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J. H. C.

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

FEB 6 1967

February 2, 1967

PERSONAL/CONFIDENTIAL
TO: J. H. COURTRIGHT

FROM: J. E. KINNISON

URANIUM EXPLORATION
SIERRA ANCHA DISTRICT
GILA COUNTY, ARIZONA

In reference to Mr. Hoskins' memorandum of sampling in the subject district (1/20/67), I have the following remarks. Hoskins and I visited Workman Creek and Cherry Creek on a casual reconnaissance this past fall. Although I had originally listed twelve deposits to be sampled in my earlier report to you of March 24, 1966, we found that interest in the district had been renewed due to the recent uranium activity as reported in mining journals and in the press. We found that many of the old claims had been restaked, and my original suggestion that the district was idle no longer holds. Therefore, I selected four prospects which I thought might have the possibility of a large tonnage, and later Mr. Hoskins sampled these areas. The assay returns from Hawley & Hawley are exceedingly low, although they do confirm the widespread presence of uranium.

The assays which Hawley furnished us will be checked by sending selected pulps to Gruney in Grants, New Mexico. Because these deposits are rather unusual in their general nature and are apparently associated with fluids emitted from a cooling diabase magma, there is a long-shot chance that minor quantities of other metals--such as nickel and cobalt--might be present. This possibility will be checked by spectrographic analysis of a few composite samples.

In addition to the above assay checks, I believe that the Red Bluff and Oak Creek deposits should be examined at some time in the future, whenever convenient. The Oak Creek prospect was based on a carefully done scintillometer grid, which detected an anomalous area of slightly higher readings. Although Mr. Hoskins did not mention the reaction of the scintillometer to the very low grades that were reported by assays, he has told me verbally that there was no detectable difference in those areas which assayed between one-half and two pounds U_3O_8 per ton. On this basis the Oak Creek anomaly becomes more interesting than I would have previously thought. I have found that Carl Larsen who owns the Red Bluff Mine, and who formerly asked a large cash price, has used most of his money and is virtually out of funds. He is also faced with court costs in attempting to patent the claims, and he is opposed on this matter with the Forest Service. The tonnage of low-grade uranium at this deposit could be substantial, and Larsen may now be willing to settle for a very nominal payment.

I will discuss the preceding comments with you in more detail in the near future, and before making any further investigations on the ground.

John E. Kinnison

JOHN E. KINNISON

JEK/pjc
cc: WESaegart
WGHoskins

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

January 20, 1967

J. H. C.

JAN 24 1967

MR. W.E.S.
READ AND RETURN
PREPARE ANSWERS ____ HANDLE ____
FILE ✓ INITIALS ____
FEB 13 1967

TO: J. H. COURTRIGHT

FROM: WILLIAM G. HOSKINS

SAMPLING OF URANIUM DEPOSITS ON CHERRY AND WORKMAN CREEKS IN THE SIERRA ANCHA DISTRICT GILA COUNTY, ARIZONA

Introduction

Four mining areas were sampled in the Sierra Ancha Uranium District in December 1966, to determine if low grade uranium is disseminated in the Dripping Springs Quartzite.

Mr. John Kinnison was instrumental in this sampling project. Having worked in this district during the first uranium boom, he felt there existed a possibility that uranium could be disseminated in the quartzite away from the uranium bearing fractures mined in the past, and would be economic if the price of uranium goes to $30.00/pound which has recently been figured by the A. E. C.

Samples were taken at these four mining areas where adits have been driven on fractures assaying about 0.20 per cent U_3O_8. Sampling was done at intervals on each side of the fractures and in different stratigraphic beds.

Conclusion

Low grade uranium is disseminated laterally from the fractures that have been mined in the past. A horizon of black siltstone beds, 10 to 15 feet thick on Workman Creek and locally up to 50 feet thick on Cherry Creek seem to be the most favorable host rock.

The area sampled around the Little Joe Adits in the 10 to 15 feet thick black siltstone beds average 0.036 per cent U_3O_8. Most of the samples taken were between these adits.

The average grade for all siltstones sampled except Little Joe, is 0.015 per cent U_3O_8. The siltstone samples on Workman Creek represents a horizontal distance of 2500 feet and 10 to 15 feet in thickness. Indications are, the siltstone will average this grade between the Little Joe Adits and the Hope Adits which is a distance

of 5000 feet. Only one sample was taken in the 50 foot thickness of siltstone on Cherry Creek where no mining had been done. This sample assayed 0.018 per cent U_3O_8 which corresponds to the average grade on Workman Creek.

