twait
William J.Schildgen

Slip attached. 430818. Riverside # 8. Percy Eastman et al. Recorded Sep 6 1955, Okanogan County, Wash. Filed by Percy Eastman Aug 30, 1955. 10:15 a.m. Book 13 Quartz, page 208. Coleman R. Walls, Auditor, by B, Deputy.

Certified a true copy

Ruth A. Price
Notary Public in and for the State of Washington residing at Seattle

Book 13, page 209
430182

NOTICE OF MINING LOCATION
State of Washington
Okanogan County
Nighthawk Mining District

NOTICE IS HEREBY GIVEN, That the undersigned, having complied with the requirements of Chapter six of Title thirty-two of the Revised Statutes of the United States, and the laws of the above State, and the local customs and regulations of said District have located and do hereby locate 1500 linear feet in length, and 600 feet in width on the Riverside No. 9 lode, vein, ledge or deposite, (or placer ground) situated in the above State, County and Mining District, and further described as follows: Commencing at a post marked No. 1 at the Discovery shaft (cut or tunnel), from
thence 200 feet in a N direction to an end post marked No. 2,
thence 300 feet in a W direction, to a corner post marked No. 3,
thence 1500 feet in a S direction to a corner post marked No. 4,
thence 600 feet in a E direction to a corner post marked No. 5,
thence 1500 feet in a N direction to a corner post marked No. 6,
thence 300 feet in a W direction to said end post No. 2; hereby locating and intending to claim 200 feet in a North direction from discovery to the North end line, and 1300 feet in the opposite direction from discovery to the south end line and 300 feet on each side of the middle of said lode or ledge; for the purpose of mining the same and claiming all surface rights, privileges, and minerals, with all dips, spurs, angles and variations, and other rights granted by existing laws and customs. This claim is further described as follows:
Bounding up to the N. side of Section 16, claim situated in Section 9, R-26, TWP 40 N.

This notice is placed at Discovery on post No. 1; posts are placed at each corner, and the name of this lode, the date of location, are placed on all posts.
Located 27th day of August, A.D. 1955.

William J. Schildgen
Emil Twait
Percy Eastman
Ray Silvers
George Dixon
Locators.

Witness
Ronald Silvers

Filed for record 8/30 1955 at 10:15 a.m. Request of Eastman.
Recorded 9/6/55 Coleman R. Walls Okanogan Co. Auditor.

Reverse side

No. 430182. Mining Location. Riverside # 9. Mining Claim Percy Eastman, locators et al. Recorded Sep 6 1955. State of Washington County of Okanogan) ss. This is to certify that this instrument was filed for record in the office of the Auditor of Okanogan County on Aug 30 1955 at 10:15 a.m. at the request of Percy Eastman and recorded in volume 13 record of Quarts of said County, on pages 209 to..inclusive. Coleman R. Walls, Okanogan County Auditor. Auditor Okanogan County, Washington. By B, Deputy.

Certified a true copy

Ruth A. Price
Notary Public in and for the State of Washington residing at Seattle.

Book 13 page 210
430183

NOTICE OF MINING LOCATION
State of Washington
Okanogan County
Nighthawk Mining District

NOTICE IS HEREBY GIVEN, That the undersigned, having complied with the requirements of Chapter six of Title thirty-two of the Revised Statutes of the United States, and the laws of the above State, and the local customs and regulations of said District have located and do hereby locate 1500 linear feet in length, and 600 feet in width on the Riverside No. 10 lode, vein ledge or deposite (or placer ground) situated in the above State, County and Mining District, and further described as follows: Commencing at a post marked No. 1 at the Discovery shaft (cut or tunnel), from
thence 250 feet in a N direction to an end post marked No. 2,
thence 300 feet in a W direction to a corner post marked No. 3,
thence 1500 feet in a S direction to a corner post marked No. 4,
thence 600 feet in a E direction to a corner post marked No. 5,
thence 1500 feet in a N direction to a corner post marked No. 6,
thence 300 feet in a W direction to said end post No. 2; hereby locating and intending to claim 250 feet in a North direction from discovery to the North end line, and 1250 feet in the opposite direction from discovery to the South end line and 300 feet on each side of the middle of said lode or ledge, for the purpose of mining the same and claiming all surface rights, privileges, and minerals, with all dips, spurs, angles and variations, and other rights granted by existing laws and customs. This claim is further described as follows:

Joining Section No. 16, situated in Section No. 9, R. 26, TWP 40 N.

This notice is placed at Discovery on post No. 1; posts are placed at each corner, and the name of this lode, the date of location, are placed on all posts.

Located 27th day of August, A.D. 1955.

William J. Schildgen
Roy Silvers
Percy Eastman
Emil Twait
George Dixon
Locators

Witnesses
Roland L. Silvers

Filed for record 8/30 1955 at 10:15 a.m. Request of Eastman. Recorded 9/6/55 Coleman R.Walls, Okanogan Co. Auditor.

Reverse side

No. 430183. Mining Location Riverside # 10. Percy Eastman et al locators. Recorded Sep 6 1955. State of Washington County of Okanogan) ss. This is to certify that this instrument was filed for record in the office of the Auditor of Okanogan County on the day of Aug 30 1955 at 10:15 a.m. at the request of Percy Eastman and recorded in volume 13 record of Quartz of said County, on pages 210 to..inclusive. Coleman R.Walls Okanogan County Auditor. Auditor Okanogan County, Wash. By B, Deputy.

Certified a true copy

Ruth A. Price
Notary Public in and for the State
of Washington residing at Seattle

430184 Book 13 Page 211

NOTICE OF MINING LOCATION

State of Washington, Okanogan County, Nighthawk District.

NOTICE IS HEREBY GIVEN, that the undersigned, having complied with the requirements of Chapter 6 of Title 32 of the Revised Statutes of the U.S., and the above state, and the local customs and regulations of said District, have located and do hereby locate 1500 linear feet in length and 600 feet in width on the Riverside No. 11 lode, vein, ledge or deposit situated in the above State, County and Mining District, and further described as follows: Commencing at post marked No. 1 at the Discovery, from

thence 350 feet in a N direction to an end post marked No. 2,
thence 300 feet in a W direction to a corner post marked No. 3,
thence 1500 feet in a S direction to a corner post marked No. 4,
thence 600 feet in a E direction to a corner post marked No. 5,
thence 1500 feet in a N direction to a corner post marked No. 6,
thence 300 feet in a W direction to end post No. 2; hereby

locating and intending to claim 350 feet in a North direction from discovery to the North end line, and 1150 feet in the opposite direction from discovery to the south end line and 300 feet on each side of the middle of said lode or ledge, for the purpose of mining the same and claiming all surface rights, privileges, minerals, with all dips, spurs, angles and variations, and other rights granted by existing laws and customs.

This claim is further described as follows:
Joining north side of Section 16, situated in Section 9, R-26, TWP 40 N.

This notice is placed at discovery on Post No. 1; posts are placed at each corner, and the name of this lode is placed on each post.
Located this 27th day of August, A.D. 1955.

Locators: Emil Twait
Ray Silvers
Percy Eastman
William Jl Schildgen
George Dixon

430184. Location. Recorded Sept. 6 1955 Okanogan County, Wash. Percy Eastman. Aug 30, 1955, 10:15 a.m. Book 13 Quartz 211. Coleman R. Walls, Auditor. B, Deputy.

Certified a true copy

Ruth A. Price
Notary Public in and for the State of Washington residing at Seattle

Book 13 page 212 NOTICE OF MINING LOCATION 430185
State of Washington, Okanogan County, Nighthawk District.

NOTICE IS HEREBY GIVEN, that the undersigned, having complied with the requirements of Chapter 6 of Title 32of the revised Statutes of the U.S., and the above state, and the local customs and regulations of said District have located and do hereby locate 1500 linear feet in length, and 600 feet in width on the Riverside No. 12 lode, vein, ledge or deposit situated in the above State, County, and Mining District, and further described as follows:

Commencing at post marked No. 1 at the Discovery, from
thence 450 feet in a N direction to an end post marked No. 2,
thence 300 feet in a W direction to a corner post marked No. 3,
thence 1500 feet in a S direction to a corner post marked No. 4,
thence 600 feet in a E direction to a corner post marked No. 5,
thence 1500 feet in a N direction to a corner post marked No. 6,
thence 300 feet in a W direction to end post No. 2; hereby locating and intending to claim 450 feet in a North direction from discovery to the North end line, and 1050 feet in the opposite direction from discovery to the south end line, and 300 feet on each side of the middle of said lode or ledge, for the purpose of mining the same and claiming all surface rights, privileges, minerals, with all dips, spurs, angles and variations, and other rights granted by existing laws and customs.

This claim is further described as follows:
Joining Section No. 16 on the South end of the claim, and situated in Section No. 9, R-26, TWP 49 N.

This notice is placed at discovery on post No. 1; posts are placed at each corner, and the name of this lode is placed on each post.

Located this 27th day of August, A.D. 1955.

LOCATORS:
Ray Silvers
Percy Eastman
Emil Twait
William J. Schildgen
George Dixon

430185. Location. Recorded Sep 6, 1955. Okanogan County, Wash.
Percy Eastman Aug 30, 1955, 10:15 a.m. Book 13 of Quartz, page 212.
Coleman R. Walls, Auditor, by B, Deputy.

Certified a true copy

Ruth A Price
Notary Public in and for the State
of Washington residing at Seattle

430186 NOTICE OF MINING LOCATION Book 13 page 213

State of Washington, Okanogan County, Nighthawk District

NOTICE IS HEREBY GIVEN, that the undersigned, having complied with the requirements of Chapter 6, of Title 32, of the Revised Statutes of the U.S., and the above state, and the local customs and regulations of said District, have located and do hereby locate 1500 linear feet in length, and 600 feet in width, on the Riverside No. 13 lode, vein, ledge or deposit situated in the above State, County and Mining District, and further described as follows:

Commencing at post marked No. 1 at the Discovery, from
thence 600 feet in a N direction to an end post marked No. 2,
thence 300 feet in a W direction to a corner post marked No. 3
thence 1500 feet in a S diredtion to a corner post marked No. 4
thence 600 feet in a E direction to a corner post marked No. 5
thence 1500 feet in a N direction to a corner post marked No. 6,
thence 300 feet in a W direction to end post No. 2; hereby locating and intending to claim 600 feet in a North direction from discovery to the North end line, and 900 feet in the opposite direction from discovery to the South end line and 300 feet on each side of the middle of said lode or ledge, for the purpose of mining the same, and claiming all surface rights, privileges, minerals, with all dips, spurs, angles and variations, and other rights granted by existing laws and customs.

This claim is further described as follows:
Joining North Side of Section 16, situated in
Section 9, R-26, TWP 40 N.

This notice is placed at discovery on post No. 1; posts are placed at each corner, and the name of this lode is placed on each post.

Located this 27th day of August, A.D. 1955.

LOCATORS
Emil Twait
Percy Eastman
William J. Schildgen
Ray Silvers
George Dixon

430186. Locators. Recorded Sep 6 1955. Okanogan County, Wash. Filed by Percy Eastman Aug 30, 1955, 10:15 a.m. Book 13 of Quartz 213. Coleman R. Walls, Auditor, by B, Deputy.

Certified a true copy

Ruth G. Price

Notary Public in and for the State of Washington residing at Seattle.

Book 13 page 214 430187

NOTICE OF MINING LOCATION

State of Washington, Okanogan County, Nighthawk District

NOTICE IS HEREBY GIVEN, that the undersigned, having complied with the requirements of Chapter 6 of Title 32 of the Revised Statutes of the U.S., and the above state, and the local customs and regulations of said District, have located and do hereby locate 1500 linear feet in length, and 600 feet in width on the Riverside No. 14 lode, vein, ledge or deposit situated in above State, County, and Mining District, and further described as follows:

Commencing at post marked No. 1 at the Discovery, from

thence 550 feet in a N direction to an end post marked No. 2,
thence 300 feet in a W direction to a corner post marked No. 3,
thence 1500 feet in a S direction to a corner post marked No. 4
thence 600 feet in a E direction to a corner post marked No. 5,
thence 1500 feet in a N direction to a corner post marked No. 6,
thence 300 feet in a W direction to end post No. 2; hereby locating and intending to claim 550 feet in a North direction from discovery to the North end line, and 950 feet in the opposite direction from discovery to the south end line and 300 feet on each side of the middle of said lode or ledge, for the purpose of mining the same and claiming all surface rights, privileges, minerals, with all dips, spurs, angles and variations, and other rights granted by existing laws and customs.

This claim is further described as follows:
Joining the North Side of Section 16,
situated in Section 9, R. 26, TWP 40 N.

This notice is placed at discovery on post No. 1; posts are placed at each corner, and the name of this lode is placed on each post.

Located this 27th day of August, A.D. 1955.

Locators Percy Eastman
Ray Silvers
Emil Twait
William Schildgen
George Dixon

430187. Location. Recorded Sep 6 1955. Okanogan County, Wash. Filed by Percy Eastman Aug 30, 1955, 10:15 a.m. Book 13 Quartz Page 214. Coleman R. Walls, Auditor, by B, Deputy.

Certified a true copy

Ruth A. Price
Notary Public in and for the State of Washington residing at Seattle

- TO WHOM IT MAY CONCERN -

This is an instrument where the undersigned appoint and authorize Mr. Ray Silvers of Loomis, Wash., in the partnership of George Dixon, Percy Eastman, Ray Silvers, William J. Schildgen and Emil Twait, owners and locators of the Riverside mining claims No. 1 to 15 inclusive, to sign and execute all papers and documents necessary to lease and operate said mining claims.

Loomis, Wash., Sept. 10 - 1955

Witnesses:

