

CONTACT INFORMATION

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HACK'S CANYON URANIUM MINE

MOHAVE COUNTY

4

NJN WR 8/26/83: Lisa Bunting with Energy Fuels reported that their new Arizona address is P.O. Box 36, Fredonia, AZ 86022, Exploration Division, phone: (602)643-5836, Mines Division phone (602) 643-5823. Energy Fuels has been stockpiling ore at Tack's Canyon Uranium Mine, Mohave County for the last 6 months.

KAP WR 10/21/83: In the company of Nyal Niemuth a visit was made to the office of Energy Fuels Nuclear in Fredonia and their Hack #1, Hack #2 and Hack #3 mines in Hack Canyon, Section 23 and 26, T37N R5W, Hacks Canyon District, Mohave County. A separate report has been written. Many sulfide mineral specimens were collected for the museum.

NJN WR 1/6/84: Chuck Bentzen with Frontier Equipment, 254 W. Baseline, St. 103 Tempe, AZ 85282, Ph: 820-3205, reported they had recently performed some rock tests for Energy Fuels at their Hack Canyon unanium mine, Mohave County.

NJN WR 2/10/84: Bob O'Haire, mineralogist with BGMT, reported that the specimen we sent him from Hack Canyon Mine (file) Mohave County containing acicular metalic crystals was Bravoite (ni,Fe)S2 in a matrix of anhydrite, celestite and pyrite.

NJN WR 2/28/86: Wayne Seick reported that Energy Fuels is currently operating their mill at Blanding, Utah. They are trucking ore stockpiled at their Pigeon (f) and Hack Canyon Mines (f) at the rate of 1600 tons or 80 truck loads a day. They have sufficient ore to run the mill for one and a half years. Most of the yellow cake produced will go to their Swiss partners.

KAP WR 8/14/87: John Lucking called in regard to sulfide mineral specimens at the Hack's Canyon Urnaiwm Mine (file) mohave County. He was later in and shown those specimens collected by Nyal Niemuth and myself in October, 1984.

HACK'S CANYON URANIUM MINE

MOHAVE COUNTY

A. F. Jensen at Fredonia said he and Clair Pearson expect to lease their Hack's Canyon Uranium mine to a Mr. Adair who has had a lease before. EGW WR 5-15-63

Mr. and Mrs. Simpson came in to study Hacks mine report. Mrs. Simpson's father owned the mine, her sister and brother-in-law have leased it to PD uranium subsidiary and without consent of all owners. Coul not advise them and suggested a lawyer. FTJ WR 3/12/75

Reterrine: USGS Bull. 1147-A, p.A18 Aviz. Highways Mag., 8149

Rockhound Record, Mineralogical Society of Arizona, September 1980, "On the topographic map we saw a Hacks Canyon Mine in Hacks Canyon which was not too far off our route, so we decided to investigate. The road in Hacks Canyon was in perfect shape and we soon found out why. There were people, equipment and buildings all around the mine area. It was late so we camped a little further down the canyon. In the morning we investigated and found it was a uranium mine being opened by Anderson Fuels. We looked mxxixikexfurtherxdownxthexconvenx around a little, but there wasn't much to see. One of the workers said they had some areas of "1% Uranium". They have not started mining yet, but are building the support facilities. Perhaps some interesting minerals will be found here in the future."

KAP WR 11/21/80: Steve Daniels of the Arizona Republic, Kingman newspaper, reported that Energy Fuels has made a presentation to the Mohave Board of Supervisors of plans for operation at the Hack's Canyon Uranium Mime.

KAP WR 10/31/80: Anthony G. Ruddi, Project Geologist, Western Nuclear Inc., Pueblo Plaza 2717, Suite 2, Flagstaff, Arizona 86001, phone (office) 526-0428, and home 526-3401, reported that Western Nuclear owns the Hacks' Canyon Mine, Hack's Canyon District, Mohave County, and that the mine is under development as an underground uranium mine. The mine will be operated by Energy Fuels Corp. (A separate report has been written.)