This preliminary sampling indicates the district to have exploration possibilities of locating areas in the siltstone beds averaging 0.015 per cent U_3O_8 that could be mined by open pit. This grade of U_3O_8 would be competing with the phosphates, lignites, coals and shales.

The November 1966 issue of E.M.J. lists the grade of U_3O_8 in the Dokato Lignites as 0.10 to 0.15, phosphate rock as 0.005 to 0.03, western coals as 0.01 to 0.05, and Chatanooga Shales as 0.001 to 0.01.

In view of these types of deposits and long range price predictions it is felt no land should be tied up in this area.

General Geology

The areas sampled are in the middle part of the upper member of the Dripping Springs Quartzite, a member of the Apache Group. The upper member where sampled is a grey silty thin-bedded quartzite with a zone of inter-bedded black thin-bedded carbonaceous siltstone.

A thick diabase sill cuts the quartzite usually a few feet below the black siltstone zone.

Most of the production came from deposits in selected fractures directly above the diabase sill, and where the fractures cut the black siltstone. These mineralized fractures are mostly vertical, limonite stained and usually carry minor amounts of oxide copper. Colorless to pale yellowish-green secondary uranium minerals can usually be found as flakes and blebs along the mined out fractures. One place was noted where secondary uranium minerals had streaked across unfractured quartzite indicating transportion by ground water.

Sampling

Two mining properties on Workman Creek and two on Cherry Creek were selected for sampling which were considered to be the most favorable areas.

Samples were taken on 10 to 30 foot intervals on each side of adits to determine if low grade uranium is disseminated through-out the favorable horizon. Most samples were taken by continuous chipping in vertical lengths of 6 to 15 feet.

Workman Creek

Hope Adits

Two adits are driven in the siltstone on fractures and a third adit driven in quartzite below to accomplish stoping of an upper adit.

Samples were taken vertically from the contact of quartzite and diabase up stratigraphic sequence for about 150 feet (See Hope Map). The black siltstone beds in this area did not carry higher U_3O_8 than the quartzite, however, past mining was done on fractures in the siltstone. Some thin lenses of siltstone are scattered in the quartzite and this may account for the same grade. The average grade of samples is 0.015 per cent U_3O_8.

SAMPLE NO.	VERTICAL LENGTH	ROCK TYPE	PER CENT U_3O_8/TON
1	10'	Quartzite	0.018
2	15'	"	0.017
3	6'	Quartzite-siltstone	0.019
4	10'	" "	0.018
5	10'	Siltstone & quartzite	0.019
6	10'	Siltstone	0.016
7	10'	Quartzite-siltstone	0.014
8	10'	" "	0.016
9	8'	" "	0.018
10	6'	Siltstone	0.016
11	6'	"	0.007
12	0	" Float	0.012
13	0	" Float	0.013
14	8'	"	0.010
15	10'	"	0.012

Workman Creek

Little Joe Adits

Three adits are driven on fractures in the siltstone beds with minor amounts of stoping 3 to 4 feet wide. The siltstone beds are 10 to 15 feet thick and dipping about 12 degrees.

Each adit was sampled at the entrance and on 10 to 15 feet intervals on each side. Two of the adits assayed 0.134 per cent U_3O_8 which is about the grade known to be mined. The third adit was driven across a fracture and the sample was not taken in the fracture thus accounting for the 0.03 per cent U_3O_8 (See Little Joe Map). The samples show the uranium to be disseminated away from the fractures, but decreasing in grade between the two adits. The average grade minus the two high grade adit samples, is 0.036 per cent U_3O_8, or 0.72 pounds per ton. At the present $8.00/pound this $5.76/ton. Due to hill slope underground mining would be required.

SAMPLE NO.	VERTICAL LENGTH	ROCK TYPE	PER CENT U_3O_8/TON
16	Adit entrance	Siltstone	0.150
17	12'	"	0.042
18	12'	"	0.019
19	10'	"	0.039

SAMPLE NO.	VERTICAL LENGTH	ROCK TYPE	PER CENT U_3O_8/TON
20	8'	Siltstone	0.045
21	9'	"	0.015
22	Adit Entrance	"	0.119
23	10'	"	0.045
24	10'	Quartzite	0.093
25	12'	Siltstone	0.012
26	Adit Entrance	"	0.031
27	8'	"	0.059
28	10'	"	0.025
29	Prospect Dump	Siltstone	0.073
30	20'	Siltstone-quartzite	0.012
31	8'	Quartzite	0.007

Cherry Creek

Black Brush

One adit is driven in the quartzite about 15 feet above the quartzite-diabase contact (See Black Brush Map). The dump material is limonite stained indicating the adit followed a zone of abundant pyrite. The quartzite on each side of the adit is specked with blebs of pyrite surrounded by unmineralized quartzite, indicating that a portion of the pyrite is syngenetic.