Floyd W. Hill

Signed: Emil Twait

Percy Eastman

William J. Schildgen

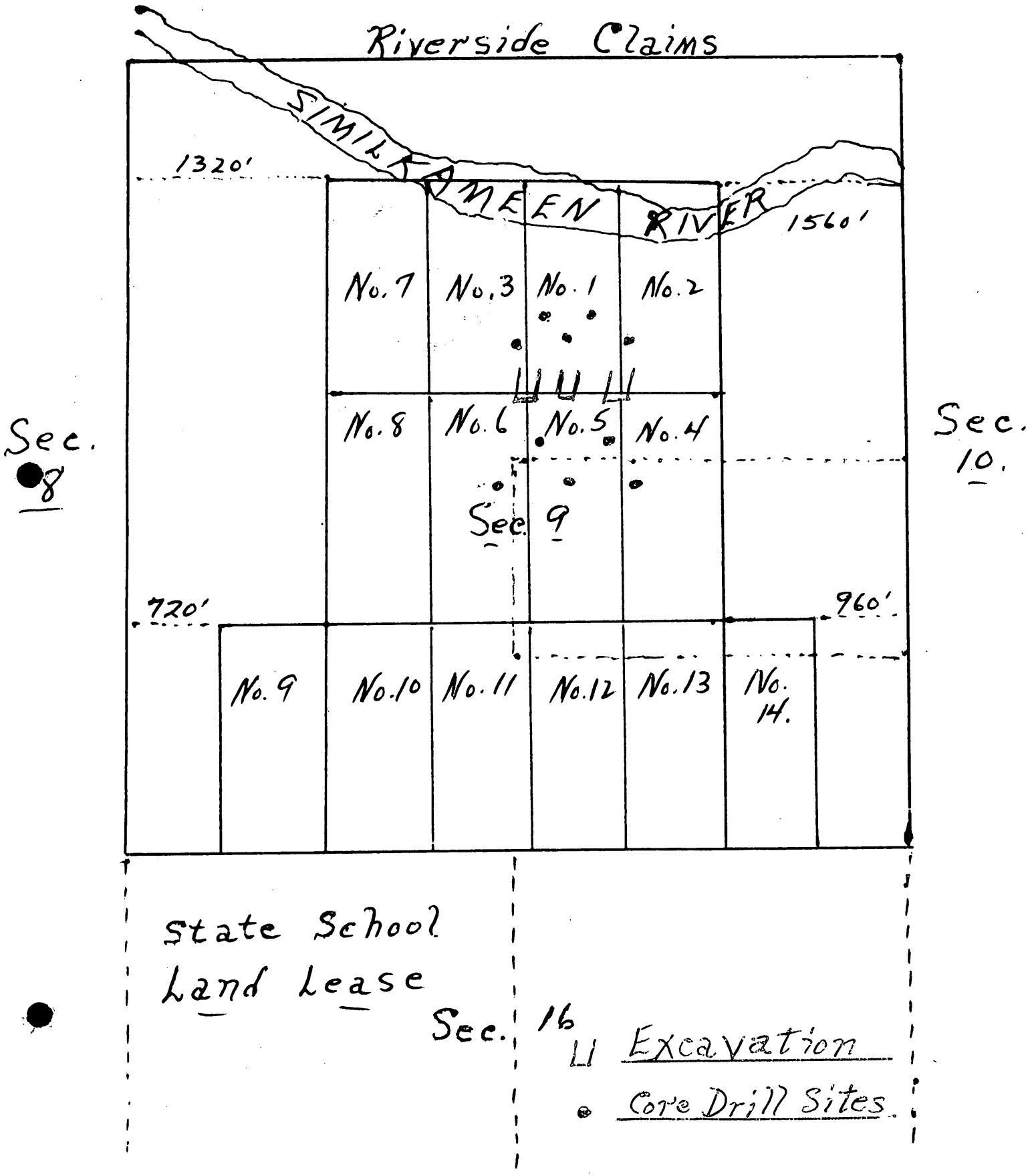
George Dixon

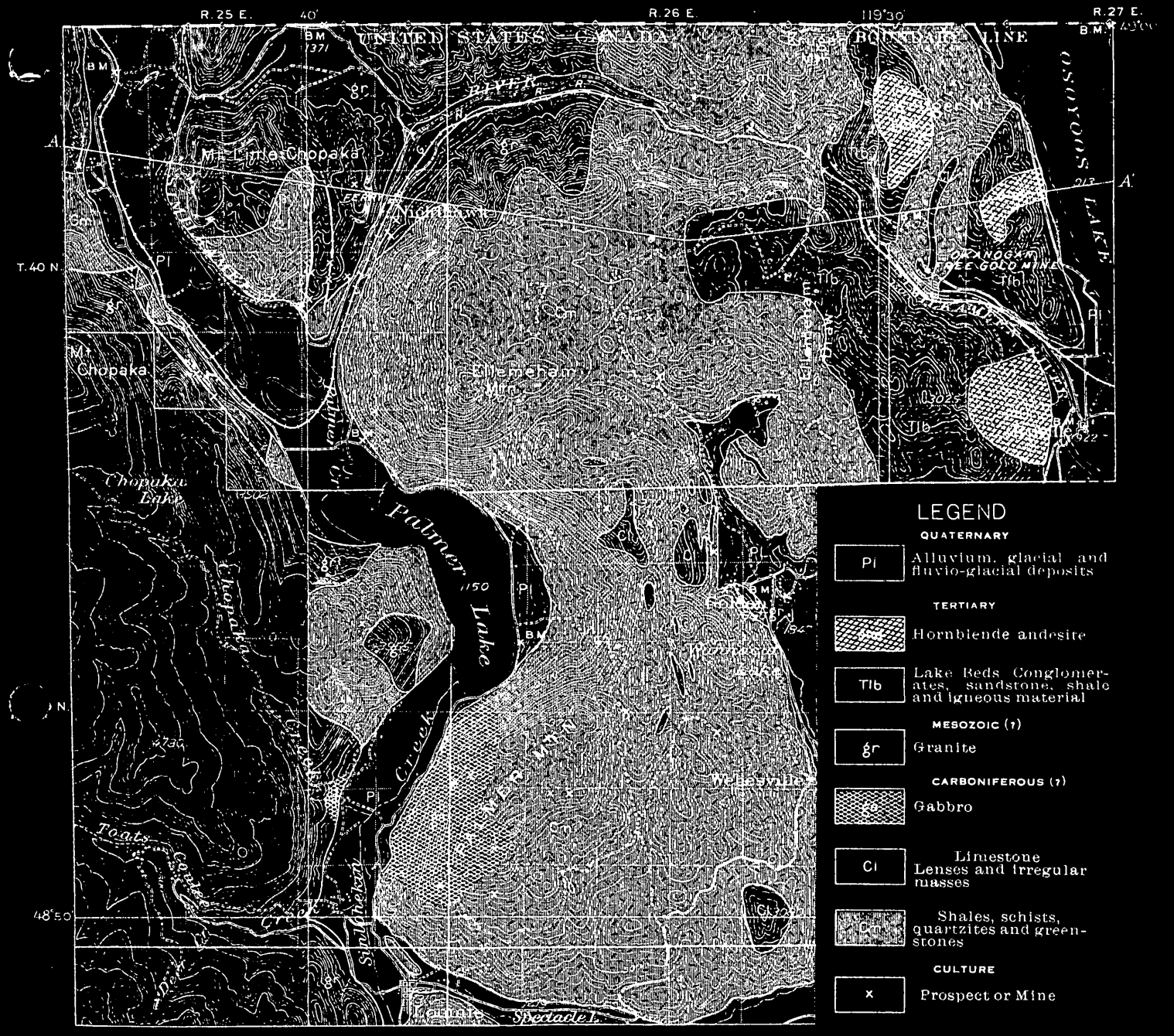
Certified a true copy

Notary Public in and for the State of Washington, residing at Seattle.

Township 40N., Range 26 E. W. M.

OKANOGAN COUNTY, WASHINGTON.





Topography by United States Geological Survey Surveyed in 1902-3

Geology by J. B. Umpleby and Olaf Stromme Washington Geological Survey Surveyed in 1909

GEOLOGIC MAP OF OROVILLE-NIGHTHAWK DISTRICT

BY JOSEPH B. UMPLEBY

ASSISTED IN THE FIELD BY OLAF STROMME

Scale

1 ½ 0 1 2 3 4 5 Miles

1 ½ 0 1 2 3 4 5 Kilometers

Contour interval 100 feet.

Datum is mean sea level.

SECTION ALONG *A-A'*

Reprint from Part II

Washington Geological Survey

Bulletin No. 5

by Joseph B. Umpleby.

GEOLOGY AND ORE DEPOSITS OF THE OROVILLE-NIGHTHAWK MINING DISTRICT.

INTRODUCTION.

LOCATION.

The area considered in Part II of this bulletin includes six mining districts, no one of which has been assigned definite boundaries while in some instances two or more names are locally applied to the same district. For purposes of convenience in this paper the designation "Oroville-Nighthawk" has been applied to the entire area since these are the two principal towns and by their geographic position imply more accurately than the name of an individual district the scope of the territory studied.

Oroville, a little town of 500 population situated at the south end of Lake Osoyoos, is the principal settlement in the area. Nighthawk, twelve miles west of Oroville, and Loomis, about fifteen miles southwest are both small settlements, each with a postoffice and hotel. There is a small store and postoffice at Wehesville. A branch line of the Great Northern railway extending northward and westward from Spokane, traverses the area along the valley of Similkameen river. Right-of-way has been secured for an electric road along Sinlahekin creek which, when completed, will afford ready transportation to Conconully and other points south.

FIELD WORK AND ACKNOWLEDGMENTS.

Field work occupied the interval from August 4 to August 27, 1909, the mines and principal prospects being visited and examined in such detail as time permitted and a map of the general geology prepared. Through the field season the writer was ably assisted by Mr. Olaf Stromme, most of the areal geol-

ogy being mapped by him. Mr. Stromme also assisted in the preparation of parts of the report. Courtesies extended by the many mining men in the area were too numerous to permit of individual mention.

EARLIER WORK.

The Oroville-Nighthawk district being a part of the area under consideration at the time of the survey of the international boundary, was visited and examined in a general way by geologists of both Canada and the United States. For the United States Messrs. George Otis Smith and Frank C. Calkins undertook, in 1901, a reconnaissance from Osoyoos Lake westward. Although the major portion of their work was topographic and connected with the examination of the boundary, yet considerable information on the general geology of the country traversed was accumulated and is recorded in a special bulletin of the United States Geological Survey. (*a*).

The work by the Canadian government corresponding to the above was carried out by Dr. Reginald A. Daly. Several articles have appeared as a result of his studies, both in the publications of the Geological Survey of Canada and in technical journals. The paper, however, having the most intimate bearing on the area herein considered is entitled "The Okanogan Composite Batholith of the Cascade Mountain System," in which Mr. Daly discusses in great detail the composition and relations of the intrusive masses of the area. (*b*)

Mr. Baily Willis passed through the district in 1887, making many notes on the physiographic features. (*c*)

Reference to work in adjoining areas will be made in the text.

(*a*) Smith, G. O., and Calkins, F. C., A geological reconnaissance across the Cascade range near the forty-ninth parallel. Bull. U. S. Geol. Survey No. 235, 1904.

(*b*) Bull. G. S. A., Vol. 17, 1906, pp. 329-376.

(*c*) Willis, Bailey, Changes in river courses in Washington territory due to glaciation. Bull. U. S. Geol. Survey No. 40, 1887.

CHAPTER I.

PHYSIOGRAPHY.

GENERAL STATEMENTS.

The Oroville-Nighthawk district is situated in Okanogan county, and comprises the northeast part of the Chopaka and the northwest part of the Osoyoos quadrangles, as mapped by the United States Geological Survey. It is from six to thirteen miles in length by seven to fifteen miles in width, the international boundary forming its northern border.

The area mapped is embraced in that physiographic division of the state known as the Okanogan highlands and is characterized by deeply dissected land forms. Elevations range from 922 feet above sea level at Oroville, to 7,829 feet at the summit of Mt. Chopaka, although 3,500 to 4,000 is about the average altitude; with the larger inter-mountain valleys varying in depth from 2,000 to 2,800 feet. The sharpest transition from lowland to highland within the area is that from the floor of Similkameen valley to the south summit of Mt. Chopaka, where there is a rise of about 6,200 feet in a horizontal distance of two and one-third miles. Such slopes, however, are rare in the area, the rounded forms predominating. In general the district is a rolling upland rather deeply gashed by the valleys which drain it.

Prominent valleys divide the district into several distinct divisions chief of which are the Mt. Chopaka division, the Mt. Elemeham-Palmer Mountain division, and the Mt. Little Chopaka-Kruger Mountain division. The presence of these mountain areas in contrast to the intermontane valleys, seems to be due largely to stream courses which antedate the present topographic cycle rather than to differences in rock resistance or to structure. Roughly, the Okanogan valley forms the eastern boundary of the area, the Similkameen the northern boundary, the valley of Sinlahekin creek and of the Similkameen the west-

ern boundary, and Spectacle lake valley the southern boundary. The most interesting one of these is that along the western side of the area. This valley, although occupied in one part by a river, in another by a lake and in a third by a small creek flowing in a direction opposite to that of the river, is of almost constant width and about uniform depth. It continues south for many miles but within the area studied are two cross depressions of much less striking characteristics, which connect it with Okanogan valley to the east. One of these is at Loomis and the other along the course now occupied by the Similkameen river east of Nighthawk. The east-west depression joining the main valley at Loomis has a flat from one-fourth to one-half mile wide, giving way by gentle slopes and comparatively low cliffs to the higher country north and south. Spectacle lake, a narrow body of water two and one-half miles long, occupies the valley about half way betwen Loomis and the Okanogan river. The valley extending east from Nighthawk is steeper and more gorge-like in the east two-thirds of its extent than the one just described, but in the section near Nighthawk there is a narrow flat on each side of the river and the stream is sluggish.

Mr. Bailey Willis made a reconnaissance through the area in the later eighties and in the resulting publication* suggests that the Similkameen river formerly flowed south through the large valley first described, joining the Columbia at some point south of Conconully. In the Pleistocene period a great stream of ice occupied the valley, and deposited vast quantites of materal upon its floor. During the general ice recession there were several places where the waters from the glacier found lower outlets to the east than over the glacial debris to the south. Spectacle lake is thought to be one of these outlets and it is probable that it carried the waters from the ice front after it had retreated to a point above Loomis, and until it stood in the vicinity of the Canadian boundary, when it became possible for the stream to take its present course to the north. The

*Willis, Bailey, United States Geological Survey, Bulletin No. 40, 1887.

general topographic relations suggest that the present course of the river east of Nighthawk is due to piracy in post-glacial time by a stream working headward from near Oroville, but this is considered improbable as fine terraces of stratified drift occur at various places in the valley near the level of the river. Since the section of this valley near Nighthawk is broad and open, with a sluggish stream, while that part near Oroville is narrow and carries rapidly moving waters, the most feasible explanation of the relation seems to be that, in pre-glacial times, this valley was occupied in its eastern part by a tributary of the Okanogan and in its western by one of the Similkameen, the intervening divide being low. After the ice front had retreated to some point to the north, the waters escaped eastward over the divide due to the damming of the main valley to the south and the course has been held since that time.

Within the area mapped evidences of glaciations were seen at all altitudes visited. Striations, even when on the east and west slopes of the mountains* have a north south direction. This nullifies the possibility of local centers of radiation on the higher areas, and leaves no room for doubt that the ice which covered the area was the southward extension of the Cordilleran ice sheet which radiated from the highlands of British Columbia.

The soils of the valley floors are alluvial, while those of the terraces and benches bordering the valleys are glacial and in some cases partly alluvial. The valleys are all treeless in their natural condition, the vegetation consisting of sagebrush and greasewood, largely the former.

The area covered by this report is rather sparsely settled, and the inhabitants are engaged in agriculture, horticulture, stock raising and mining. The valleys require irrigation, as the rainfall is light, but when watered the soil will produce in great abundance any crop grown in the temperate zone; particularly apples, pears, small fruits and vegetables. Horticulture is in its infancy, however, and very little land is now under irriga-

*Mt. Elemeham, west slope at elevation of 4,600 feet shows small area of bedrock with striations running north 11 degrees west.

tion. There are a few places which are irrigated from creeks and in a few cases pumping plants have been installed, but no large irrigation canals have been attempted. On the uplands, up to an elevation of 3,000 feet or more, wheat, oats, and the hardier vegetables are successfully grown and yield abundantly, without irrigation. The bunch grass land of the higher altitudes is well adapted to grazing and there is still some open range, but owing to the altitude, the season is too short and the nights too cold for successful raising of crops.

The mining industry furnishes employment to a considerable number of men during much of the year, more in the carrying on of development and assessment work, than in the mining of ore.

Lack of adequate transportation facilities has been one of the chief drawbacks to the development of the area. Oroville, the principal town, is situated on a branch line of the Great Northern railway, as is Nighthawk, one of the smaller towns. Loomis, in the southwest part of the area, is reached by stage from Nighthawk or Conconully. The Oroville branch of the Great Northern railway follows the Similkameen valley from Oroville to Nighthawk, and then extends northerly up the valley into British Columbia. The area has a fair system of wagon roads, the principal ones following the valleys and having easy grades.

On the Similkameen river, about three miles northwest of Oroville there is a hydro-electric plant where approximately 600-horse-power is developed from a natural fall in the river, only a small portion of which is diverted. The current is transmitted to Oroville, and to the more important mines of the district. It is safe to say that less than ten per cent. of the power available on the Similkameen in Okanogan county has been developed, and it would seem that with an ample supply of water, such as exists in the Similkameen and Okanogan rivers and in Osoyoos and Palmer lakes, there ought to be an excellent opportunity for supplying cheap electric power for pumping water onto the bench lands.

It is probable that all the physiographic features of the area are post-Eocene and perhaps post-Miocene and had reached the stage of maturity which is characterized by approximately equal areas in upland and lowland flats, in other words, by a maximum of slope, before glacial times. The ridges were narrow, the slopes steep and the valleys deeply carved and "V-shaped." In the Pleistocene the cycle was interrupted by deposition of a mantle of drift on the uplands, the partial filling of the valleys with glacial material and resulant choking of the drainage system. Many closed basins were formed and in some of them lakes exist throughout the year. As would be expected in an area of heavily mineralized and heterogeneous rocks, these lakes being without outlet, and therefore subject to a constant concentration of impurities in the water by evaporation, contain a high percentage of mineral matter. The precipitates from some of them have been exploited recently but with what success is not known.

CORRELATION OF EROSION PERIODS.

The area herein described does not have that general accordance of summit levels which is very evident from a point of vantage in most parts of the Okanogan country. If its topographic cycle is to be defined, recourse must be made to records in adjoining regions. But there, as will be seen beyond, difficulties are encountered due to difference in age of the erosion surface known to the west and southwest and that occurring to the north and east.

G. M. Dawson* recognizes a peneplain in the interior plateau of Canada, remnants of which stand at elevations of from 4,000 to 6,000 feet above sea level, in the southern half of the interior plateau of today. The evidence for the Eocene age of this surface is the presence of Miocene beds in great valleys developed in it and the broad fact that extensive Eocene deposits are found in adjoining physiographic areas to the south while none are found here, which seems to imply that the area was land during the Eocene period.

*Dawson, G. M., Trans. Royal Society of Canada, 1890, p. 11.

In the Republic area (*a*) to the east an erosion surface was recognized and on the strength of fossiliferous beds so related as to be fairly conclusive, was assigned to the Eocene.

South of the area herein mapped, however, Bailey Willis (*b*) found that the oldest erosion surface recorded, the Methow stage, is cut on all rocks of the region including "the bedded basalt flows and the pumiceous clastics of the Ellensburg formation, which is known definitely to be of the Miocene age."

It appears therefore, that the old physiographic surface to the north is Eocene while that to the south is post-Miocene.

In a reconnaissance across the Cascade mountains along the forty-ninth parallel, Smith and Calkins (*c*), recognize this relation, for in referring to the physiographic differentiation of the Cascade mountains they write in part as follows:

"An example of this is found in the occurrence of an Eocene peneplain in the interior plateau region, while in the Cascades peneplaination of Eocene age has not been recognized, and indeed in central Washington the Miocene lavas are known to rest upon a surface possessing considerable relief."

Within the area represented by the present map the former erosion surface has been so destroyed that it is of little value for purposes of age determinations. All the older rocks, including the Similkameen batholith at least in its eastern part, have been beveled by it. Lake beds found west of Oroville and evidently occupying a post-peneplain depression, did not yield fossils, but in their lithologic characteristics and the association of andesite flows with them, they resemble very strongly the Miocene beds at Republic. These facts, together with the known occurrences of Miocene lake beds in British Columbia, suggests that this part of the area belongs to that physiographic unit known as the interior plateau of British Columbia;

(*a*) Umpleby, J. B., Washington Geological Survey, Bul. No. 1, pp. 19-20, 1910.

(*b*) Smith, G. O., and Willis, Bailey, U. S. Geol. Survey, PP. 19, pp. 17-71.