KAP WR 10/31/80: Anthony G. Ruddi, address above, reported that Western Nuclear in interested in precious metals submittals and uranium submittals of prospects. Their target is for properties with a potential to start a 300 to 800 TPD operation. ABSTRACTED FROM ADMMR 1986 DIRECTORY OF ACTIVE MINES April 24, 1987

ENERGY FUELS NUCLEAR INC.

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E14200 DEPARTMENT OF MIN L RESOURCES News Items Date Mine Location Owner Address Operating Co. Address His Pres. 19 0 Genl. Mgr. 5 Mine Supt. Mill Supt. 4 Principal Metals Men Employed Production Rate Capacity 0 Mill, Type & Power, Amt. & Type Signed

RAL_RESOURCES DEPARTMENT OF M News Items Date Mine Cleark Location Owner Address Operating Co. Address Pres. Genl. Mgr. Mine Supt. Mill Supt Principal Metals 620 Men Employed Production Rate Mill, Type & Capacity Power, Amt. & Type Signed (Over)

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TABLE

HIPCKSS PRIVON File

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-140) C

ORE PRODUCTION, HACKS CANYON MINE, MOHAVE COUNTY ARIZONA 1938-1945, IN TERMS OF METALS RECOVERED

YEAR	TONS ORE	POUNDS	OUNCES SILVER	OUNCES GOLD	VALUE(\$)
1938	68	9,364	234	-	1,314
1939	1	96	3	l	47
1940	-	-	_	-	-
1941	-	-		-	-
1942	-	-	-	-	-
1943	226	11,400	284	1	1,719
1944	86	8,200	149	-	1,213
1945	178	22,000	540		3,354
TOTAL	559	51,060	1,210	2	7,647

Compiled from Miller and Luft (1939,1940), Woodward and Luff (1945, 1946) and Needham and Luff (1947).

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USBM Mineral Resources of U.S.

WAR PRODUCTION BOARD

WASHINGTON, D. C.



Mr. W. J. Graham Assistant to the Directors Department of Mineral Resources 413 Home Builders Building Phoenix, Arizona

Dear Mr. Graham:

Receipt is acknowledged of your letter of June 28th addressed to Mr. Lynn Hersey, in reference to the furnishing by the War Production Board of a Certificate of Emergency Necessity to comply with the provisions of Senate Bill No. 114.

In order for the Copper Division to recommend that such a certificate be issued by the War Production Board, it should have a statement from the Department of Mineral Resources of the State of Arizona or some other Department that the Hack Mine, which is to be developed by Mr. P. H. Ramsden and associates, has 10,000 tons of copper ore, with an average copper content of $8\frac{1}{2}\%$.

If you believe that the tonnage and grade of the ore in the Hack Mine are as stated above, it is suggested that your Agency or some other Agency duly qualified write the Copper Division to that effect.

Yours very truly.

antas

D. L. Forrester Assistant Chief Primary Production Branch Copper Division



TUCSON

COLLEGE OF MINES DEPARTMENT OF MINING ENGINEERING AND METALLURGY

N. .

July 23, 1948

Mr. Charles Dunning, Director Dept. of Mineral Resources Mineral Bldg., State Fair Grounds Phoenix, Arizona

Dear Mr. Dunning:

Under separate cover I have sent you six 5-gram samples of products from one of the uranium samples.

A sample was ground in a ball mill for five minutes and the pulp treated by flotation.

Sample "Concentrate No. 1" contained very little copper and amounted to 2.0 per cent of the total weight.

Sample "Middling No. 1" amounted to 6.4 per cent of total weight and contained considerable slime and a black mineral.

Sample "Concentrate No. 2" contained most of the coarse copper and amounted to 2.4 per cent of the total weight.

Middling No. 2 was mainly slimes.

Sample "Slime tailing" amounted to LO per cent of the total weight.