Vertical chip samples 6 to 10 feet in length were taken on 15 to 30 foot intervals. The average of these samples is 0.008 per cent U_3O_8/ton.

SAMPLE NO.	VERTICAL LENGTH	ROCK TYPE	PER CENT U_3O_8/TON
32	Adit Entrance	Quartzite	0.006
33	7'	"	0.007
34	10'	"	0.006
35	8'	"	0.016
36	8'	"	0.006
37	10'	"	0.007
38	40'	Siltstone	0.018

Cherry Creek

Brush Basin

Two adits are driven on a fracture in black siltstone beds. This is an isolated lenses in the quartzite, about 250 feet in length, 30 to 40 feet wide and about 15 feet thick. The siltstone carries abundant pyrite, and some pale-yellowish-green secondary uranium minerals.

The uranium is confined only to the siltstone lense as shown on the Brush Basin sketch. Samples 48 and 49 were taken along the Young-Globe Highway.

SAMPLE NO.	VERTICAL LENGTH	ROCK TYPE	PER CENT U_3O_8/TON
39	Adit Entrance 10'	Siltstone	0.019
40	10'	Quartzite-siltstone	0.018
41	20'	" "	0.010
42	8'	Quartzite	0.009
43	9'	"	0.009
44	15'	Siltstone edge	0.018
45	Adit Entrance	Siltstone	0.012
46	10'	Quartzite	0.006
47	10'	Siltstone	0.012
48	10'	Shale Bed in Limestone	0.007
49	8'	Quartzite	0.006

Land Statis

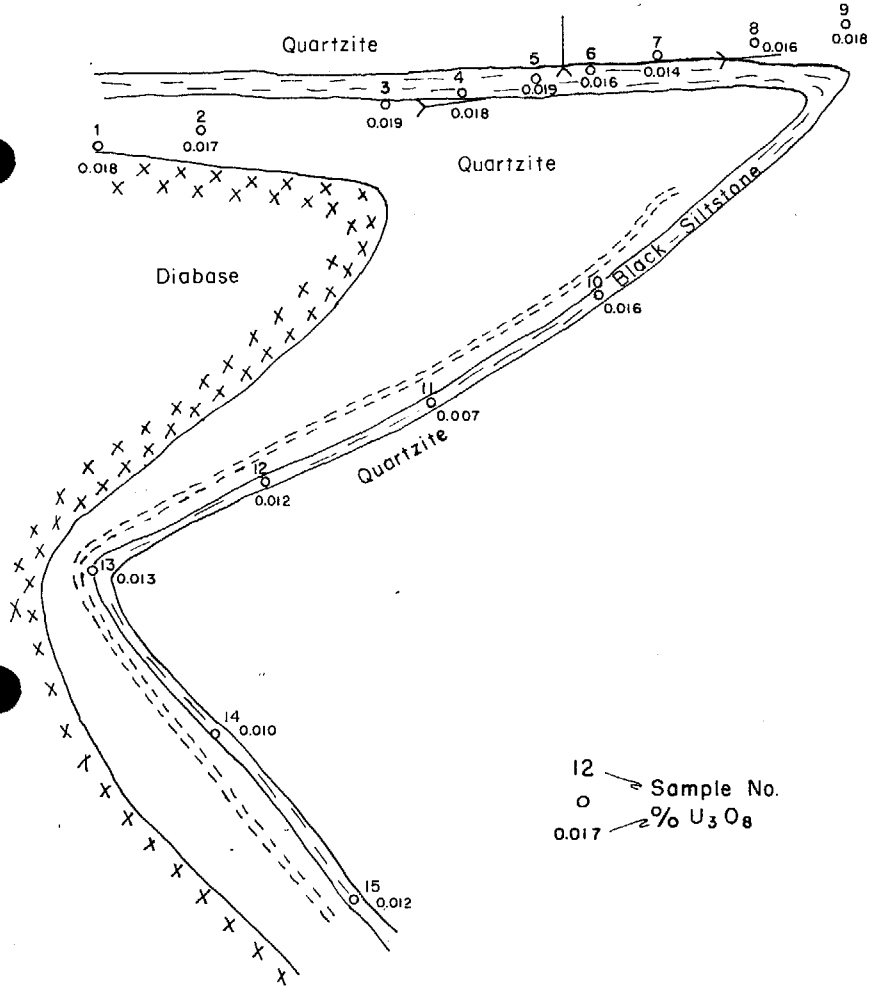
Most of the areas sampled were restaked around the first of December 1966, by local prospectors. The uranium article in the November edition of E.M.J. is probably responsibable for the sudden staking by local people.