(*c*) Smith, G. O., and Calkins, F. C., U. S. Geol. Survey, Bul. 235, p. 90, 1904.

and if so, was peneplained in the Eocene period. Mt. Chopaka in point of elevation seems to correspond better with the post-Miocene surface to the west and may belong to the Cascade unit. If this relation is true the line of union of the Eocene and post-Miocene erosion surfaces will probably be found, within the present area, to approximately follow the Similkameen-Sinlahekin depression.

CHAPTER II.

GENERAL GEOLOGY.

BRIEF STATEMENT OF GEOLOGIC HISTORY.

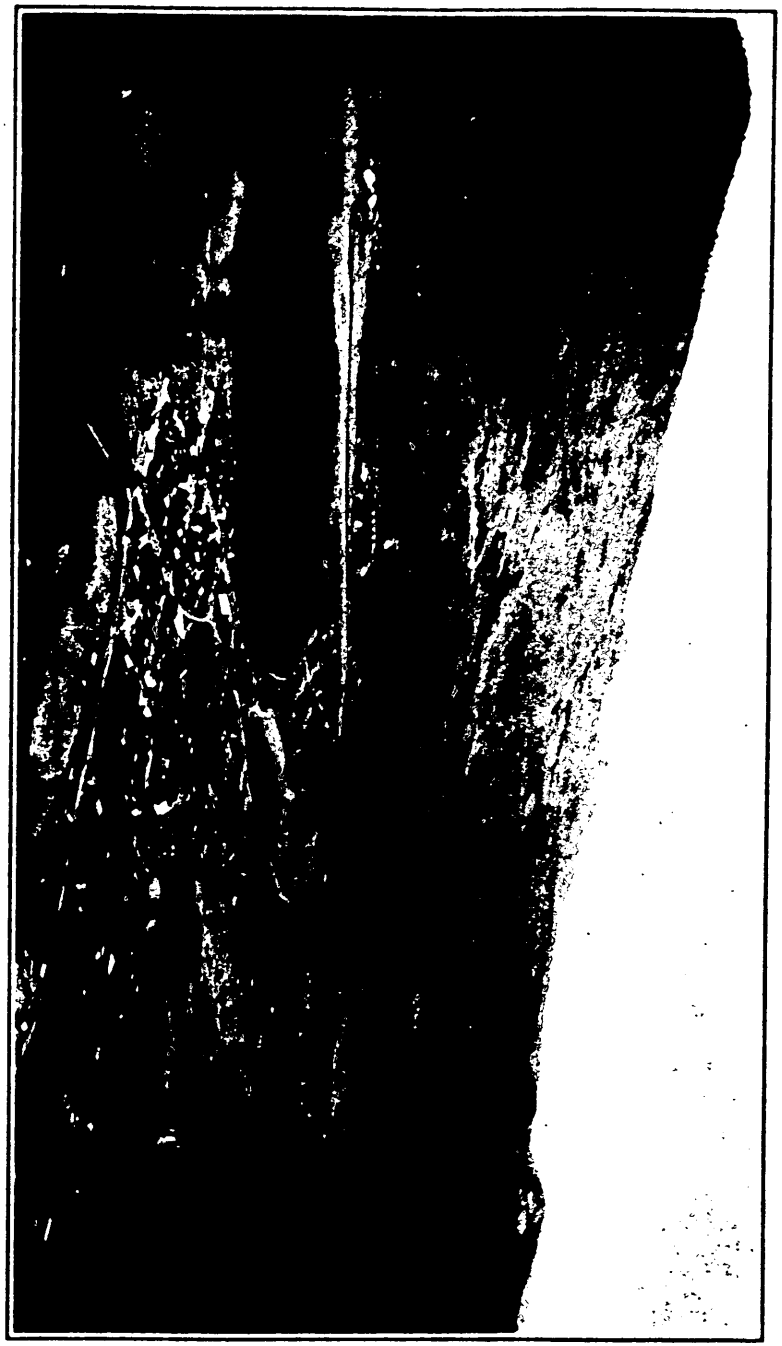
The broader features of the gologic history of the Oroville-Nighthawk area include sedimentation accompanied by igneous activity in the Paleozoic, with regional movements and resulting metamorphism about its close; erosion, and great batholithic intrusions, in the Mesozoic; planation in the early Tertiary, followed by elevation and erosion, the accumulation of lake beds and lava flows; and erosion and continental glaciation in the Quaternary.

The oldest rocks exposed in the area are the metamorphic equivalents of shales, sandstones, limestones and intrusive and extrusive basic igneous rocks, all of which appear to have been subjected to the same period of structural movements and regional metamorphism. On lithologic grounds this series is tentatively correlated with the Cache creek series of British Columbia which is Carboniferous. Intruded into these older rocks is a great granite batholith which, since it does not show evidences of diastrophic movements is thought to be of Mesozoic or early Tertiary age. Early in the Tertiary it is probable that the area was reduced to near base level, then elevated and extensively cut by erosion, lakebeds accumulating in some of the resulting valleys. Following the lakebeds and in part contemporaneous with them were local eruptions of andesite. In the Pleistocene a southward extension of the Cordilleran ice sheet covered the entire area, leaving a heavy mantle of glacial drift and profoundly influencing the drainage system.

PALEOZOIC SERIES.

Distribution.

A great series of rocks which has been assigned to the Paleozoic is widely distributed in the south and central part of the area and extends in a narrower belt west to Mt. Chopaka and



Loomis, from the southwest. Palmer Mountain in background and to left. Spectacle Lake and Valley extending to the right.

north to the international boundary, while west of Lake Osoyoos are three more or less isolated areas of the same formation.

Characteristics.

The series as a whole is notably but not intensely metamorphosed. Distinct bedding is seldom seen although foliated schists, quartzites presenting complete recrystallization, and even marble are rare and were not noted save in the vicinity of intrusive masses. On the other hand slaty cleavage and jointing are common. Intimately associated with this series are basic lavas, pyroclastics and intrusions.

The various types of rock present in the series were not differentiated on the map since to do so would have required far more time than could be given to the reconnaissance. The limestone areas are fairly conspicuous in the field and were sketched in order that the structural relations might the better be portrayed by the map.

Broadly speaking the series consists of three divisions, which beginning with the oldest are: (1) dark gray to greenish black thinly laminated clay slates and siliceous schists with occasional quartzite bands; (2) blue limestone with interstratified clay slates and siliceous beds; (3) siliceous and argillaceous beds with a great deal of interbedded igneous material.

The lower part of the series is exposed best in the central part of the area, Mt. Ellemeham being perhaps its type locality. The rocks as here found are dark gray, reddish brown and occasionally green siliceous schists and mica bearing clay slates. They are thinly bedded and very fine-grained. The beds are extensively jointed and in a few places slaty cleavage is more pronounced than the bedding. They strike north-south and dip 40 degrees to 50 degrees west. The thickness of this portion of the series is not known but it is by far the most important division and gives the impression that its thickness must be thought of in thousands rather than hundreds of feet.

The middle division of the series outcrops between Kruger

mountain and Osoyoos lake and from there the surface exposure swings southwest, having an extensive development a short distance west of Golden, whence it extends southeastward beyond the limits of the area mapped. The division consists of irregular lenses of blue limestones included in clay and siliceous beds which, save that they are more massive and in places finely conglomeratic, are not very different from those of the underlying division. The limestone weathers to a light gray which is in sharp contrast to the dark shades of the enclosing schists and slates, causing areas of it to stand as striking features in a general survey of the landscape. Closely examined, the rock is seen to be fine-grained, extensively crushed and locally partially converted into marble. In many places the bedding planes are still intact so that dip and strike can be measured easily. Usually the contact of the limestone with the enclosing schist is sharp but in places perfect gradation between the two occurs.

A remarkable characteristic in the limestone areas of this region is their irregularity in shape and the manner in which they pinch out along the strike. In general they are roughly lenticular but no general ratio exists between their areal extent and their thickness. There are two general horizons of these limestone lenses, separated by 200 feet to 400 feet of clay slate. In the upper horizon the lenses appear to be more numerous and it was here that the maximum thickness, 200 to 300 feet, was measured.

Time did not permit a careful study of the limestone beds but certain facts were noted which seem to have a bearing on their origin. There are apparently three ways in which they may have assumed their present peculiarities: (1) by the crushing together of more widely distributed beds; (2) by faulting; (3) by reason of special conditions of deposition. Considering the three alternatives in the order above named, it appears that the general preservation of bedding planes within the limestone refutes the first. Concerning the second, faults sufficient to account for the relations were not noted in the field

and indeed would not be expected since they would be out of harmony with the general structure of the region. By elimination therefore, it is suggested that the limestone areas may be due to special conditions of deposition such that the lenses now have essentially their original outline and geographic distribution.

The upper division of the Paleozoic series which contains large quantities of volcanic material is extensively developed on the south end of Palmer mountain, on the hill southwest of Palmer lake, and in the general area east of Loomis. Although the igneous material is far more conspicuous than the sedimentary in this part of the series, yet considerable beds of sediments are present, as can be seen in a traverse from Loomis up over the mountain to the vicinity of Ivanhoe mine. Along this course several areas of dark greenish black slate appear and are in contrast to the rusty black basaltic material. In places the two are scarcely distinguishable and close examination suggests that the rock is made up both of small angular pyroclastic fragments and sedimentary material.

The most striking exposures of these old volcanic beds is in the south wall of the valley which extends east from Loomis. Here, when seen from a distance, the beds have every appearance of basaltic flows, rough columnar jointing, and massive forms being very pronounced. Closer examination reveals a fine-grained rock, in places having scattered phenocrysts in a dull lustered ground mass; in others a decided brecciated appearance; and yet again being a mass of small angular volcanic fragments roughly intermingled with sedimentary detritus. Microscopic study of the specimens gathered is unsatisfactory in that alteration has universally progressed so far that the minerals essential in classification cannot be definitely determined. The few feldspar crystals which are sufficiently fresh for identification have about the composition of andesine. Outlines of some pyroxene mineral are usually present, as is also hornblende, magnetite, and a little quartz. From the few feldspars which were determinable together with the pyroxene and

magnetite, it seems that the rock is a basic andesite, although the general texture is that of basalt.

In part the brecciated character of the formation in many exposures may indicate pyroclastic origin but it might also be due to the sudden cooling of lava poured out beneath water and since the sedimentary part of the series was very clearly deposited in water, the latter view seems more probable.

Age.

Fossils were not found in the area but the general lithologic make-up of the series corresponds very closely to the Cache creek series which Dawson has described and which has yielded fossils of Carboniferous age. (*a*).

GABBRO OF PALMER MOUNTAIN.

An area of greenish black granular rock comprises the southwest slope of Palmer mountain and extends across Sinlahekin creek valley and a short distance up on the west wall. The boundaries of the area are difficult to trace since in many places the contact is with the basic lavas of the Paleozoic series, which are closely related in composition and general appearance. Indeed it has been suggested that this may be one of the centers from which the lavas poured. (*b*)

The rock has a marked ophitic structure and is made up essentially of feldspar and hornblende. The feldspar seems to correspond to a basic andesine in composition. A little quartz is usually present and frequently encloses minute needles of hornblende. Outlines and occasional remnants of some monoclinic pyroxene appear in specimens from near the summit of Palmer mountain. Olivine was not noted. Calcite, biotite, zoisite and green epidote as well as much of the hornblende, are secondary.

(*a*) Ann. Rept. Geol. Survey, Canada, new ser., vol. 7, 1894, pp. 37B-49B.

(*b*) Smith, G. O., and Calkins, F. C., A geological reconnaissance across the Cascade range near the forty-ninth parallel. Bull. U. S. Geol. Survey, No. 235, 1904, pp. 46-47.

SIMILKAMEEN GRANITE.

Distribution.

The Similkameen granite, so designated by Daly (*a*) occupies the northwest part of the area mapped. It is deeply trenched by Similkameen river from a point five miles below Nighthawk westward to the international boundary. South from Chopaka mountain the granite appears at intervals along the entire western limit of the area mapped. A noteworthy occurrence of the same or very similar rock is as small patches near Golden and between that place and the main granite area to the north.

Characteristics.

The Similkameen batholith (*b*) is composed of medium to coarse grained light gray granite. It varies in composition from place to place, biotite and hornblende being the chief variables, the former nearly always present but in different amounts, while the latter is frequently almost absent. Marginal variations are pronounced, quartz decreasing very markedly in amount while the ferromagnesian constituents become much more abundant. This marginal basification is so pronounced north of Loomis that specimens from near the contact would readily be classed as diorite save for the absolute gradation into the normal granite. Texturally the granite varies from equigranular to strongly inequigranular, while in places, as near Golden, the orthoclase has a strikingly phenocrystic development.

Microscopic examination shows that the average specimen consists of the following essential minerals decreasingly important in the order named: oligoclase, microperthite, quartz, orthoclase, biotite, microcline and hornblende. Magnetite, beautifully developed titanite, apatite, and occasionally zircon are accessory.

(*a*) Daly, Reginald A. The Okanogan Composite Batholith of the Cascade Mountain System, Bull. G. S. A., Vol. 17, 1906, p. 234.

(*b*) This granite is described by Daly, op. cit. pp. 452 to 454; and by Smith and Calkins, op. cit. pp. 32-33.

Age.

The age of this granite batholith is uncertain since there is no sedimentary record from the close of the Paleozoic until well on in the Tertiary. Daly (*a*) notes the lack of schistosity in the granite and takes this to mean that the intrusion post-dates the orogenic movements which Dawson recognizes throughout the Canadian Cordilleran and assigns to the close of the Laramie period. (*b*) Thus Daly believes the intrusion to be early Tertiary. In this connection it is perhaps significant that extensive faulting within the granite and which seems to be of the reverse type, occurs along the east face of Chopaka mountain while normal faulting appears in the area just west of Nighthawk.

On the other hand there is considerable reason for thinking that the area was peneplained in Eocene times, meaning thereby that comparatively static conditions then prevailed. Since, therefore, the granite was beveled by Eocene erosion, as discussed in the chapter on physiography, if it be assigned to the Tertiary it must be assumed that it was intruded during a period of diastrophic inactivity.

In view of these general considerations and since the faulting above referred to may be a local expression of the movements which closed the Laramie period it seems very possible that the granite is of pre-Tertiary age, preferably late Cretaceous.

TERTIARY ROCKS.

LAKE BEDS.

Extent.

Lake beds occupy an irregular area of about fifteen square miles lying north and west of Oroville. The general outline of the deposit is very irregular, due both to the encroachment of younger lavas and to the relation of the older metamorphics, a pronounced arm of which extends southward from east of Kruger mountain into the general area of lake deposits. From other known areas beyond the limits of the district mapped it is

(*a*) Op. cit. pp. 360-361.
(*b*) Bull. Geol., Soc. Am., Vol. 12, 1901, p. 87.

known that the formation is confined to a north-south zone, never over a few miles in width.

Description.

The Tertiary beds have suffered considerable deformation, in places presenting dips as high as 30 degrees. The strike is usually north-south in the northern part of the area and more nearly east-west in the southern, being directions of dip such as would correspond to an irregular anticline-syncline structure.

The beds are well exposed in the valley of Similkameen river where their unequal resistance to erosion gives steep bluffs along the valley sides and low falls and rapids in the river. In the bluffs sandstones and coarse and fine conglomerates are exposed, much of the latter being very angular and composed of fragments of metamorphic material and granite similar to the basement series of the region. The beds in the western extension of the area are largely composd of granite blocks with arkose filling the interstices, while the southern extension mostly presents detritus derived from the metamorphic series. In nearly all localities examined tuffaceous andesitic material was noted. This general composition suggests a very local derivation of the material, that in the west extension coming primarily from the adjacent granite, while to the south the metamorphic series was the chief source of supply. The andesite tuff was probably in part deposited directly in the lake and in part washed into it from the surrounding country.

The thickness of the formation could not be satisfactorily measured in any of the exposures visited but it will likely not be far amiss to think of it as 500 feet.

Age.

Fossils were not found in these beds but their lithologic character and topographic relations closely resemble the Tertiary deposits at Republic, (*a*) 45 or 50 miles farther east, which are placed as Miocene on the strength of fossil evidence. (*a*) The points of analogy are that both deposits contain much an-

(*a*) Umpleby, J. B., Geology and ore deposite of Republic District, Washington. Wash. Geol. Survey, Bull. 1, 1909, pp. 24-25.

desitic tuff and both are followed by andesite flows. Furthermore, beds of Miocene age have been reported from many of the larger valleys of British Columbia (*a*) while beds of Eocene age are absent and Pliocene lakes if reported are unknown to the present writer.

Since Miocene lake deposits are known at various places in the boundary country, while beds assigned to other divisions of the Tertiary are not common, if occurring at all, and since the analogy with the Republic deposits is so close, it would seem reasonable, even in the absence of fossils, to consider the lake beds at Oroville as Miocene.

ANDESITE.

Distribution.

Three areas of andesite occur in the Oroville-Nighthawk district. The largest comprises about one and one-half square miles and is plastered against the steep slope west of Oroville. The next in importance forms the capping of Kruger mountain, while the third appears in the valley wall west of Lake Osoyoos.

Characteristics.

The andesite is dark gray with phenocrysts of hornblende and feldspar rather closely spaced in a dense groundmass. The microscope shows the groundmass to be imperfectly crystalline and imbedded in it are crystals of andesine, hornblende, and a little oligoclase. Magnetite is accessory.

The flows rest unconformably on the lake beds but the amount of erosion which occurred between them is not important in comparison with post-andesite erosion. This probably means that the andesite eruption followed rather closely the formation of the lake beds.

QUATERNARY HISTORY.