Sand tailing amounted to 77.2 per cent of the weight.

On talking with one of the men who was on the uranium project during the war, I learned that the Geiger counter was used for assaying U208 as low as 0.02 per cent. The machine was standardized with known weight of various grades of uranium ores but the work must be carried out in a lead lined room or box.

You can possibly evaluate the ore in this way as well as the samples I sent.

Yours very truly. -001 George Roseveare Metallurgist

From Adjacent Lands Study March 1981 - Grand Canyon National Park B.L.M. - U.S. Forest Setvice. Ken Phillips Office Az. Geol potential lying beneath the volcanic flows of the Shiwits and Uinkaret Plateaus. The Kanab Plateau and Kanab Canyon study areas, formed entirely of sedimentary deposits, have no geothermal resource potential. Mineral Resources

Metallic mineral resources within the Grand Canyon region include silver, gold, lead, copper, and uranium. Prospecting for gold, silver, copper, and lead began in the 1850's. During the height of this prospecting era, 85 to 100 claims were located in what was later to become Grand Canyon National Park and Lake Mead National Recreation Area. However, by 1895, most of the mining ventures in the area had failed. The low quality of the ore and limited extent, coupled with a lack of water and difficulty of transportation, prevented any significant amount of production.

In many places, uranium-bearing minerals were associated with the ore of these early prospecting ventures, but were not recognized until the 1940's or later. Uranium is the only energy resource commodity that has been produced in the Grand Canyon region and there appears to be some potential for additional production. All of the known, economically usable deposits of uranium in the area occur in collapse-breccia pipes which average 300 feet deep and 300 feet across. Figure 8 shows the known locations of these pipes in the central and western Grand Canyon region, including the study areas. Although most of the known pipes are barren of economic mineralization, some have deposits of valuable ore bodies. Five of the nine known breccia pipes in the United States which have produced uranium ore are located in the Grand Canyon region, and a number of pipes here have been mined for their copper, silver, and gold content. Three pipes within the study area that have produced ore in the past are the <u>Hack Canyon Mine</u> in the Hack Canyon tributary of Kanab Canyon, the <u>Copper</u> Mountain Mine located between Parashant and Andrus Canyon, and the <u>Copper</u> House Mine in Andrus Canyon.

The Hack Canyon Mine has produced small amounts of copper ore since 1920. Uranium minerals were discovered while the mine was being worked for copper during late World War II. The Copper Mountain Mine has been in existence since 1875. Although copper has been the principal ore produced, some lead, zinc, silver, and gold were also produced. Recent examinations of the property indicate that ore grade uranium minerals are present. The Copper House Mine has produced only copper to date.

EVALUATION

It is believed that the only potential for mineral extraction in the study area lies in those uranium-copper-vanadium deposits which may be present in these large collapse-breccia pipes. Many known pipes have not been explored. Mineral potential may exist in pipes at levels where hydrologic actions relating to the formation of the esplanade could have concentrated metals even though there are few signs of mineralization at the surface.

RESOURCE/LAND USE SUMMARY

Considering the vast acreages involved, the remoteness of the study area and the nature of the Congressional request, this reconnaissance study focused on TRINITY 4791

SMITH-EMERY COMPANY

CHEMICAL ENGINEERS AND CHEMISTS METALLURGICAL AND TESTING ENGINEERS

920 SANTEE STREET LOS ANGELES

LABORATORY

293681 No.

June 14,1948 Date

Sample	Rock
Junivivi	

6-10-48 Received

Marked

State of Arizona Submitted by Department of Mineral Resources Mineral Building, Fairgrounds., Phoenix, Arizona