William G. Hoskins

WILLIAM G. HOSKINS

WGH/mg
Attachments
cc: JEKinnison

MCFADDEN PEAK QUADRANGLE
ARIZONA-GILA CO.
15 MINUTE SERIES (TOPOGRAPHIC)

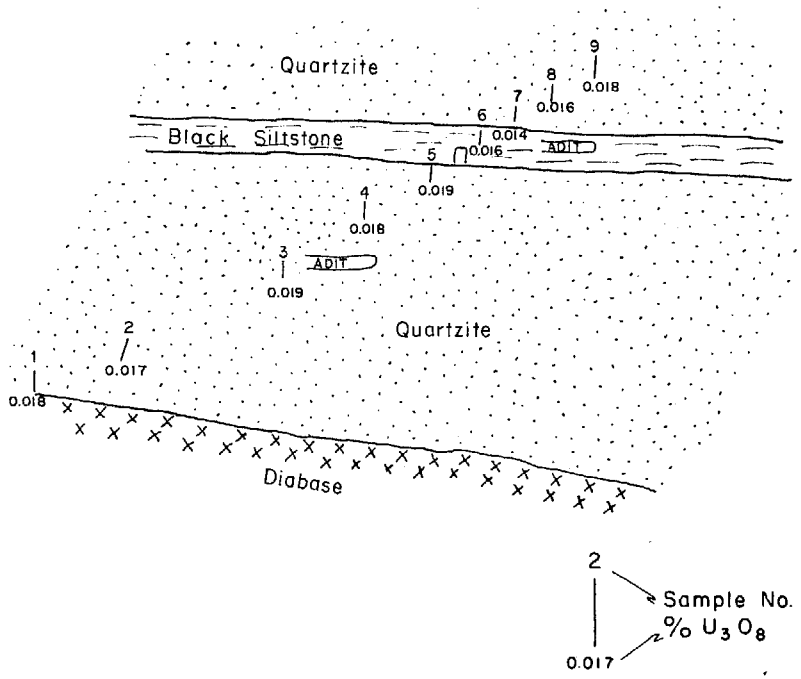


SKETCH SHOWING
Plan View of Hope Adits

Gila County, Arizona