Glacial drift appears at all altitudes within the area and in many places grooved and polished bedrock may be found. The striations in general indicate that the ice advanced from

(*a*) Dawson, G. M., Trans. Royal Soc. of Canada, 1890, p. 12 *et al.*

about five degrees west of north. This direction of motion is clearly recorded on both the east and west slopes of Ellemeham mountain near its summit, thus obviating the possibility of local centers of radiation and leaving little room for doubt that the area was covered by a southward extension of the Cordilleran ice sheet. Further evidence of continental glaciation is the rounded and smoothed contour of the north-south valleys while the east-west ones are rough in outline and nearly always present a very heavy and hummocky accumulation on the north wall while that on the south is much less pronounced.

The influence which glaciation has had on the general drainage of the area is considered in the chapter on physiography.

The general structure of the Cascade mountains at the forty-ninth parallel has been described as a synclinorium (*a*) and the present area may well be considered a segment of this broad structural feature. The general strike of the formations are north-south, varying rather more to west of north than otherwise. An east-west section therefore, such as the one which accompanies the geologic map, gives in its broader features the structure of the area. Several small anticlines and synclines appear but they are seldom tightly compressed, dips of about 45 degrees being the rule.

Faulting is shown in the section but it is thought that it is far more prevalent than is suggested by the map. A pronounced fault follows the east face of Chopaka mountain and dips west at 45 degrees. It seems that the west side of the fault moved up relative to the east, both by reason of the steep scarp-like mountain face which lies immediately west of the fault and because the sedimentary cap still covers the granite in places on the east while it has long been removed from the area to the west. Another reverse fault was noted north of Oroville and is described in the notes on the Golden Chariot property. Normal faulting was noted on Little Chopaka mountain where, with a

(*a*) Smith and Calkins op. cit., p. 84.

fault plane dipping west, granite on the east is in juxtaposition with metamorphosed sediments on the west. (*a*)

The great granite mass so prominent in the geologic history of the area does not seem to have had a pronounced influence on the structure of the rocks it entered. Faulting probably preceded it but those which are mapped affect the granite and hence are later. The lakebeds overlying all other formations, save the andesite, are folded to some extent but so far as noted are not faulted.

(*a*) Further notes on this fault appear in connection with the Little Chopaka group of mining claims.

CHAPTER III.

ECONOMIC GEOLOGY.

LOCATION AND CONDITIONS.

The Oroville-Nighthawk area includes six or seven mining districts situated in northern Okanogan county. As is generally true in this region, none of the districts are organized. The accompanying map includes a general area over which exploration has been more or less uniformly pursued and which is rather definitely separated from adjoining territory where mineral deposits have not been reported.

The district presents rough and mountainous features in the western part, while in the central and eastern portions bold, rounded hills and mountains, are the characteristic forms. The inter-montane valleys are deep and in much of their extent, steep-sided. Although the streams usually have very low gradients, yet in places, notably on the Similkameen river a few miles above Oroville, rapids and low falls afford abundant water-power to supply the entire district with electricity for all purposes which are at all likely to develop.

Scattered timber occurs on most of the area, while a few miles back in the mountains to the west, abundant supplies are available. Roads follow all the larger valleys and extend into some of the upland country, while the topography is such that others can be built at comparatively low cost to most points in the area if need for them exists. Communication with the outside is afforded by a branch line of the Great Northern railway which enters the district at Oroville and thence follows the course of the Similkameen river to a point in British Columbia.

HISTORY AND PRODUCTION.

The district is one of those which attracted the prospector during the period when placer excitement was waning in California and searchers for gold were reaching out into other parts of the west. As far back as 1859 placers were worked on Simil-

kameen river. Quartz lodes were recognized at that time but no known locations were made. Shortly thereafter the territory was set apart as an Indian reservation and the land withdrawn from mineral entry. Upon being reopened in the late nineties numerous locations were made and extensive promoting schemes inaugurated. Many of these early companies have had disastrous histories. Some were obviously born of ignorance and fostered by deceit, while others simply assumed the chances of legitimate prospecting and for one reason or another, lost. Many of the properties had excellent ore in the oxidized zone, which is very shallow throughout the area, but were unable to handle the lower grade pyritic material encountered below. Again, in many instances, the veins did not extend to the lower levels reached by long and expensive tunnels.

The actual total production of the district is not known, but it is probable that it does not exceed $1,000,000. This figure allows about $500,000 for the placers on Similkameen river, which cannot be verified. About $150,000 is ascribed to the Pinacle mine, while the remainder is from various properties, chief of which are the Black Bear, Triune and Golden Zone. The area has been primarily a gold district, although some silver and very minor amounts of the base metals are included in its production. It is possible that in the future this order will be reversed.

GEOLOGIC RELATIONS.

Broadly speaking the rocks of the area constitute a great series of metamorphosed shales, quartzites, basic lavas and tuffs, all of which have been cut in late Mesozoic or early Tertiary times, by a great batholith of soda-rich granite. Later, lake deposits accumulated and after them andesite flows spread over the eastern part of the district.

The ore deposits cut the granite but are presumably earlier than the lake beds, since in no place are they included in them.

ORE DEPOSITS.

The ore deposits fall into two general classes: (1) those in which the metallic mineral or minerals are rather evenly distributed through the rock formations, or disseminated deposits, and (2) vein deposits.

DISSEMINATED COPPER DEPOSITS.

Distribution.

Disseminated copper deposits are known a few miles west of Oroville. Development is not extensive, consisting of a few diamond drill bores and small open cuts. The principal property is known as the Kelsey group.

Characteristics.

Within the mineralized ground which comprises an ill-defined area of several hundred acres, copper stains appear on nearly every bluff and in some instances can be seen very clearly from a distance. The malachite and azurite, however, are very superficial so that within a few inches of the surface they give way to the chalcopyrite from which they are derived. This primary mineral occurs as fine grains scattered irregularly through the various rocks and as films along joints and fractures. Yet again, it is included in small quartz veinlets which cut the formations. In places rather strong quartz veins appear, as on the Golden Chariot claim, but these are not the rule.

The rocks impregnated are metamorphosed shales, quartzites and basic volcanic material. All are mineralized but perhaps the shales to a greater extent than the others.

An important feature in connection with the deposits is the occurrence of the primary minerals, chalcopyrite and pyrite, within a few inches of the surface, even where the surface alteration appears to be most intense. This relation clearly indicates that if the deposits are ever worked it will be for primary sulphide ore. A secondary zone of chalcocite enrichment, such as constitutes the ore body at Bingham, Ray and other camps of the southwest, cannot reasonably be expected here.

Just what the rock will assay on an average working basis is not known. A few diamond drill bores have been put down on the Kelsey group, but these are not in sufficient number to prove or disprove a workable body of ore.

Genesis.

The genesis of these disseminated deposits is obscure. The presence of occasional veinlets and stringers which cut the formations indicates that, in their present form at least, they are younger than the formations enclosing them, and since they disappear beneath the lake beds, they are pre-lacustrine. It appears therefore that they are to be assigned to some part of that great lapse of time to which the intrusion of the Similkameen batholith dates. Since such a deposit seems to necessitate very intense conditions whereby mineral-bearing solutions not only followed joints and fractures, but penetrated to the more impervious portions between them, a genetic relation between the great granite magma and the ore deposition strongly suggests itself. If such a relation is true it yet remains to determine whether the magma supplied the metals, or simply made possible their concentration (by heating the ground water and supplying it with solvents) from a more disseminated state in the older rocks. Evidence on this point was not sufficiently definite to be of value.

VEIN DEPOSITS.

Distribution.

Veins are widely distributed in the area but are specially developed around Nighthawk, Golden and on Palmer mountain. Those at Nighthawk strike predominantly north-south and dip west, while in the other locations no regularity in strike and dip was recognized. The strike of the several veins measured in the entire area have been plotted in a circular diagram (Fig. 3) which brings out a slight predominance of north-south directions, but were a half-dozen veins in the northwest corner of the area not considered the distribution would be remarkably regular throughout the 360 degrees.

Metals Represented.

Gold, silver and copper are the chief metals derived from the veins although lead and a little zinc are very commonly present. In the past gold has been the chief product but present development strongly suggests that silver and copper may soon vie for first place.

Types of Veins.

Two distinct types of veins occur within the area, but since all gradations between them were noted, it does not seem wise

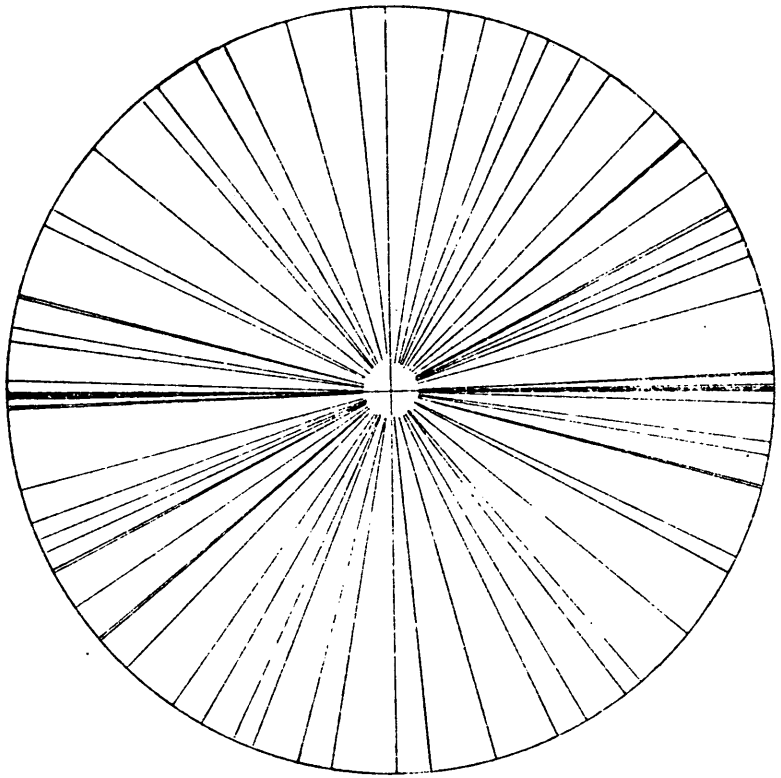


FIG. 3.—Graphic illustration of strike of the veins in the Oroville-Nighthawk District.

to treat them separately. The two types are tabular in form and both are properly to be classed as veins. In one the transition from vein matter to wall rock is sharp, while in the other it is so gradual that within the limits of perhaps a foot or more it would be difficult to locate the point of contact between vein and wall. In the former, mineralization is confined to the vein, while in the latter it extends out into the wall rock. The

first are usually more regular in outline than the second. The Triune mine illustrates the former class, while the Copper World Extension belongs to the second.

Again, the veins of the district might be classed according to whether or not they occur along a fault of considerable throw. Many of the north-south lodes near Nighthawk are along faults, some of which probably have throws of several hundred feet. The deposits near Golden and on Palmer mountain nearly all show slickensides and groovings but in these there is no evidence of appreciable displacements.

It would further be possible to class the veins according to the chief minerals for which they are worked if the percentage of different constituents from various parts of the area were known better.

In general the vein matter is coarse, crystalline quartz with metallic minerals distributed as small aggregates, which in places are zonally arranged and in others more or less completely isolated. Within the same vein the kind of minerals frequently varies from place to place. Pyrite is nearly always present where any mineralization has occurred. Chalcopyrite usually accompanies it, as does also galena and occasionally zinc blende. Gold occurs free, and also included in pyrite, chalcopyrite and galena (see description of Hiawatha mine). Silver is principally as argentiferous galena, proustite, pyrargyrite, stephanite, argentite, and cerargyrite.

Depth to Which Veins Extend.

Any attempt to suggest the depth to which the veins extend in an area so little known, must be very vague, but there have been so many disappointments in this district, where long tunnels have been driven to intersect a vein far below its outcrop, that those relations which have a bearing should be pointed out. The Similkameen and its tributary valleys exist as deep, opencuts through the area. Glaciation has so worn and polished them that in many places the sides are almost free from detritus and afford excellent sections of many of the veins.

The valley sides south of Nighthawk present many quartz veins near their rim, but few of them extend over a quarter of the way down the sides and only two were noted (southwest of Palmer lake) which reach the lower slopes. While it is not safe to generalize on the strength of these observations, yet they are considered sufficiently potent to emphasize the advisability of following the ore to lower levels rather than resorting to long tunnels. The history of the district amply bears out this suggestion.

Age and Genesis.

The ores are in part enclosed in the granite but nowhere are known to cut the lake beds. Hence they seem to be confined to that period between the intrusion of the granite magma and the lacustrine deposition. Since the granite is probably late Cretaceous or early Tertiary and the lake deposits are thought to be Miocene, the ores are probably early Tertiary.

Thus, dating the ores somewhere during that period when the great heat of the intruding granite magma was being slowly dissipated through the surrounding rocks, it seems very reasonable to suggest a relation between the two.

PLACERS.

The principal placers have been found along the Similkameen river about half way between Oroville and Nighthawk where somewhat more than a half million dollars is said to have been extracted within a short time after the discovery. Recently a river bed drying device has been installed, the object being to explore the present channel. Other placer operations are being undertaken on the river but with what success is unknown to the writer.

The gold which varies in size from coarse flakes to nuggets, occurs in the river bars and lower terraces. This part of the river valley is largely the product of post-glacial erosion, hence the placers are very young and quite possibly have been secondarily concentrated from vein material ground up by the ice sheet.

GROUND WATER LEVEL AND OXIDATION.

Perhaps the most striking feature in the ore deposits of the boundary country is the shallow zone of oxidation. In many instances this may be accounted for by the shallow depth of the water table. Usually, however, the water table is a considerable distance below the lower limit of oxidized ore. Thus in the Copper World Extension, primarily pyrite and chalcopyrite are encountered within a few feet of the surface, while water does not rise in the shaft above the 200-foot level. The Kelsey group also illustrates this point but here the water level is only 20 to 50 feet below the lower limits of predominant oxidation. Many other instances could be cited which illustrate the same general relation, namely, that the water level is lower than the present lower limit of oxidation.

This relation is probably to be explained by recourse to the influences of glaciation on the country. The ice not only cut off much of the oxidized zone in many places, but left a mantle of drift which serves to shed water that would otherwise enter the veins.

CONCLUSIONS.

Concisely stated, the conclusions deduced from the reconnaissance in the Oroville-Nighthawk area are as follows:

(1) Copper deposits occur both as veins and as disseminations. The former are definitely known, but the quantity of ore available is yet to be determined. The latter are in vast bodies but it is yet to be proven that the copper content is sufficient to justify working under present conditions.

(2) Gold production will probably be much lower, proportionately to silver and copper, in the future than in the past.

(3) The proportionate production of silver in the future will show a marked increase.

(4) The ores are probably genetically related to a great batholith of soda-rich granite.

(5) The deposits are thought to be of late Cretaceous or early Tertiary age.

(6) In few districts is the injunction to follow the ore more pertinent than here.

MINERALS OF THE DISTRICT.

The minerals recorded in a report of reconnaissance studies must in the nature of the case be incomplete, but for purposes of reference those that were noted are arranged in alphabetical order and their mode of occurrence briefly stated.

Argentite. Silver glance occurs in several of the silver-bearing deposits around Golden and Nighthawk but is never the chief ore of silver.

Arsenopyrite. This sulpharsenide of iron is not abundant in the area, being noted in but three places. It was intergrown in each case with vein quartz.

Auzurite. This copper carbonate is limited to the upper few feet of the copper deposits and even here is not conspicuous.

Bornite. Bornite occurs in many places as an alteration product intermixed with chalcopyrite and as thin films on adjacent material.

Calcite. The carbonate of lime frequently occurs as part of the gangue.

Cerargyrite. Hornsilver occurs near the surface in many of the silver-bearing veins but in no place constitutes a very appreciable part of the ore.

Chalcopyrite. This mineral is widely distributed in the area and is the chief ore of copper. It occurs in veins intimately intergrown with pyrite and as disseminations in the Paleozoic rocks.

Cuprite. Copper oxide is remarkably rare in the surface exposure of the copper deposits, the alteration having been almost completely to malachite.

Galena. Lead sulphide is widely distributed in the vein deposits. Silver is associated with it in several places and in one of the veins (Hiawatha) it is thought to carry much of the gold.

Gold. Gold is widely distributed in the area. It occurs free in placers and the upper portions of the quartz veins, and included in pyrite, chalcopyrite, galena, and sphalerite in the unaltered parts of the deposits.

Limonite. The hydrated oxide of iron occurs as a heavy stain on the gossans of the veins and on surface exposures of many of the rocks of the area, especially the basic lavas and tuffs

Malachite. The green copper carbonate is always conspicuous in the outcrops of the copper-bearing deposits. It is generally confined to a few feet near the surface.

Molybdenite. Thin, graphite-like scales of the sulphide of molybdenum occur along many of the gouge seams accompanying the veins in the northeast part of the area.

Proustite. Light rubysilver is an important ore from the central and northwest part of the district. It usually occurs as stains and crusts but occasionally as small, hexagonal crystals in firm quartz.

Pyrargyrite. Dark rubysilver has a distribution similar to proustite and with it constitutes the chief ore of silver.

Pyrite. Pyrite occurs in all the deposits of the area.

Pyrolusite. This oxide of manganese was noted in several deposits both as druses and dendrites.

Pyrrhotite. Appears quite commonly in the quartzitic schists traversed by the Palmer mountain tunnel but was not noted in any of the veins.