REPORT OF QUALITATIVE SPECTROGRAPHIC EXAMINATION

Element Approximate Quantity Silicon, Aluminum -----Major Constituents Copper --

Intermediate Constituent

	Minor Constituents
Uranium	0 = 5%
Calcium	0.5%
Iron	0.5%
Titanium	0.1%
Magnesium	0.1%
Zirconium	0.1%
Barium	0.1%
Strontium	0.05%
Lead wearenewsers	0,05%
Molybdenum	0.05%
Nickel	0.01%
Vanadium	0.005%
Chromium	0.001%
Boron	0.001%
Cobalt	0.001%
Manganese	0.001%
Phosphorus	Present
Silver	Present
Thorium	None found

REPORT OF DETERMINATIONS Uranium (U) by Gieger Counter -----0,8% Uranium (U) by Chemical determination 0.74% Respectfully submitted 11 HEMISTS AND ENGINEER (See statements on reverse side regarding qualitative spectrographic examinat

C. M. Taylor p. o. box 1494 tucson, arizona

July 27, 1948

Department of Mineral Resources 304 Home Builders Building Phoenix, Arizona

Gentlemen:

I have recently purchased a Geiger Counter, and as soon as the weather is cooler I am planning on some trips, trying to locate some uranium ores. Can you tell me some likely place where this ore might be found?

I notice an article in one of the magazines wherein your Department mentioned a large deposit of low grade ore in northwestern Arizona. Can you give me the location, as it is possible that in that vicinity one might find some of a higher grade.

Thanking you in advance, I am

Sincerely yours, C. M. TAYLOR

CMT/agf

P.S. Just rich copy of Busch 20th edition - Thanks.

HOME ADDRESS ROUTE 3, BOX 560 TEXARKANA, TEX.

WILLIAM S. KING MINING & OIL OPERATOR 207 STATE NATIONAL BANK BLDG. TEXARKANA, ARKANSAS

Midway Hotel Harrison, Arkansas.

August 14,1948.

Mr.Chas H Dunning Dept.of Mineral Resources Mineral Bldg. Fairgrounds Phoenix.Arizona.

Dear Mr.Dunning:

At my request, my associate Mrs Lois M.Jones wrote you last May for a sample of uranium ore. Your letter to her May 27th stated;

"we do not have any remaining samples of the uranium ore from northern Arizona --- If you will write us again in another month we may have some samples."

I wish to thank you for the information in your letter and would appreciate it if you now have a sample you could send me.

I am much interested in exploring for uranium ores and have considerable encouragement from the Atomic Energy Commission. I have a good portable Geiger-Counter and have found some radioactive material in some of the rocks in this part of northern Arkansas, in shale, sandstone and limestone but not in commercial quantities as yet. Am now sinking a shaft in a promising area hoping to encounter granitic rocks and pitchblende.

Very truly yours,

Voileian S. King William S. King.

LABORATORY REPORT

SMITH-EMERY COMPANY

CHEMICAL ENGINEERS AND CHEMISTS METALLURGICAL AND TESTING ENGINEERS

920 SANTEE STREET

LOS ANGELES 15

LABORATORY

294653-54 No.

July 9,1948 Date

- Ore Sample
- 7-6-48 Received

Marked

State of Arizona, Submitted by Department of Mineral Research Mineral Building, Fairground, Phoenix, Arizona.

REPORT OF DETERMINATIONS

Sample #1 - Low Grade Uranium: Uranium (U) by chemical methods -----Trace Equivalent Uranium (U) by Geiger Counter • Uranium (U) by Spectrographic Examination• 0.04% Trace

Sample No. 2 High Grade Uranium with

Chromium -----

Manganese -----

Thorium -----

Jen 6
3

Trace

None found



Respectfully submitted,

ENGT

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TRINITY 4791

LABORATORY REPORT

SMITH-EMERY COMPANY

CHEMICAL ENGINEERS AND CHEMISTS METALLURGICAL AND TESTING ENGINEERS

920 SANTEE STREET LOS ANGELES 15

LABORATORY

No. 295053

Date August 23,1948

Sample Ore

Received 7-16-48

Marked

Submitted by State of Arizona, Department of Mineral Resources, Mineral Building, Fairgrounds, Phoenix, Arizona