SCALE
Horiz. & Vert. 1"= 100' approx

W.G.H. Jan. 1967

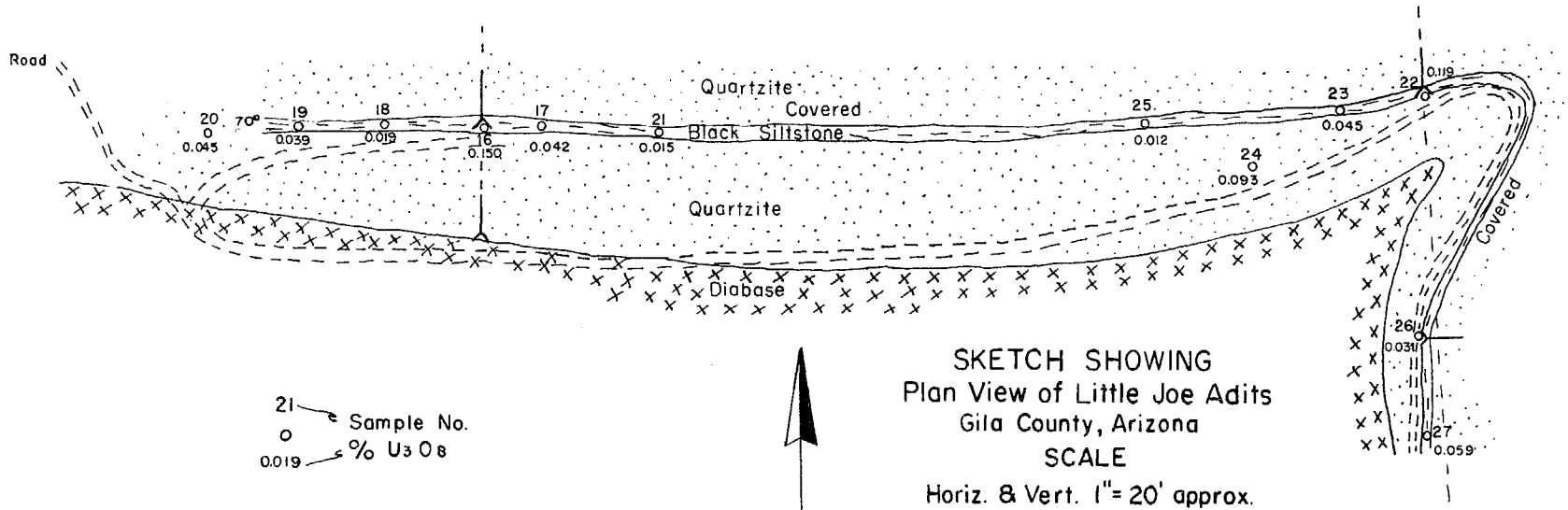


SKETCHED CROSS SECTION
of
Hope Adits Looking North

Gila County, Arizona

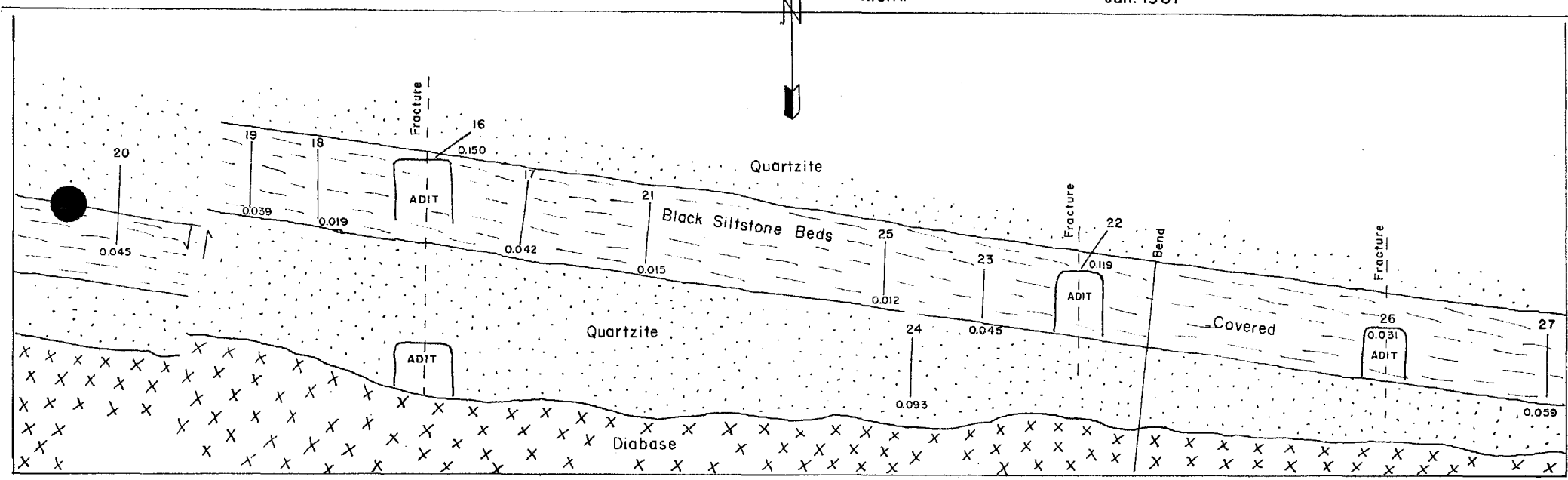
SCALE
Horiz. & Vert. 1"= 100' approx.