Quartz. Quartz is the chief gangue mineral in the area.

Silver. Specimens of native silver have been encountered near the surface in several of the properties but does not constitute an ore of silver.

Sphalerite. Zinc blende is widely distributed in the veins. It occurs as fine-grained masses in the quartz but is never in commercial quantities.

Stephanite. Is one of the important silver ores especially in the Hornsilver mine. It is usually disseminated in irregular areas in the gangue but occasionally occurs as short prismatic crystals.

Stibnite. Antimony sulphide occurs in small lenses and bunches in the metamorphic rocks southeast of Loomis. Little of it was seen in place.

CHAPTER IV.

DETAILED DESCRIPTION OF MINES AND PRINCIPAL PROSPECTS.

In the descriptions which follow the properties will be divided into groups according to their location. Thus the claims situated near Oroville, Nighthawk, Wannacut Lake, and on Palmer mountain will be considered in turn. It is perhaps unnecessary to state that not all of the claims of the area were visited and it is likely true that some which were not visited are of more merit than some of those which were. It is thought, however, that the following descriptions in that they are to a large measure inclusive, will be of value in giving the report tangible form.

KELSEY GROUP.

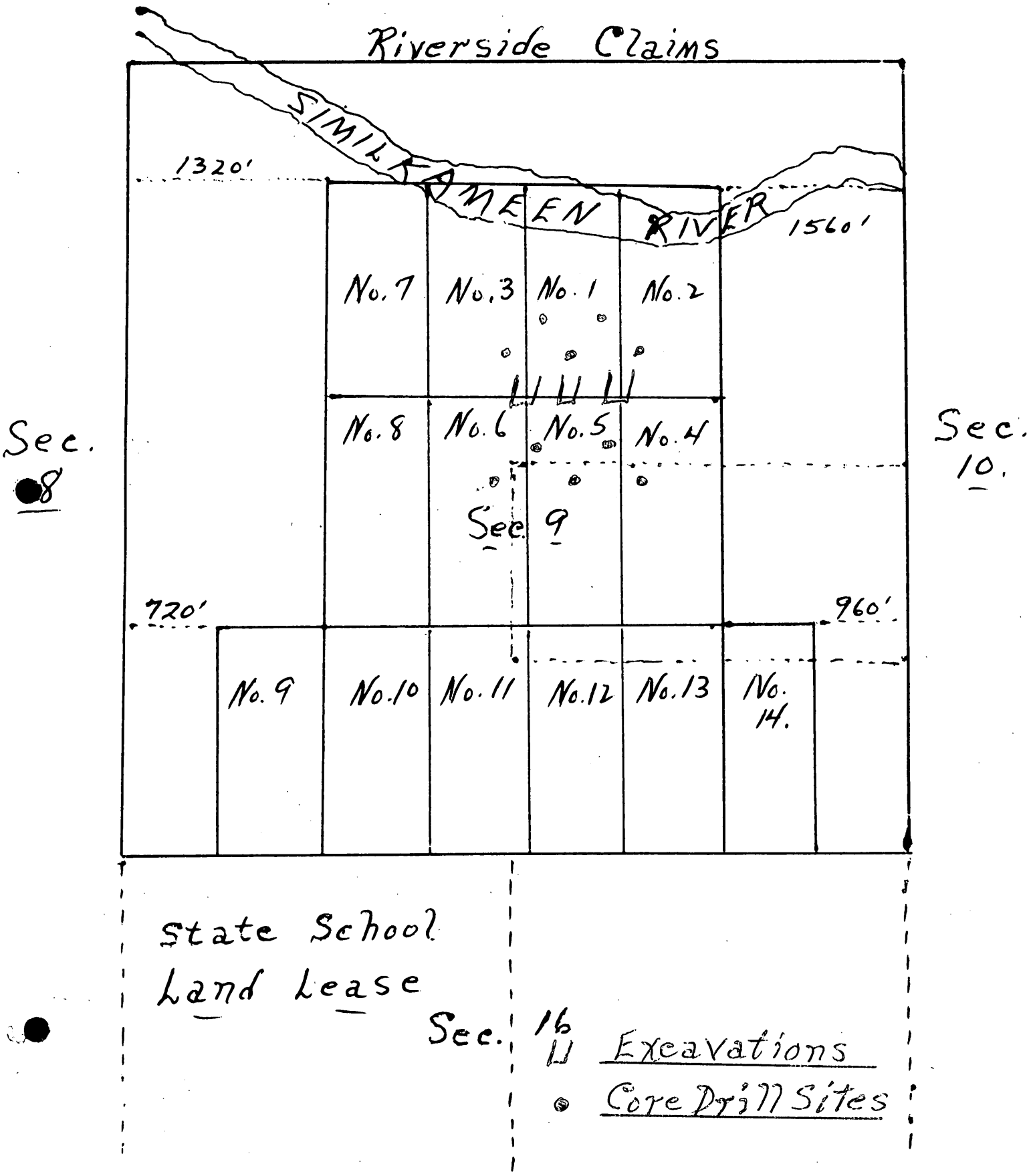
The Kelsey group consists of fifteen claims which are situated about four miles north of Oroville and immediately west of Osoyoos lake. The property is owned by the Detroit-Oroville Exploration company with headquarters in Detroit, Michigan. Mr. N. B. Kelsey, of Oroville, Washington, is local agent for the company.

Development consists of several small open cuts and shafts in addition to six diamond drill holes, each of which reaches a depth of about 100 feet. No ore has been shipped from the property.

The country rock, as exposed on these claims, is predominantly greenstone, although large amounts of clay slate and quartzite are present. The greenstones seem to be interbedded with the sedimentary members, although it is possible that more careful study may show some of them to be intrusives. In the hand specimen they are usually green or greenish gray and present a granular to porphyritic texture with the grains rather ill-defined. Hornblende, feldspar, and quartz can be distinguished, and little veinlets of quartz usually less than a quarter

Township 40N., Range 26 E. W.M.

OKANOGAN COUNTY, WASHINGTON.



Topography by United States Geological Survey Surveyed in 1902-3

Geology by J. B. Umpleby and Olaf Stromme Washington Geological Survey Surveyed in 1909

GEOLOGIC MAP OF OROVILLE-NIGHTHAWK DISTRICT

BY JOSEPH B UMPLEBY

ASSISTED IN THE FIELD BY OLAF STROMME

Scale

1 ½ 0 1 2 3 4 5 Miles

1 ½ 0 1 2 3 4 5 Kilometers

Contour interval 100 feet.

Datum is mean sea level.

SECTION ALONG *A-A'*

Reprint from Part II

Washington Geological Survey

Bulletin No. 5

by Joseph B. Umpleby

GEOLOGY AND ORE DEPOSITS OF THE OROVILLE-NIGHTHAWK MINING DISTRICT.

INTRODUCTION.

LOCATION.

The area considered in Part II of this bulletin includes six mining districts, no one of which has been assigned definite boundaries while in some instances two or more names are locally applied to the same district. For purposes of convenience in this paper the designation "Oroville-Nighthawk" has been applied to the entire area since these are the two principal towns and by their geographic position imply more accurately than the name of an individual district the scope of the territory studied.

Oroville, a little town of 500 population situated at the south end of Lake Osoyoos, is the principal settlement in the area. Nighthawk, twelve miles west of Oroville, and Loomis, about fifteen miles southwest are both small settlements, each with a postoffice and hotel. There is a small store and postoffice at Wehesville. A branch line of the Great Northern railway extending northward and westward from Spokane, traverses the area along the valley of Similkameen river. Right-of-way has been secured for an electric road along Sinlahekin creek which, when completed, will afford ready transportation to Conconully and other points south.

FIELD WORK AND ACKNOWLEDGMENTS.

Field work occupied the interval from August 4 to August 27, 1909, the mines and principal prospects being visited and examined in such detail as time permitted and a map of the general geology prepared. Through the field season the writer was ably assisted by Mr. Olaf Stromme, most of the areal geol-

ogy being mapped by him. Mr. Stromme also assisted in the preparation of parts of the report. Courtesies extended by the many mining men in the area were too numerous to permit of individual mention.

EARLIER WORK.

The Oroville-Nighthawk district being a part of the area under consideration at the time of the survey of the international boundary, was visited and examined in a general way by geologists of both Canada and the United States. For the United States Messrs. George Otis Smith and Frank C. Calkins undertook, in 1901, a reconnaissance from Osoyoos Lake westward. Although the major portion of their work was topographic and connected with the examination of the boundary, yet considerable information on the general geology of the country traversed was accumulated and is recorded in a special bulletin of the United States Geological Survey. (*a*).

The work by the Canadian government corresponding to the above was carried out by Dr. Reginald A. Daly. Several articles have appeared as a result of his studies, both in the publications of the Geological Survey of Canada and in technical journals. The paper, however, having the most intimate bearing on the area herein considered is entitled "The Okanogan Composite Batholith of the Cascade Mountain System," in which Mr. Daly discusses in great detail the composition and relations of the intrusive masses of the area. (*b*)

Mr. Baily Willis passed through the district in 1887, making many notes on the physiographic features. (*c*)

Reference to work in adjoining areas will be made in the text.

(*a*) Smith, G. O., and Calkins, F. C., A geological reconnaissance across the Cascade range near the forty-ninth parallel. Bull. U. S. Geol. Survey No. 235, 1904.

(*b*) Bull. G. S. A., Vol. 17, 1906, pp. 329-376.

(*c*) Willis, Bailey, Changes in river courses in Washington territory due to glaciation. Bull. U. S. Geol. Survey No. 40, 1887.

CHAPTER I.

PHYSIOGRAPHY.

GENERAL STATEMENTS.

The Oroville-Nighthawk district is situated in Okanogan county, and comprises the northeast part of the Chopaka and the northwest part of the Osoyoos quadrangles, as mapped by the United States Geological Survey. It is from six to thirteen miles in length by seven to fifteen miles in width, the international boundary forming its northern border.

The area mapped is embraced in that physiographic division of the state known as the Okanogan highlands and is characterized by deeply dissected land forms. Elevations range from 922 feet above sea level at Oroville, to 7,829 feet at the summit of Mt. Chopaka, although 3,500 to 4,000 is about the average altitude; with the larger inter-mountain valleys varying in depth from 2,000 to 2,800 feet. The sharpest transition from lowland to highland within the area is that from the floor of Similkameen valley to the south summit of Mt. Chopaka, where there is a rise of about 6,200 feet in a horizontal distance of two and one-third miles. Such slopes, however, are rare in the area, the rounded forms predominating. In general the district is a rolling upland rather deeply gashed by the valleys which drain it.

Prominent valleys divide the district into several distinct divisions chief of which are the Mt. Chopaka division, the Mt. Elemeham-Palmer Mountain division, and the Mt. Little Chopaka-Kruger Mountain division. The presence of these mountain areas in contrast to the intermontane valleys, seems to be due largely to stream courses which antedate the present topographic cycle rather than to differences in rock resistance or to structure. Roughly, the Okanogan valley forms the eastern boundary of the area, the Similkameen the northern boundary, the valley of Sinlahekin creek and of the Similkameen the west-

ern boundary, and Spectacle lake valley the southern boundary. The most interesting one of these is that along the western side of the area. This valley, although occupied in one part by a river, in another by a lake and in a third by a small creek flowing in a direction opposite to that of the river, is of almost constant width and about uniform depth. It continues south for many miles but within the area studied are two cross depressions of much less striking characteristics, which connect it with Okanogan valley to the east. One of these is at Loomis and the other along the course now occupied by the Similkameen river east of Nighthawk. The east-west depression joining the main valley at Loomis has a flat from one-fourth to one-half mile wide, giving way by gentle slopes and comparatively low cliffs to the higher country north and south. Spectacle lake, a narrow body of water two and one-half miles long, occupies the valley about half way betwen Loomis and the Okanogan river. The valley extending east from Nighthawk is steeper and more gorge-like in the east two-thirds of its extent than the one just described, but in the section near Nighthawk there is a narrow flat on each side of the river and the stream is sluggish.

Mr. Bailey Willis made a reconnaissance through the area in the later eighties and in the resulting publication* suggests that the Similkameen river formerly flowed south through the large valley first described, joining the Columbia at some point south of Conconully. In the Pleistocene period a great stream of ice occupied the valley, and deposited vast quantites of materal upon its floor. During the general ice recession there were several places where the waters from the glacier found lower outlets to the east than over the glacial debris to the south. Spectacle lake is thought to be one of these outlets and it is probable that it carried the waters from the ice front after it had retreated to a point above Loomis, and until it stood in the vicinity of the Canadian boundary, when it became possible for the stream to take its present course to the north. The

*Willis, Bailey, United States Geological Survey, Bulletin No. 40, 1887.

general topographic relations suggest that the present course of the river east of Nighthawk is due to piracy in post-glacial time by a stream working headward from near Oroville, but this is considered improbable as fine terraces of stratified drift occur at various places in the valley near the level of the river. Since the section of this valley near Nighthawk is broad and open, with a sluggish stream, while that part near Oroville is narrow and carries rapidly moving waters, the most feasible explanation of the relation seems to be that, in pre-glacial times, this valley was occupied in its eastern part by a tributary of the Okanogan and in its western by one of the Similkameen, the intervening divide being low. After the ice front had retreated to some point to the north, the waters escaped eastward over the divide due to the damming of the main valley to the south and the course has been held since that time.

Within the area mapped evidences of glaciations were seen at all altitudes visited. Striations, even when on the east and west slopes of the mountains* have a north south direction. This nullifies the possibility of local centers of radiation on the higher areas, and leaves no room for doubt that the ice which covered the area was the southward extension of the Cordilleran ice sheet which radiated from the highlands of British Columbia.

The soils of the valley floors are alluvial, while those of the terraces and benches bordering the valleys are glacial and in some cases partly alluvial. The valleys are all treeless in their natural condition, the vegetation consisting of sagebrush and greasewood, largely the former.

The area covered by this report is rather sparsely settled, and the inhabitants are engaged in agriculture, horticulture, stock raising and mining. The valleys require irrigation, as the rainfall is light, but when watered the soil will produce in great abundance any crop grown in the temperate zone; particularly apples, pears, small fruits and vegetables. Horticulture is in its infancy, however, and very little land is now under irriga-

*Mt. Elemeham, west slope at elevation of 4,600 feet shows small area of bedrock with striations running north 11 degrees west.

tion. There are a few places which are irrigated from creeks and in a few cases pumping plants have been installed, but no large irrigation canals have been attempted. On the uplands, up to an elevation of 3,000 feet or more, wheat, oats, and the hardier vegetables are successfully grown and yield abundantly, without irrigation. The bunch grass land of the higher altitudes is well adapted to grazing and there is still some open range, but owing to the altitude, the season is too short and the nights too cold for successful raising of crops.

The mining industry furnishes employment to a considerable number of men during much of the year, more in the carrying on of development and assessment work, than in the mining of ore.

Lack of adequate transportation facilities has been one of the chief drawbacks to the development of the area. Oroville, the principal town, is situated on a branch line of the Great Northern railway, as is Nighthawk, one of the smaller towns. Loomis, in the southwest part of the area, is reached by stage from Nighthawk or Conconully. The Oroville branch of the Great Northern railway follows the Similkameen valley from Oroville to Nighthawk, and then extends northerly up the valley into British Columbia. The area has a fair system of wagon roads, the principal ones following the valleys and having easy grades.

On the Similkameen river, about three miles northwest of Oroville there is a hydro-electric plant where approximately 600-horse-power is developed from a natural fall in the river, only a small portion of which is diverted. The current is transmitted to Oroville, and to the more important mines of the district. It is safe to say that less than ten per cent. of the power available on the Similkameen in Okanogan county has been developed, and it would seem that with an ample supply of water, such as exists in the Similkameen and Okanogan rivers and in Osoyoos and Palmer lakes, there ought to be an excellent opportunity for supplying cheap electric power for pumping water onto the bench lands.

It is probable that all the physiographic features of the area are post-Eocene and perhaps post-Miocene and had reached the stage of maturity which is characterized by approximately equal areas in upland and lowland flats, in other words, by a maximum of slope, before glacial times. The ridges were narrow, the slopes steep and the valleys deeply carved and "V-shaped." In the Pleistocene the cycle was interrupted by deposition of a mantle of drift on the uplands, the partial filling of the valleys with glacial material and resulant choking of the drainage system. Many closed basins were formed and in some of them lakes exist throughout the year. As would be expected in an area of heavily mineralized and heterogeneous rocks, these lakes being without outlet, and therefore subject to a constant concentration of impurities in the water by evaporation, contain a high percentage of mineral matter. The precipitates from some of them have been exploited recently but with what success is not known.

CORRELATION OF EROSION PERIODS.

The area herein described does not have that general accordance of summit levels which is very evident from a point of vantage in most parts of the Okanogan country. If its topographic cycle is to be defined, recourse must be made to records in adjoining regions. But there, as will be seen beyond, difficulties are encountered due to difference in age of the erosion surface known to the west and southwest and that occurring to the north and east.

G. M. Dawson* recognizes a peneplain in the interior plateau of Canada, remnants of which stand at elevations of from 4,000 to 6,000 feet above sea level, in the southern half of the interior plateau of today. The evidence for the Eocene age of this surface is the presence of Miocene beds in great valleys developed in it and the broad fact that extensive Eocene deposits are found in adjoining physiographic areas to the south while none are found here, which seems to imply that the area was land during the Eocene period.

*Dawson, G. M., Trans. Royal Society of Canada, 1890, p. 11.