Att: Charles H. Dunning Director

REPORT OF DETERMINATIONS

Uranium	Oxid	le.(U ₃ 08)	Chemical	Method	 0.86%
Uranium	(U)		 		 0.73%



Respectfully submitted,

ENGINEER CHEMISTS

ADDRESS REPLY TO:

DIVISION OF RAW MATERIALS U.S.ATOMIC ENERGY COMMISSION P.O.BOX 30, ANSONIA STATION NEW YORK 23, NEW YORK

and refer to:

RME:MM

UNITED STATES ATOMIC ENERGY COMMISSION DIVISION OF RAW MATERIALS NEW YORK OFFICE

September 10, 1948

Mr. Charles H. Dunning, Director Department of Mineral Resources State of Arizona Mineral Building, Fairgrounds Phoenix, Arizona

Subject: HACK'S CANYON URANIUM MINE

Dear Mr. Dunning:

Reference is made to your letter of September 3 enclosing your report on Hack's Canyon Uranium Mine.

I am extremely interested in all of the information outlined therein and appreciate the difficulties and problems attendant to completing it. I feel that your report is indeed well done and that it reflects all of the effort you may have put into it. It outlines the problem most effectively.

We are anxious to cooperate with you in the further study of this region and as we pointed out in our letter of September 3, we plan to send a field man to the area in October. We would be happy to have you or one of your men accompany him if you find that convenient.

If you have available another copy of your report, we would appreciate your sending it to Dr. Wallace G. Fetzer, Chief, Grand Junction Extension, New York Division of Raw Materials, P. O. Box 270, Grand Junction, Colorado. He would probably like to read this before he or one of his field men visit the area.

Very truly yours,

Phillip L. Merritt Assistant Director

Hoyt & Miliar

NON-METALLIC INDUSTRIAL MINERALS SUITE 1, 727 SOUTH FIFTH STREET Las Vegas, Nevada

September 8th, 1948.

Mr. Charlie Dunning Director, Dept. of Min. Res. Phoenix Arizona.

Dear Mr. Dunning:

We have your letter of the 3rd with the report enclosed on the Hacks Canyon uranium-copper project.

This report is interesting and we are today advising Mr. Harwood that as a result of the work you have done on the property we are interested in further examination and development of the property and we are making him a proposition on it.

If you get any other information, especially identification of the black mineral, we will be glad to learn anything further that will assist in giving the project a thorough investigation.

If a deal is arranged with Mr. Harwood I will keep you advised of our progress there.

Cordially yours, Philip & Heyt.

PSH:k

University of Arizona

TUCSON

COLLEGE OF MINES ARIZONA BUREAU OF MINES

September 7, 1948

Mr. Chas. H. Dunning Director, Dept. of Mineral Resources Mineral Bldg., Fairgrounds Phoenix, Arizona

Dear Mr. Dunning:

Your letter of September 3, together with a copy of your report on the Hack's Canyon uranium property, has been received. This is most interesting, and we greatly appreciate your sending it.

Yours sincerely,

D. Wilson 08

Eldred D. Wilson Geologist

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OUR LIABILITY FOR ERROR OR NEGLIGENCE IN CONNECTION WITH THE WORK AND REPORT COVERED BY THIS BILL IS LIMITED TO THE ABOVE AMOUNT.





CHEMICAL, I METALLURGICA	HYSICAL, AND L LABORATORIES	TELEPHONE TRINITY 479
In Account wit	920 SANTEE STREET Los Angeles 15, California Department of Mineral Research Mineral Building, Fairgrounds Phoenix, Arizona.	July 9,1948
TERMS: Net. T	is is a professional labor bill and is due upon presentation.	E.&O.E
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OUR LIABILITY FOR ERROR OR NEGLIGENCE IN CONNECTION WITH THE WORK AND REPORT COVERED BY THIS BILL IS LIMITED TO THE ABOVE AMOUNT.

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MEMORANDUM

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