W.G.H. Jan. 1967



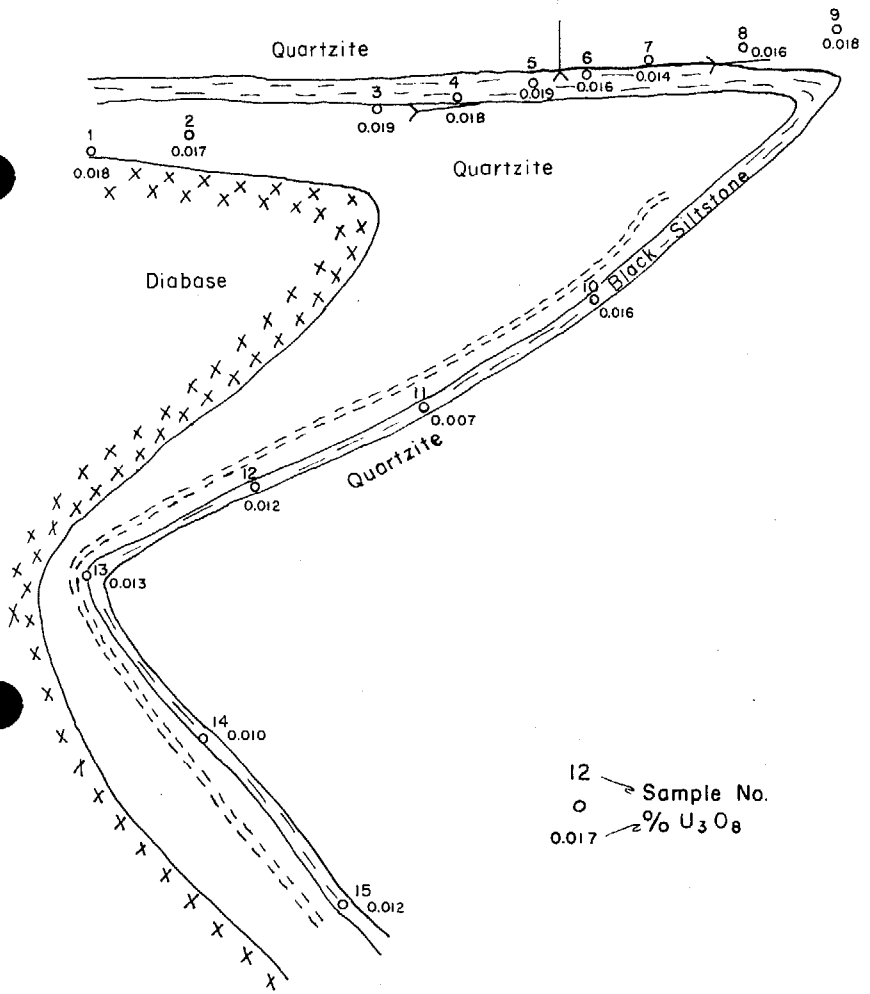
21 → Sample No.
0.019 → % U_3O_8

SKETCH SHOWING
Plan View of Little Joe Adits
Gila County, Arizona
SCALE
Horiz. & Vert. 1" = 20' approx.
W.G.H. Jan. 1967



23 → Sample No.
0.012 → % U_3O_8

SKETCHED CROSS SECTION
of
Little Joe Adits Looking North
Gila County, Arizona
SCALE
Horiz. & Vert. 1" = 20' approx.
W.G.H. Jan. 1967