In the Republic area (*a*) to the east an erosion surface was recognized and on the strength of fossiliferous beds so related as to be fairly conclusive, was assigned to the Eocene.

South of the area herein mapped, however, Bailey Willis (*b*) found that the oldest erosion surface recorded, the Methow stage, is cut on all rocks of the region including "the bedded basalt flows and the pumiceous clastics of the Ellensburg formation, which is known definitely to be of the Miocene age."

It appears therefore, that the old physiographic surface to the north is Eocene while that to the south is post-Miocene.

In a reconnaissance across the Cascade mountains along the forty-ninth parallel, Smith and Calkins (*c*), recognize this relation, for in referring to the physiographic differentiation of the Cascade mountains they write in part as follows:

"An example of this is found in the occurrence of an Eocene peneplain in the interior plateau region, while in the Cascades peneplaination of Eocene age has not been recognized, and indeed in central Washington the Miocene lavas are known to rest upon a surface possessing considerable relief."

Within the area represented by the present map the former erosion surface has been so destroyed that it is of little value for purposes of age determinations. All the older rocks, including the Similkameen batholith at least in its eastern part, have been beveled by it. Lake beds found west of Oroville and evidently occupying a post-peneplain depression, did not yield fossils, but in their lithologic characteristics and the association of andesite flows with them, they resemble very strongly the Miocene beds at Republic. These facts, together with the known occurrences of Miocene lake beds in British Columbia, suggests that this part of the area belongs to that physiographic unit known as the interior plateau of British Columbia;

(*a*) Umpleby, J. B., Washington Geological Survey, Bul. No. 1, pp. 19-20, 1910.

(*b*) Smith, G. O., and Willis, Bailey, U. S. Geol. Survey, PP. 19, pp. 17-71.

(*c*) Smith, G. O., and Calkins, F. C., U. S. Geol. Survey, Bul. 235, p. 90, 1904.

and if so, was peneplained in the Eocene period. Mt. Chopaka in point of elevation seems to correspond better with the post-Miocene surface to the west and may belong to the Cascade unit. If this relation is true the line of union of the Eocene and post-Miocene erosion surfaces will probably be found, within the present area, to approximately follow the Similkameen-Sinlahekin depression.

CHAPTER II.

GENERAL GEOLOGY.

BRIEF STATEMENT OF GEOLOGIC HISTORY.

The broader features of the gologic history of the Oroville-Nighthawk area include sedimentation accompanied by igneous activity in the Paleozoic, with regional movements and resulting metamorphism about its close; erosion, and great batholithic intrusions, in the Mesozoic; planation in the early Tertiary, followed by elevation and erosion, the accumulation of lake beds and lava flows; and erosion and continental glaciation in the Quaternary.

The oldest rocks exposed in the area are the metamorphic equivalents of shales, sandstones, limestones and intrusive and extrusive basic igneous rocks, all of which appear to have been subjected to the same period of structural movements and regional metamorphism. On lithologic grounds this series is tentatively correlated with the Cache creek series of British Columbia which is Carboniferous. Intruded into these older rocks is a great granite batholith which, since it does not show evidences of diastrophic movements is thought to be of Mesozoic or early Tertiary age. Early in the Tertiary it is probable that the area was reduced to near base level, then elevated and extensively cut by erosion, lakebeds accumulating in some of the resulting valleys. Following the lakebeds and in part contemporaneous with them were local eruptions of andesite. In the Pleistocene a southward extension of the Cordilleran ice sheet covered the entire area, leaving a heavy mantle of glacial drift and profoundly influencing the drainage system.

PALEOZOIC SERIES.

Distribution.

A great series of rocks which has been assigned to the Paleozoic is widely distributed in the south and central part of the area and extends in a narrower belt west to Mt. Chopaka and

Loomis, from the southwest. Palmer Mountain in background and to left. Spectacle Lake and Valley extending to the right.

north to the international boundary, while west of Lake Osoyoos are three more or less isolated areas of the same formation.

Characteristics.

The series as a whole is notably but not intensely metamorphosed. Distinct bedding is seldom seen although foliated schists, quartzites presenting complete recrystallization, and even marble are rare and were not noted save in the vicinity of intrusive masses. On the other hand slaty cleavage and jointing are common. Intimately associated with this series are basic lavas, pyroclastics and intrusions.

The various types of rock present in the series were not differentiated on the map since to do so would have required far more time than could be given to the reconnaissance. The limestone areas are fairly conspicuous in the field and were sketched in order that the structural relations might the better be portrayed by the map.

Broadly speaking the series consists of three divisions, which beginning with the oldest are: (1) dark gray to greenish black thinly laminated clay slates and siliceous schists with occasional quartzite bands; (2) blue limestone with interstratified clay slates and siliceous beds; (3) siliceous and argillaceous beds with a great deal of interbedded igneous material.

The lower part of the series is exposed best in the central part of the area, Mt. Ellemeham being perhaps its type locality. The rocks as here found are dark gray, reddish brown and occasionally green siliceous schists and mica bearing clay slates. They are thinly bedded and very fine-grained. The beds are extensively jointed and in a few places slaty cleavage is more pronounced than the bedding. They strike north-south and dip 40 degrees to 50 degrees west. The thickness of this portion of the series is not known but it is by far the most important division and gives the impression that its thickness must be thought of in thousands rather than hundreds of feet.

The middle division of the series outcrops between Kruger

mountain and Osoyoos lake and from there the surface exposure swings southwest, having an extensive development a short distance west of Golden, whence it extends southeastward beyond the limits of the area mapped. The division consists of irregular lenses of blue limestones included in clay and siliceous beds which, save that they are more massive and in places finely conglomeratic, are not very different from those of the underlying division. The limestone weathers to a light gray which is in sharp contrast to the dark shades of the enclosing schists and slates, causing areas of it to stand as striking features in a general survey of the landscape. Closely examined, the rock is seen to be fine-grained, extensively crushed and locally partially converted into marble. In many places the bedding planes are still intact so that dip and strike can be measured easily. Usually the contact of the limestone with the enclosing schist is sharp but in places perfect gradation between the two occurs.

A remarkable characteristic in the limestone areas of this region is their irregularity in shape and the manner in which they pinch out along the strike. In general they are roughly lenticular but no general ratio exists between their areal extent and their thickness. There are two general horizons of these limestone lenses, separated by 200 feet to 400 feet of clay slate. In the upper horizon the lenses appear to be more numerous and it was here that the maximum thickness, 200 to 300 feet, was measured.

Time did not permit a careful study of the limestone beds but certain facts were noted which seem to have a bearing on their origin. There are apparently three ways in which they may have assumed their present peculiarities: (1) by the crushing together of more widely distributed beds; (2) by faulting; (3) by reason of special conditions of deposition. Considering the three alternatives in the order above named, it appears that the general preservation of bedding planes within the limestone refutes the first. Concerning the second, faults sufficient to account for the relations were not noted in the field

and indeed would not be expected since they would be out of harmony with the general structure of the region. By elimination therefore, it is suggested that the limestone areas may be due to special conditions of deposition such that the lenses now have essentially their original outline and geographic distribution.

The upper division of the Paleozoic series which contains large quantities of volcanic material is extensively developed on the south end of Palmer mountain, on the hill southwest of Palmer lake, and in the general area east of Loomis. Although the igneous material is far more conspicuous than the sedimentary in this part of the series, yet considerable beds of sediments are present, as can be seen in a traverse from Loomis up over the mountain to the vicinity of Ivanhoe mine. Along this course several areas of dark greenish black slate appear and are in contrast to the rusty black basaltic material. In places the two are scarcely distinguishable and close examination suggests that the rock is made up both of small angular pyroclastic fragments and sedimentary material.

The most striking exposures of these old volcanic beds is in the south wall of the valley which extends east from Loomis. Here, when seen from a distance, the beds have every appearance of basaltic flows, rough columnar jointing, and massive forms being very pronounced. Closer examination reveals a fine-grained rock, in places having scattered phenocrysts in a dull lustered ground mass; in others a decided brecciated appearance; and yet again being a mass of small angular volcanic fragments roughly intermingled with sedimentary detritus. Microscopic study of the specimens gathered is unsatisfactory in that alteration has universally progressed so far that the minerals essential in classification cannot be definitely determined. The few feldspar crystals which are sufficiently fresh for identification have about the composition of andesine. Outlines of some pyroxene mineral are usually present, as is also hornblende, magnetite, and a little quartz. From the few feldspars which were determinable together with the pyroxene and

magnetite, it seems that the rock is a basic andesite, although the general texture is that of basalt.

In part the brecciated character of the formation in many exposures may indicate pyroclastic origin but it might also be due to the sudden cooling of lava poured out beneath water and since the sedimentary part of the series was very clearly deposited in water, the latter view seems more probable.

Age.

Fossils were not found in the area but the general lithologic make-up of the series corresponds very closely to the Cache creek series which Dawson has described and which has yielded fossils of Carboniferous age. (*a*).

GABBRO OF PALMER MOUNTAIN.

An area of greenish black granular rock comprises the southwest slope of Palmer mountain and extends across Sinlahekin creek valley and a short distance up on the west wall. The boundaries of the area are difficult to trace since in many places the contact is with the basic lavas of the Paleozoic series, which are closely related in composition and general appearance. Indeed it has been suggested that this may be one of the centers from which the lavas poured. (*b*)

The rock has a marked ophitic structure and is made up essentially of feldspar and hornblende. The feldspar seems to correspond to a basic andesine in composition. A little quartz is usually present and frequently encloses minute needles of hornblende. Outlines and occasional remnants of some monoclinic pyroxene appear in specimens from near the summit of Palmer mountain. Olivine was not noted. Calcite, biotite, zoisite and green epidote as well as much of the hornblende, are secondary.

(*a*) Ann. Rept. Geol. Survey, Canada, new ser., vol. 7, 1894, pp. 37B-49B.

(*b*) Smith, G. O., and Calkins, F. C., A geological reconnaissance across the Cascade range near the forty-ninth parallel. Bull. U. S. Geol. Survey, No. 235, 1904, pp. 46-47.

SIMILKAMEEN GRANITE.

Distribution.

The Similkameen granite, so designated by Daly (*a*) occupies the northwest part of the area mapped. It is deeply trenched by Similkameen river from a point five miles below Nighthawk westward to the international boundary. South from Chopaka mountain the granite appears at intervals along the entire western limit of the area mapped. A noteworthy occurrence of the same or very similar rock is as small patches near Golden and between that place and the main granite area to the north.

Characteristics.

The Similkameen batholith (*b*) is composed of medium to coarse grained light gray granite. It varies in composition from place to place, biotite and hornblende being the chief variables, the former nearly always present but in different amounts, while the latter is frequently almost absent. Marginal variations are pronounced, quartz decreasing very markedly in amount while the ferromagnesian constituents become much more abundant. This marginal basification is so pronounced north of Loomis that specimens from near the contact would readily be classed as diorite save for the absolute gradation into the normal granite. Texturally the granite varies from equigranular to strongly inequigranular, while in places, as near Golden, the orthoclase has a strikingly phenocrystic development.

Microscopic examination shows that the average specimen consists of the following essential minerals decreasingly important in the order named: oligoclase, microperthite, quartz, orthoclase, biotite, microcline and hornblende. Magnetite, beautifully developed titanite, apatite, and occasionally zircon are accessory.

(*a*) Daly, Reginald A. The Okanogan Composite Batholith of the Cascade Mountain System, Bull. G. S. A., Vol. 17, 1906, p. 234.

(*b*) This granite is described by Daly, op. cit. pp. 452 to 454; and by Smith and Calkins, op. cit. pp. 32-33.

Age.

The age of this granite batholith is uncertain since there is no sedimentary record from the close of the Paleozoic until well on in the Tertiary. Daly (*a*) notes the lack of schistosity in the granite and takes this to mean that the intrusion post-dates the orogenic movements which Dawson recognizes throughout the Canadian Cordilleran and assigns to the close of the Laramie period. (*b*) Thus Daly believes the intrusion to be early Tertiary. In this connection it is perhaps significant that extensive faulting within the granite and which seems to be of the reverse type, occurs along the east face of Chopaka mountain while normal faulting appears in the area just west of Nighthawk.

On the other hand there is considerable reason for thinking that the area was peneplained in Eocene times, meaning thereby that comparatively static conditions then prevailed. Since, therefore, the granite was beveled by Eocene erosion, as discussed in the chapter on physiography, if it be assigned to the Tertiary it must be assumed that it was intruded during a period of diastrophic inactivity.

In view of these general considerations and since the faulting above referred to may be a local expression of the movements which closed the Laramie period it seems very possible that the granite is of pre-Tertiary age, preferably late Cretaceous.

TERTIARY ROCKS.

LAKE BEDS.

Extent.

Lake beds occupy an irregular area of about fifteen square miles lying north and west of Oroville. The general outline of the deposit is very irregular, due both to the encroachment of younger lavas and to the relation of the older metamorphics, a pronounced arm of which extends southward from east of Kruger mountain into the general area of lake deposits. From other known areas beyond the limits of the district mapped it is

(*a*) Op. cit. pp. 360-361.
(*b*) Bull. Geol., Soc. Am., Vol. 12, 1901, p. 87.

known that the formation is confined to a north-south zone, never over a few miles in width.

Description.

The Tertiary beds have suffered considerable deformation, in places presenting dips as high as 30 degrees. The strike is usually north-south in the northern part of the area and more nearly east-west in the southern, being directions of dip such as would correspond to an irregular anticline-syncline structure.

The beds are well exposed in the valley of Similkameen river where their unequal resistance to erosion gives steep bluffs along the valley sides and low falls and rapids in the river. In the bluffs sandstones and coarse and fine conglomerates are exposed, much of the latter being very angular and composed of fragments of metamorphic material and granite similar to the basement series of the region. The beds in the western extension of the area are largely composd of granite blocks with arkose filling the interstices, while the southern extension mostly presents detritus derived from the metamorphic series. In nearly all localities examined tuffaceous andesitic material was noted. This general composition suggests a very local derivation of the material, that in the west extension coming primarily from the adjacent granite, while to the south the metamorphic series was the chief source of supply. The andesite tuff was probably in part deposited directly in the lake and in part washed into it from the surrounding country.

The thickness of the formation could not be satisfactorily measured in any of the exposures visited but it will likely not be far amiss to think of it as 500 feet.

Age.

Fossils were not found in these beds but their lithologic character and topographic relations closely resemble the Tertiary deposits at Republic, (*a*) 45 or 50 miles farther east, which are placed as Miocene on the strength of fossil evidence. (*a*) The points of analogy are that both deposits contain much an-

(*a*) Umpleby, J. B., Geology and ore deposite of Republic District, Washington. Wash. Geol. Survey, Bull. 1, 1909, pp. 24-25.

desitic tuff and both are followed by andesite flows. Furthermore, beds of Miocene age have been reported from many of the larger valleys of British Columbia (*a*) while beds of Eocene age are absent and Pliocene lakes if reported are unknown to the present writer.

Since Miocene lake deposits are known at various places in the boundary country, while beds assigned to other divisions of the Tertiary are not common, if occurring at all, and since the analogy with the Republic deposits is so close, it would seem reasonable, even in the absence of fossils, to consider the lake beds at Oroville as Miocene.

ANDESITE.

Distribution.

Three areas of andesite occur in the Oroville-Nighthawk district. The largest comprises about one and one-half square miles and is plastered against the steep slope west of Oroville. The next in importance forms the capping of Kruger mountain, while the third appears in the valley wall west of Lake Osoyoos.

Characteristics.

The andesite is dark gray with phenocrysts of hornblende and feldspar rather closely spaced in a dense groundmass. The microscope shows the groundmass to be imperfectly crystalline and imbedded in it are crystals of andesine, hornblende, and a little oligoclase. Magnetite is accessory.

The flows rest unconformably on the lake beds but the amount of erosion which occurred between them is not important in comparison with post-andesite erosion. This probably means that the andesite eruption followed rather closely the formation of the lake beds.

QUATERNARY HISTORY.

Glacial drift appears at all altitudes within the area and in many places grooved and polished bedrock may be found. The striations in general indicate that the ice advanced from

(*a*) Dawson, G. M., Trans. Royal Soc. of Canada, 1890, p. 12 *et al.*

about five degrees west of north. This direction of motion is clearly recorded on both the east and west slopes of Ellemeham mountain near its summit, thus obviating the possibility of local centers of radiation and leaving little room for doubt that the area was covered by a southward extension of the Cordilleran ice sheet. Further evidence of continental glaciation is the rounded and smoothed contour of the north-south valleys while the east-west ones are rough in outline and nearly always present a very heavy and hummocky accumulation on the north wall while that on the south is much less pronounced.

The influence which glaciation has had on the general drainage of the area is considered in the chapter on physiography.

The general structure of the Cascade mountains at the forty-ninth parallel has been described as a synclinorium (*a*) and the present area may well be considered a segment of this broad structural feature. The general strike of the formations are north-south, varying rather more to west of north than otherwise. An east-west section therefore, such as the one which accompanies the geologic map, gives in its broader features the structure of the area. Several small anticlines and synclines appear but they are seldom tightly compressed, dips of about 45 degrees being the rule.

Faulting is shown in the section but it is thought that it is far more prevalent than is suggested by the map. A pronounced fault follows the east face of Chopaka mountain and dips west at 45 degrees. It seems that the west side of the fault moved up relative to the east, both by reason of the steep scarp-like mountain face which lies immediately west of the fault and because the sedimentary cap still covers the granite in places on the east while it has long been removed from the area to the west. Another reverse fault was noted north of Oroville and is described in the notes on the Golden Chariot property. Normal faulting was noted on Little Chopaka mountain where, with a

(*a*) Smith and Calkins op. cit., p. 84.

fault plane dipping west, granite on the east is in juxtaposition with metamorphosed sediments on the west. (*a*)

The great granite mass so prominent in the geologic history of the area does not seem to have had a pronounced influence on the structure of the rocks it entered. Faulting probably preceded it but those which are mapped affect the granite and hence are later. The lakebeds overlying all other formations, save the andesite, are folded to some extent but so far as noted are not faulted.

(*a*) Further notes on this fault appear in connection with the Little Chopaka group of mining claims.

CHAPTER III.

ECONOMIC GEOLOGY.

LOCATION AND CONDITIONS.

The Oroville-Nighthawk area includes six or seven mining districts situated in northern Okanogan county. As is generally true in this region, none of the districts are organized. The accompanying map includes a general area over which exploration has been more or less uniformly pursued and which is rather definitely separated from adjoining territory where mineral deposits have not been reported.

The district presents rough and mountainous features in the western part, while in the central and eastern portions bold, rounded hills and mountains, are the characteristic forms. The inter-montane valleys are deep and in much of their extent, steep-sided. Although the streams usually have very low gradients, yet in places, notably on the Similkameen river a few miles above Oroville, rapids and low falls afford abundant water-power to supply the entire district with electricity for all purposes which are at all likely to develop.

Scattered timber occurs on most of the area, while a few miles back in the mountains to the west, abundant supplies are available. Roads follow all the larger valleys and extend into some of the upland country, while the topography is such that others can be built at comparatively low cost to most points in the area if need for them exists. Communication with the outside is afforded by a branch line of the Great Northern railway which enters the district at Oroville and thence follows the course of the Similkameen river to a point in British Columbia.

HISTORY AND PRODUCTION.

The district is one of those which attracted the prospector during the period when placer excitement was waning in California and searchers for gold were reaching out into other parts of the west. As far back as 1859 placers were worked on Simil-

kameen river. Quartz lodes were recognized at that time but no known locations were made. Shortly thereafter the territory was set apart as an Indian reservation and the land withdrawn from mineral entry. Upon being reopened in the late nineties numerous locations were made and extensive promoting schemes inaugurated. Many of these early companies have had disastrous histories. Some were obviously born of ignorance and fostered by deceit, while others simply assumed the chances of legitimate prospecting and for one reason or another, lost. Many of the properties had excellent ore in the oxidized zone, which is very shallow throughout the area, but were unable to handle the lower grade pyritic material encountered below. Again, in many instances, the veins did not extend to the lower levels reached by long and expensive tunnels.

The actual total production of the district is not known, but it is probable that it does not exceed $1,000,000. This figure allows about $500,000 for the placers on Similkameen river, which cannot be verified. About $150,000 is ascribed to the Pinacle mine, while the remainder is from various properties, chief of which are the Black Bear, Triune and Golden Zone. The area has been primarily a gold district, although some silver and very minor amounts of the base metals are included in its production. It is possible that in the future this order will be reversed.

GEOLOGIC RELATIONS.

Broadly speaking the rocks of the area constitute a great series of metamorphosed shales, quartzites, basic lavas and tuffs, all of which have been cut in late Mesozoic or early Tertiary times, by a great batholith of soda-rich granite. Later, lake deposits accumulated and after them andesite flows spread over the eastern part of the district.

The ore deposits cut the granite but are presumably earlier than the lake beds, since in no place are they included in them.

ORE DEPOSITS.

The ore deposits fall into two general classes: (1) those in which the metallic mineral or minerals are rather evenly distributed through the rock formations, or disseminated deposits, and (2) vein deposits.

DISSEMINATED COPPER DEPOSITS.

Distribution.

Disseminated copper deposits are known a few miles west of Oroville. Development is not extensive, consisting of a few diamond drill bores and small open cuts. The principal property is known as the Kelsey group.

Characteristics.

Within the mineralized ground which comprises an ill-defined area of several hundred acres, copper stains appear on nearly every bluff and in some instances can be seen very clearly from a distance. The malachite and azurite, however, are very superficial so that within a few inches of the surface they give way to the chalcopyrite from which they are derived. This primary mineral occurs as fine grains scattered irregularly through the various rocks and as films along joints and fractures. Yet again, it is included in small quartz veinlets which cut the formations. In places rather strong quartz veins appear, as on the Golden Chariot claim, but these are not the rule.

The rocks impregnated are metamorphosed shales, quartzites and basic volcanic material. All are mineralized but perhaps the shales to a greater extent than the others.

An important feature in connection with the deposits is the occurrence of the primary minerals, chalcopyrite and pyrite, within a few inches of the surface, even where the surface alteration appears to be most intense. This relation clearly indicates that if the deposits are ever worked it will be for primary sulphide ore. A secondary zone of chalcocite enrichment, such as constitutes the ore body at Bingham, Ray and other camps of the southwest, cannot reasonably be expected here.

Just what the rock will assay on an average working basis is not known. A few diamond drill bores have been put down on the Kelsey group, but these are not in sufficient number to prove or disprove a workable body of ore.

Genesis.

The genesis of these disseminated deposits is obscure. The presence of occasional veinlets and stringers which cut the formations indicates that, in their present form at least, they are younger than the formations enclosing them, and since they disappear beneath the lake beds, they are pre-lacustrine. It appears therefore that they are to be assigned to some part of that great lapse of time to which the intrusion of the Similkameen batholith dates. Since such a deposit seems to necessitate very intense conditions whereby mineral-bearing solutions not only followed joints and fractures, but penetrated to the more impervious portions between them, a genetic relation between the great granite magma and the ore deposition strongly suggests itself. If such a relation is true it yet remains to determine whether the magma supplied the metals, or simply made possible their concentration (by heating the ground water and supplying it with solvents) from a more disseminated state in the older rocks. Evidence on this point was not sufficiently definite to be of value.

VEIN DEPOSITS.

Distribution.

Veins are widely distributed in the area but are specially developed around Nighthawk, Golden and on Palmer mountain. Those at Nighthawk strike predominantly north-south and dip west, while in the other locations no regularity in strike and dip was recognized. The strike of the several veins measured in the entire area have been plotted in a circular diagram (Fig. 3) which brings out a slight predominance of north-south directions, but were a half-dozen veins in the northwest corner of the area not considered the distribution would be remarkably regular throughout the 360 degrees.

Metals Represented.

Gold, silver and copper are the chief metals derived from the veins although lead and a little zinc are very commonly present. In the past gold has been the chief product but present development strongly suggests that silver and copper may soon vie for first place.

Types of Veins.

Two distinct types of veins occur within the area, but since all gradations between them were noted, it does not seem wise

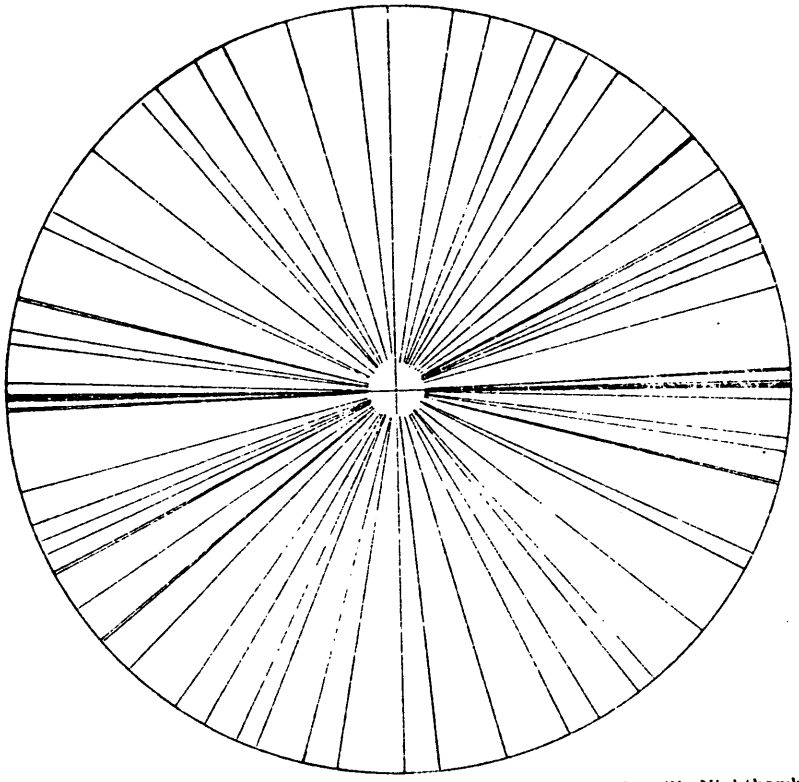


FIG. 3.—Graphic illustration of strike of the veins in the Oroville-Nighthawk District.

to treat them separately. The two types are tabular in form and both are properly to be classed as veins. In one the transition from vein matter to wall rock is sharp, while in the other it is so gradual that within the limits of perhaps a foot or more it would be difficult to locate the point of contact between vein and wall. In the former, mineralization is confined to the vein, while in the latter it extends out into the wall rock. The

first are usually more regular in outline than the second. The Triune mine illustrates the former class, while the Copper World Extension belongs to the second.

Again, the veins of the district might be classed according to whether or not they occur along a fault of considerable throw. Many of the north-south lodes near Nighthawk are along faults, some of which probably have throws of several hundred feet. The deposits near Golden and on Palmer mountain nearly all show slickensides and groovings but in these there is no evidence of appreciable displacements.

It would further be possible to class the veins according to the chief minerals for which they are worked if the percentage of different constituents from various parts of the area were known better.

In general the vein matter is coarse, crystalline quartz with metallic minerals distributed as small aggregates, which in places are zonally arranged and in others more or less completely isolated. Within the same vein the kind of minerals frequently varies from place to place. Pyrite is nearly always present where any mineralization has occurred. Chalcopyrite usually accompanies it, as does also galena and occasionally zinc blende. Gold occurs free, and also included in pyrite, chalcopyrite and galena (see description of Hiawatha mine). Silver is principally as argentiferous galena, proustite, pyrargyrite, stephanite, argentite, and cerargyrite.

Depth to Which Veins Extend.

Any attempt to suggest the depth to which the veins extend in an area so little known, must be very vague, but there have been so many disappointments in this district, where long tunnels have been driven to intersect a vein far below its outcrop, that those relations which have a bearing should be pointed out. The Similkameen and its tributary valleys exist as deep, opencuts through the area. Glaciation has so worn and polished them that in many places the sides are almost free from detritus and afford excellent sections of many of the veins.

The valley sides south of Nighthawk present many quartz veins near their rim, but few of them extend over a quarter of the way down the sides and only two were noted (southwest of Palmer lake) which reach the lower slopes. While it is not safe to generalize on the strength of these observations, yet they are considered sufficiently potent to emphasize the advisability of following the ore to lower levels rather than resorting to long tunnels. The history of the district amply bears out this suggestion.

Age and Genesis.

The ores are in part enclosed in the granite but nowhere are known to cut the lake beds. Hence they seem to be confined to that period between the intrusion of the granite magma and the lacustrine deposition. Since the granite is probably late Cretaceous or early Tertiary and the lake deposits are thought to be Miocene, the ores are probably early Tertiary.

Thus, dating the ores somewhere during that period when the great heat of the intruding granite magma was being slowly dissipated through the surrounding rocks, it seems very reasonable to suggest a relation between the two.

PLACERS.

The principal placers have been found along the Similkameen river about half way between Oroville and Nighthawk where somewhat more than a half million dollars is said to have been extracted within a short time after the discovery. Recently a river bed drying device has been installed, the object being to explore the present channel. Other placer operations are being undertaken on the river but with what success is unknown to the writer.

The gold which varies in size from coarse flakes to nuggets, occurs in the river bars and lower terraces. This part of the river valley is largely the product of post-glacial erosion, hence the placers are very young and quite possibly have been secondarily concentrated from vein material ground up by the ice sheet.

GROUND WATER LEVEL AND OXIDATION.

Perhaps the most striking feature in the ore deposits of the boundary country is the shallow zone of oxidation. In many instances this may be accounted for by the shallow depth of the water table. Usually, however, the water table is a considerable distance below the lower limit of oxidized ore. Thus in the Copper World Extension, primarily pyrite and chalcopyrite are encountered within a few feet of the surface, while water does not rise in the shaft above the 200-foot level. The Kelsey group also illustrates this point but here the water level is only 20 to 50 feet below the lower limits of predominant oxidation. Many other instances could be cited which illustrate the same general relation, namely, that the water level is lower than the present lower limit of oxidation.

This relation is probably to be explained by recourse to the influences of glaciation on the country. The ice not only cut off much of the oxidized zone in many places, but left a mantle of drift which serves to shed water that would otherwise enter the veins.

CONCLUSIONS.

Concisely stated, the conclusions deduced from the reconnaissance in the Oroville-Nighthawk area are as follows:

(1) Copper deposits occur both as veins and as disseminations. The former are definitely known, but the quantity of ore available is yet to be determined. The latter are in vast bodies but it is yet to be proven that the copper content is sufficient to justify working under present conditions.

(2) Gold production will probably be much lower, proportionately to silver and copper, in the future than in the past.

(3) The proportionate production of silver in the future will show a marked increase.

(4) The ores are probably genetically related to a great batholith of soda-rich granite.

(5) The deposits are thought to be of late Cretaceous or early Tertiary age.

(6) In few districts is the injunction to follow the ore more pertinent than here.

MINERALS OF THE DISTRICT.

The minerals recorded in a report of reconnaissance studies must in the nature of the case be incomplete, but for purposes of reference those that were noted are arranged in alphabetical order and their mode of occurrence briefly stated.

Argentite. Silver glance occurs in several of the silver-bearing deposits around Golden and Nighthawk but is never the chief ore of silver.

Arsenopyrite. This sulpharsenide of iron is not abundant in the area, being noted in but three places. It was intergrown in each case with vein quartz.

Auzurite. This copper carbonate is limited to the upper few feet of the copper deposits and even here is not conspicuous.

Bornite. Bornite occurs in many places as an alteration product intermixed with chalcopyrite and as thin films on adjacent material.

Calcite. The carbonate of lime frequently occurs as part of the gangue.

Cerargyrite. Hornsilver occurs near the surface in many of the silver-bearing veins but in no place constitutes a very appreciable part of the ore.

Chalcopyrite. This mineral is widely distributed in the area and is the chief ore of copper. It occurs in veins intimately intergrown with pyrite and as disseminations in the Paleozoic rocks.

Cuprite. Copper oxide is remarkably rare in the surface exposure of the copper deposits, the alteration having been almost completely to malachite.

Galena. Lead sulphide is widely distributed in the vein deposits. Silver is associated with it in several places and in one of the veins (Hiawatha) it is thought to carry much of the gold.

Gold. Gold is widely distributed in the area. It occurs free in placers and the upper portions of the quartz veins, and included in pyrite, chalcopyrite, galena, and sphalerite in the unaltered parts of the deposits.

Limonite. The hydrated oxide of iron occurs as a heavy stain on the gossans of the veins and on surface exposures of many of the rocks of the area, especially the basic lavas and tuffs

Malachite. The green copper carbonate is always conspicuous in the outcrops of the copper-bearing deposits. It is generally confined to a few feet near the surface.

Molybdenite. Thin, graphite-like scales of the sulphide of molybdenum occur along many of the gouge seams accompanying the veins in the northeast part of the area.

Proustite. Light rubysilver is an important ore from the central and northwest part of the district. It usually occurs as stains and crusts but occasionally as small, hexagonal crystals in firm quartz.

Pyrargyrite. Dark rubysilver has a distribution similar to proustite and with it constitutes the chief ore of silver.

Pyrite. Pyrite occurs in all the deposits of the area.

Pyrolusite. This oxide of manganese was noted in several deposits both as druses and dendrites.

Pyrrhotite. Appears quite commonly in the quartzitic schists traversed by the Palmer mountain tunnel but was not noted in any of the veins.

Quartz. Quartz is the chief gangue mineral in the area.

Silver. Specimens of native silver have been encountered near the surface in several of the properties but does not constitute an ore of silver.

Sphalerite. Zinc blende is widely distributed in the veins. It occurs as fine-grained masses in the quartz but is never in commercial quantities.

Stephanite. Is one of the important silver ores especially in the Hornsilver mine. It is usually disseminated in irregular areas in the gangue but occasionally occurs as short prismatic crystals.

Stibnite. Antimony sulphide occurs in small lenses and bunches in the metamorphic rocks southeast of Loomis. Little of it was seen in place.

CHAPTER IV.

DETAILED DESCRIPTION OF MINES AND PRINCIPAL PROSPECTS.

In the descriptions which follow the properties will be divided into groups according to their location. Thus the claims situated near Oroville, Nighthawk, Wannacut Lake, and on Palmer mountain will be considered in turn. It is perhaps unnecessary to state that not all of the claims of the area were visited and it is likely true that some which were not visited are of more merit than some of those which were. It is thought, however, that the following descriptions in that they are to a large measure inclusive, will be of value in giving the report tangible form.

KELSEY GROUP.

The Kelsey group consists of fifteen claims which are situated about four miles north of Oroville and immediately west of Osoyoos lake. The property is owned by the Detroit-Oroville Exploration company with headquarters in Detroit, Michigan. Mr. N. B. Kelsey, of Oroville, Washington, is local agent for the company.