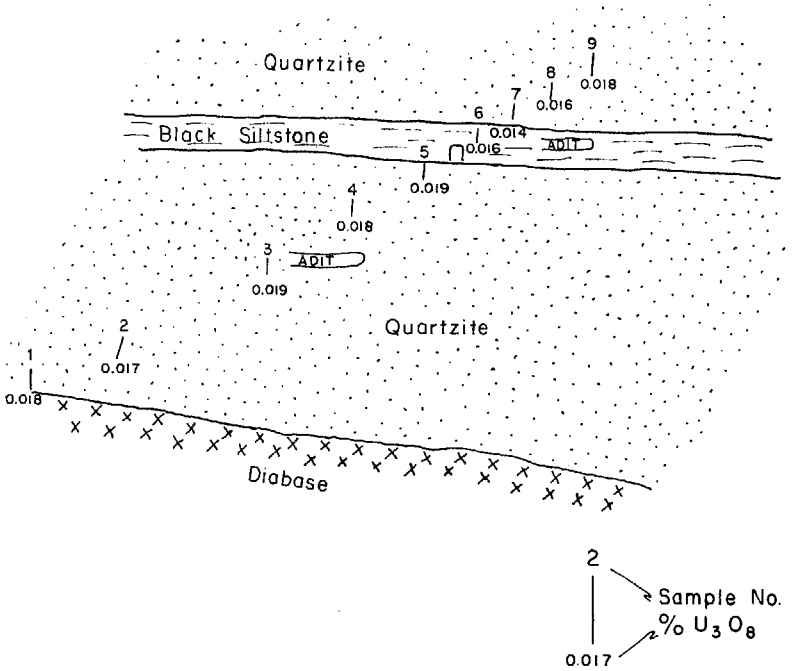


SKETCH SHOWING
Plan View of Hope Adits

Gila County, Arizona

SCALE
Horiz. & Vert. 1"= 100' approx

W.G.H. Jan. 1967



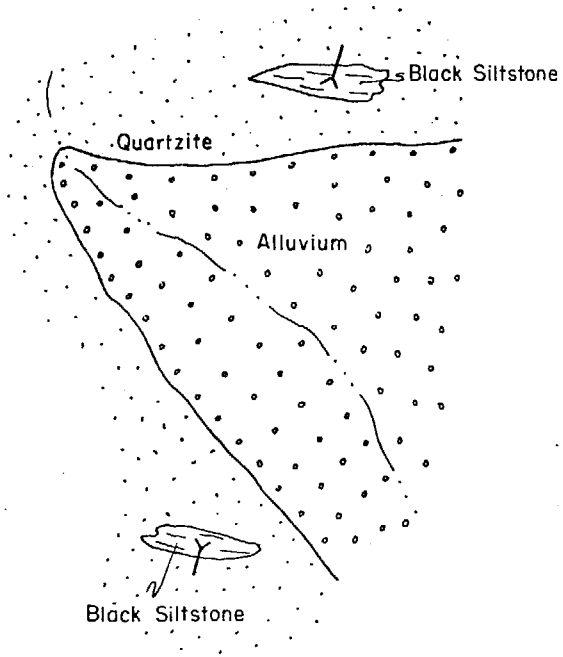
SKETCHED CROSS SECTION
of
Hope Adits Looking North

Gila County, Arizona

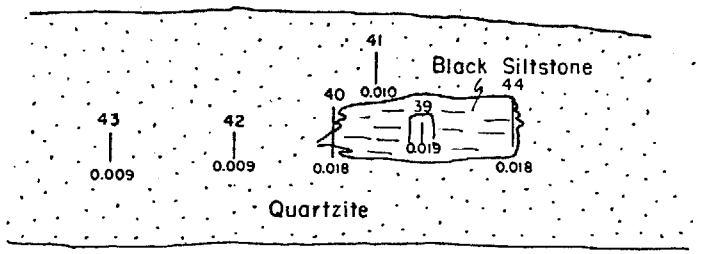
SCALE
Horiz. & Vert. 1"= 100' approx.

W.G.H. Jan. 1967

1926

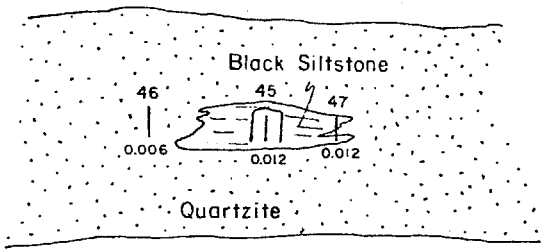


SKETCH SHOWING
Plan View of Brushy Basin Adits
Gila County, Arizona
SCALE
Horiz. [redacted]. 1"= 100' approx.
W.G.H. Jan. 1967



41
0.009
Sample No.
% U_3O_8

SKETCHED CROSS SECTION
of
Brushy Basin Adit Looking North
Gila County, Arizona
SCALE
Horiz. & Vert. 1"= 50' approx.
W.G.H. Jan. 1967



46
0.006
Sample No.
% U_3O_8

SKETCHED CROSS SECTION
of
Brushy Basin Adit Looking South
Gila County, Arizona
SCALE
Horiz. & Vert. 1"= 50' approx.
W.G.H. Jan. 1967

Aa-7.0.0

AR. WRS

READ AND RETURN

PREPARE ANSWERS ..... HANDLE .....

FILE ..... INITIALS .....

J.H.C. file

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

OCT 21 1966

October 20, 1966

W.R.S.

OCT 23 1966

TO: J. H. COURTRIGHT

FROM: J. E. KINNISON

COURT HEARING
CARL LARSEN APPLICATION & PATENT
SIERRA ANCHA DISTRICT
GILA COUNTY, ARIZONA

As you will recall, I informed you this past summer that Dave Lowell, a consulting geologist from Tucson, had requested me to testify on Mr. Larsen's behalf in the subject hearing. His patent proceedings have been opposed by the Forest Service, and a rehearing was scheduled largely with the help of Art Still of Prescott. Art Still, Jack Still, Dave Lowell, and a lawyer in Prescott will appear on behalf of Larsen. I am informed that they are donating their services. Lowell had asked me to join them because I was present on the property during the time I worked for the Atomic Energy Commission and am familiar with the drill holes and maps which I had prepared.