Development consists of several small open cuts and shafts in addition to six diamond drill holes, each of which reaches a depth of about 100 feet. No ore has been shipped from the property.

The country rock, as exposed on these claims, is predominantly greenstone, although large amounts of clay slate and quartzite are present. The greenstones seem to be interbedded with the sedimentary members, although it is possible that more careful study may show some of them to be intrusives. In the hand specimen they are usually green or greenish gray and present a granular to porphyritic texture with the grains rather ill-defined. Hornblende, feldspar, and quartz can be distinguished, and little veinlets of quartz usually less than a quarter

Mr. George C. Selfridge
Chairman, Operating Committee
Defense Minerals Explor. Admin.
Department of the Interior
Washington 25, D. C.

TOWNSHIP 40 N., RANGE 26 E. W. M.

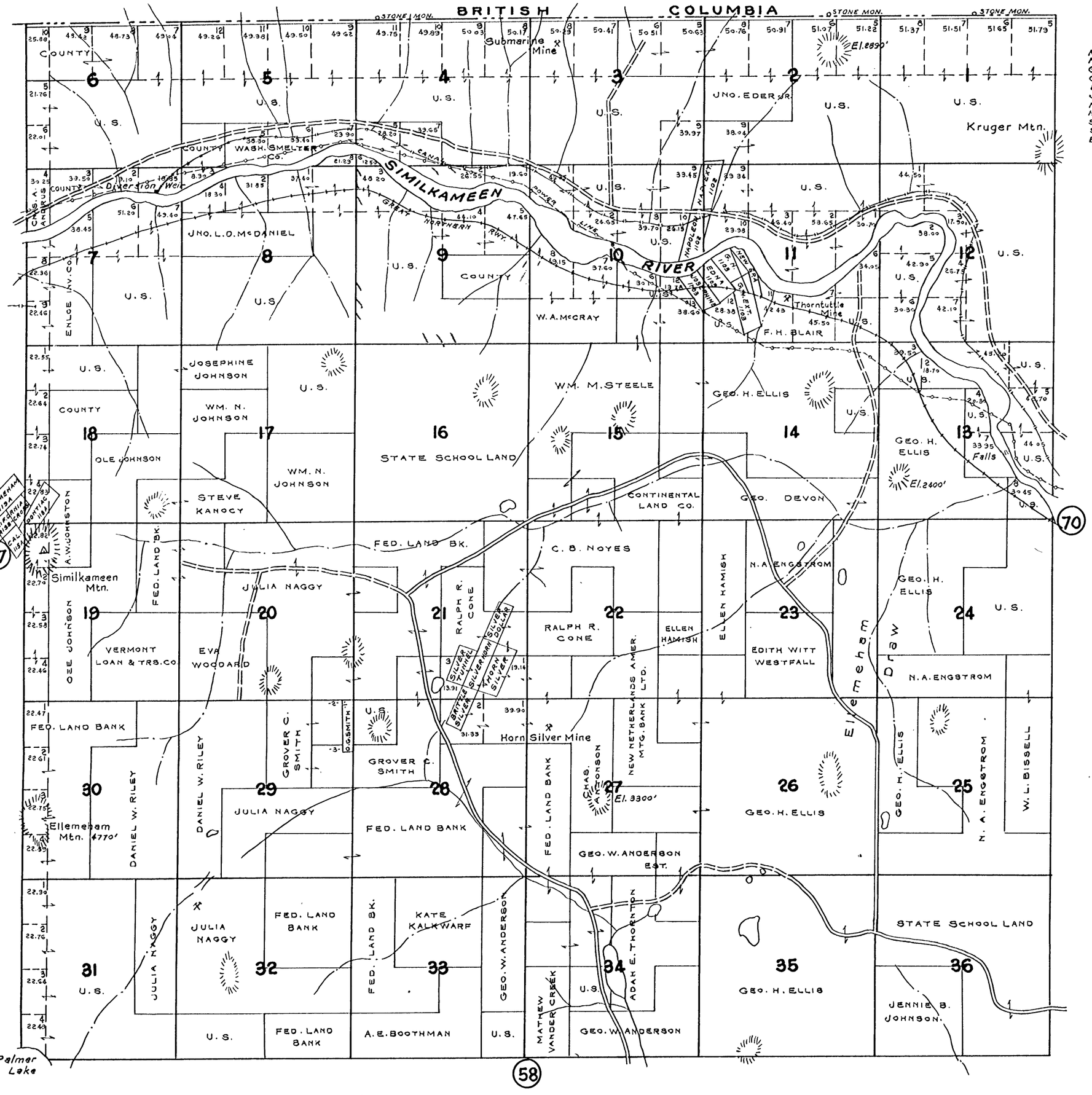
OKANOGAN COUNTY, WASHINGTON

SCALE 2 IN. - 1 MILE

DATED 1934

CHAS. F. METSKER, CIVIL ENGINEER
514 S. W. OAK ST., PORTLAND, OREGON
930½ PACIFIC AVE., TACOMA, WASHINGTON

MINE	SEC.	OWNER
NAPOLEON LODE	10	CORNELIUS HILL
NAPOLEON EXT.	"	" "
GREAT NORTHERN	11	" "
GREAT NORTHERN EXT.	"	" "
EDNA	"	" "
JOSEPHINE	"	" "
NEW ERA	"	" "
HORN SILVER	21	F. N. CHURCHILL
SILVER HORN	"	" " "
SILVER TUNNEL	"	" " "
BRITTLE SILVER	"	" " "



—LEGEND—

- PAVED ROADS
- STATE HIGHWAYS
- GRAVELED ROADS
- DIRT ROADS
- INFERIOR ROADS
- RAILROADS
- TRAILS
- INTERMITTENT CREEKS
- SCHOOLS (S)

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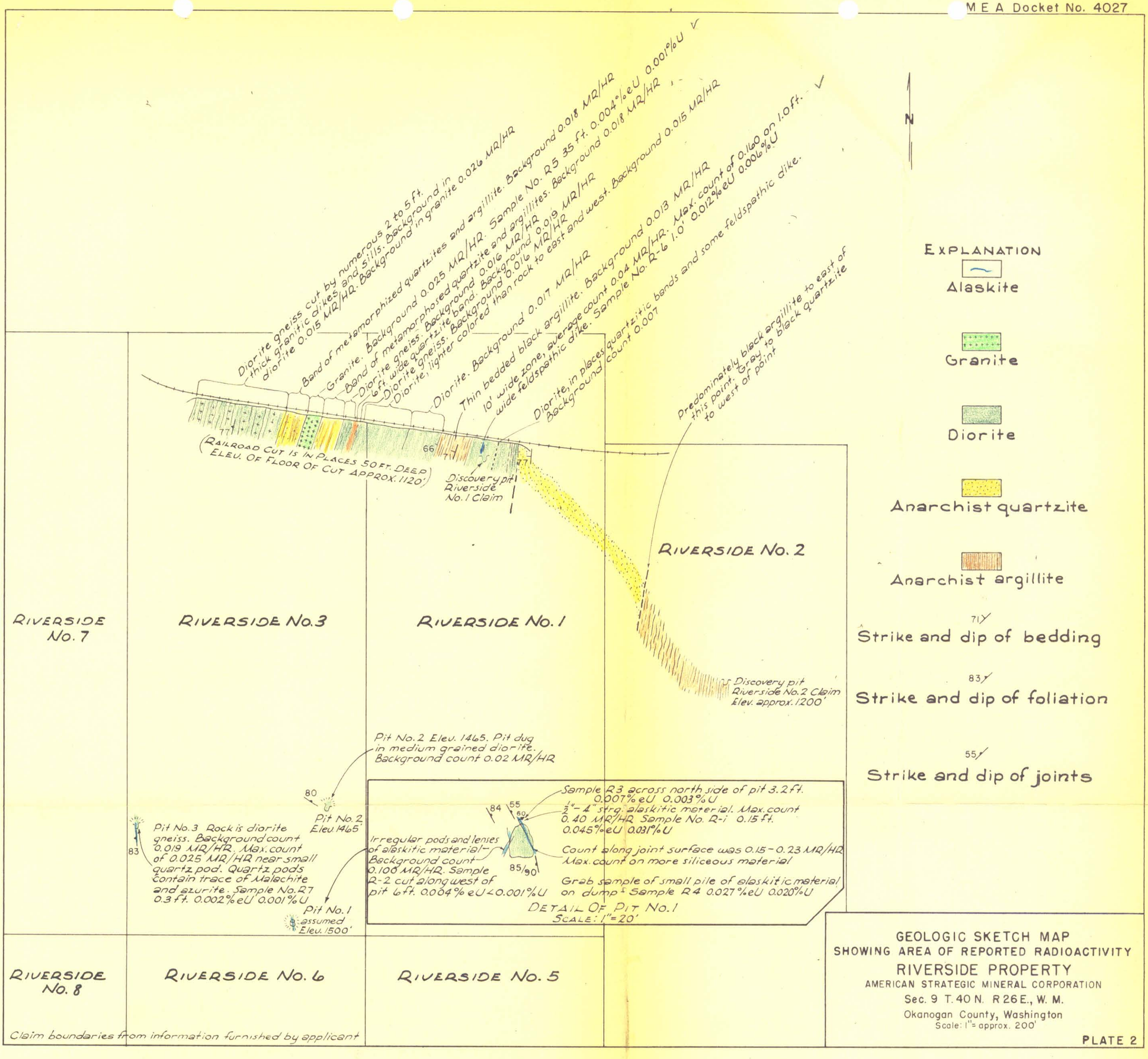
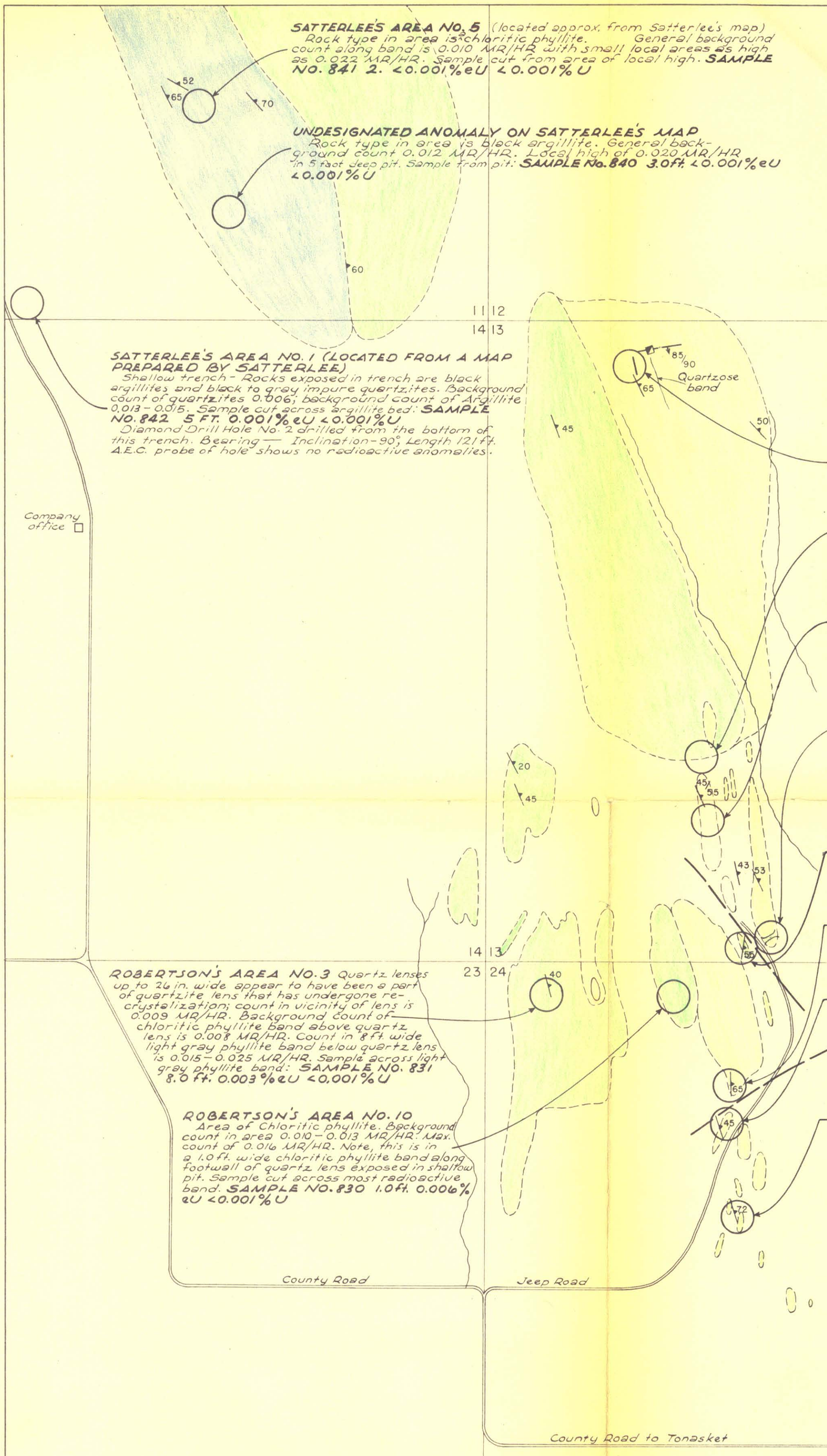

Diorite gneiss cut by numerous 2 to 5 ft. thick granitic dikes and sills. Background in diorite 0.015 MR/HR. Background in granite 0.026 MR/HR
Band of metamorphized quartzites and argillite. Background 0.018 MR/HR
Granite. Background 0.025 MR/HR. Sample No. R5 35 ft. 0.004% eU 0.001% U
Band of metamorphosed quartzite and argillites. Background 0.018 MR/HR
Diorite gneiss. Background 0.016 MR/HR
6 ft. wide quartzite band. Background 0.019 MR/HR
Diorite gneiss. Background 0.016 MR/HR
Diorite, lighter colored than rock to east and west. Background 0.015 MR/HR
Diorite. Background 0.017 MR/HR
Thin bedded black argillite. Background 0.013 MR/HR
10' wide zone, average count 0.04 MR/HR. Max. count of 0.160 on 1.0 ft. wide feldspathic dike. Sample No. R-6 1.0' 0.012% eU 0.006% U
Diorite, in places quartzitic bands and some feldspathic dike. Background count 0.007
Predominately black argillite to east of this point. Gray to black quartzite to west of point
N
EXPLANATION
Alaskite
Granite
Diorite
Anarchist quartzite
Anarchist argillite
Strike and dip of bedding
Strike and dip of foliation
Strike and dip of joints
(Railroad cut is in places 50 ft. deep. Eleu. of floor of cut approx. 1120')
Discovery pit Riverside No. 1 Claim
Riverside No. 2
Discovery pit Riverside No. 2 Claim Elev. approx. 1200'
Riverside No. 7
Riverside No. 3
Riverside No. 1
Pit No. 2 Elev. 1465. Pit dug in medium grained diorite. Background count 0.02 MR/HR
Pit No. 2 Eleu. 1465'
Pit No. 3 Rock is diorite gneiss. Background count 0.019 MR/HR. Max. count of 0.025 MR/HR near small quartz pod. Quartz pods contain trace of Malachite and azurite. Sample No. R7 0.3 ft. 0.002% eU 0.001% U
Pit No. 1 assumed Eleu. 1500'
Irregular pods and lenses of alaskitic material - Background count 0.100 MR/HR. Sample R-2 cut along west of pit 6 ft. 0.004% eU <0.001% U
Sample R3 across north side of pit 3.2 ft. 0.007% eU 0.003% U
1/2" - 4" strg. alaskitic material. Max. count 0.40 MR/HR Sample No. R-1 0.15 ft. 0.045% eU 0.031% U
Count along joint surface was 0.15 - 0.23 MR/HR Max. count on more siliceous material
Grab sample of small pile of alaskitic material on dump. Sample R4 0.027% eU 0.020% U
Detail of Pit No. 1
Scale: 1" = 20'
Riverside No. 8
Riverside No. 6
Riverside No. 5
Claim boundaries from information furnished by applicant
GEOLOGIC SKETCH MAP
SHOWING AREA OF REPORTED RADIOACTIVITY
RIVERSIDE PROPERTY
AMERICAN STRATEGIC MINERAL CORPORATION
Sec. 9 T. 40 N. R 26 E., W. M.
Okanogan County, Washington
Scale: 1" = approx. 200'
PLATE 2



EXPLANATION

PLEISTOCENE GLACIAL MATERIAL
For most part lake beds

UPPER MEMBER, LOWER ANARCHIST SERIES
Chloritic phyllite, greenstone, gray phyllite characterized by argillite

MIDDLE MEMBER, LOWER ANARCHIST SERIES
Chloritic phyllite, greenstone, minor argillite, quartz bands

LOWER MEMBER, LOWER ANARCHIST SERIES
Dolomite at top, graphitic and chloritic phyllite, greenstone argillite

50 Strike and dip of foliation

Probable fault

Base and Geology for most part after map by Forbes Robertson 1954
Description of so called radioactive anomalies, minor additions and samples by J. J. Quinlan and P.L.W., U.S.G.S. 1955

GEOLOGIC SKETCH MAP
SHOWING PRINCIPAL AREAS OF REPORTED RADIOACTIVITY
McDANIEL PROPERTY
AMERICAN STRATEGIC MINERALS CORPORATION

T 37 N R 26 E
OKANOGAN COUNTY, WASHINGTON
SCALE 1" = 677 FEET

PLATE I