The hearing date is now set for Wednesday, November 2 in Prescott. A prehearing conference with the lawyer and Larsen's witnesses will be held November 1. Art Still called me on the telephone October 18, and summarized the procedure they intend to follow.

By this memorandum I ask for permission to appear and testify on Larsen's behalf. This would be done as an individual, and in no way as a representative of Asarco. The following benefits would be derived:

1. The Forest Service is basing its case on the "marketability rule", and to that extent which I may be of help in this specific case would also accrue to mining patents in general.

2. I would have an opportunity to visit Larsen's claims prior to the hearing, with a view to collect information useful to the sampling program which Mr. Hoskins and I are now doing in the Sierra Ancha uranium district.

John E. Kinnison

JOHN E. KINNISON

JEK:pjc

J. H. C.

JUN 8 1966

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

June 8, 1966

PERSONAL/CONFIDENTIAL
MEMORANDUM FOR J. H. COURTRIGHT

SIERRA ANCHA URANIUM

Attached (a) is a news item of 6/7/66 in regard to the demand for uranium which I clipped from the Tucson Citizen. Note that it mentions the name of a senator who is interested in commodity potential.

As a supplement to my earlier comments to you contained in a memorandum of March 24, 1966, I have obtained the following information on the Red Bluff mine, owned by Carl Larsen, in the Sierra Ancha. A Mr. Ralph Curtiss, a real estate salesman operating from 2626 East Curtis, Tucson (887-3975) called me late last night in regard to information on the Red Bluff. I gave him very little such information in any detail but also told him to feel free to call here at the office at any time. Apparently he has met you, Mr. Entwistle, and Mr. Wojcik. I know nothing personally about his reputation. The important thing is that Larsen is now 77 years old, according to Curtiss, and is anxious to sell his property. His price at this time is $100,000, and he is willing to negotiate terms for deferred payment providing he can live on the property. Larsen's original price in 1956 was firm at $250,000, so it is clear that he has made concessions in his thinking on the value of his property.

The west portion of the Red Bluff is probably amenable to strip mining, and there are enough openings to allow a preliminary sampling program within the better mineralized zone. The east portion is dropped by a fault and stripping would be probably too great or at least it would be on the order of 2:1--perhaps more. The deposit is known to be layered, somewhat horizontal, and estimated by the AEC to contain about 40,000 tons at .20% U_3O_8. I would judge that three carefully cored diamond drill holes, using BX convention M series to a depth of not more than 250 feet each would definitely establish the distribution of uranium in both the lower grades which we have talked about and also in the range of about .20. The grade as calculated by the AEC is subject to revision either up or down, because of inadequate drill data.

JOHN E. KINNISON

JEK/pjc
Note: No other copies made.

News Item
Tucson Citizen
June 7, 1966

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

April 19, 1966

PERSONAL/CONFIDENTIAL
Mr. K. E. Richard, Chief Geologist
American Smelting and Refining Company
120 Broadway
New York, N. Y. 10005

URANIUM EXPLORATION
SIERRA ANCHA REGION
GILA COUNTY, ARIZONA

Dear Sir:

Enclosed is Mr. Kinnison's memorandum on the Sierra Ancha region and on the long term outlook for uranium.

AEC's projections indicate a rapid acceleration in the construction of nuclear power plants within the next few years. The cost of converting sea water to fresh water by nuclear power has reportedly been reduced to 22¢ per 1000 gallons.

It is expected that by 1975 commercial use will exceed that of the U. S. Government, and that by 1980 all now known reserves will be exhausted. A price of $30 per pound is considered a possibility sometime in the future.

Uranium in the Sierra Anchas occurs in a 100 foot thick shaley quartzite horizon of the Precambrian Apache group. The district has produced only a small tonnage of ore running 4 lbs. per ton, but possibly large tonnages of 1.5 lbs. per ton may exist.

In view of the favorable long term outlook, I agree with Kinnison's proposal to investigate deposits such as those in the Sierra Ancha range and elsewhere. The objective would be to find a property with a large tonnage potential, the acquisition and holding of which would involve a very low cost.

We will defer any field work on this project pending your instructions.

Yours very truly,

J. H. COURTRIGHT

JHC/kw
Enclosure
cc: JJCollins
WESaegart - All wo/encl.
JEKinnison