

VANADIFEROUS SILTSTONE - DRY CREEK

Adit # 8

<u>Sample</u>	<u>Lab. No.</u>	<u>Thickness</u>	<u>Se p.p.m.</u>
#1	312	0.55 ft. (top)	113
#2	313	0.6	113
#3	314	0.4 (rich zone)	392
#4	315	0.9	76
#5	316	0.6 (base)	98

Adit # 2

<u>Sample</u>	<u>Lab. No.</u>	<u>Thickness</u>	<u>Se p.p.m.</u>
#1	306	0.5 ft. (top of bed)	112
#2	307	0.5	72
#3	308	1.1	233
#4	309	0.8 (rich zone)	339
#5	310	0.4	175
#6	311	0.55 (base)	129

The Ohio Oil Co.

Marketing Division

Lovell, Wyoming
October 26, 1943

Dr. Horace D. Thomas
Wyoming State Geologist
University of Wyoming
Laramie, Wyoming

Dear Sir:

Thank you for your letter of October 11, 1943. Glad to have the results.

Have finally obtained the carbon black samples from production gas in the Elk Basin (in small can marked E.B. on lid) and Oregon Basin (in large commercial glass container also marked Oregon Basin on lid).

In spite of your doubts I am forwarding the samples so that we may complete the record relative to vanadium sources at this time.

I'm sorry but I know of no sizeable sources of coke or carbon such as is desired. I will, however, keep the need in mind.

Very truly yours,

Glen C. Templeman
Glen C. Templeman
THE OHIO OIL COMPANY

GCTrb



ORE TREATMENT

CYANIDE
 CONCENTRATION
 AMALGAMATION
 FLOTATION
 RESEARCH PROBLEMS
 BULLION REFINING

W. L. PIERS

ASSAYER AND CHEMIST

1925 ARAPAHOE STREET
 DENVER, COLO.

ANALYSES

RARE METALS
 CLAYS
 SOILS
 COAL
 MINERAL PRODUCTS
 ALLOYS
 WATER

KEYSTONE 7827

W. L. Piers

October 25th 1943.

Mr. Horace D. Thomas,
 State Geologist,
 Laramie, Wyoming.

Dear Mr. Thomas:-

Your letter of October 21st and
 voucher enclosed was duly received.

The analyses of samples of Sept.
 20th were reported as Total Vanadium (Metal) con-
 tent regardless in what chemical form it was con-
 tained in the sample

The sample of Oct. 19th failed
 to show any Vanadium in any form. Vanadium regard-
 less of its chemical composition in the ores or
 mineral products is usually reported as Vanadium
 Pentoxide, V_2O_5 as the price quotations are quoted
 in terms of V_2O_5 .

Your letter of Sept. 23rd request-
 ed the Vanadium content in the samples which was
 reported as such.

Thanking you for your patronage
 and hoping the above clears any doubt as to inter-
 pretation of results, I am

WLP-E.

Yours very truly,

W. L. Piers

$$\text{lbs/million} = \text{lbs/hundred}$$

$$10,000 = 1,000,000 = X = 100$$

$$1,000,000X = 1,000,000$$

$$X = 1$$

$$17,700 : 1,000,000 = X = 100$$

$$1,000,000X = 177,000$$

$$10,000X = 17,700$$

$$X =$$

$$\underline{1.7770 \text{ V}}$$

$$10,000 \overline{) 17,700} \begin{array}{r} 1. \\ 10000 \\ \hline 7700 \end{array}$$

$$27 \frac{1}{2} \text{¢ per lb U}_2\text{O}_5 \text{ —}$$

$$\#$$

$$\begin{array}{r} 15 \# \\ .02 \\ \hline 15.3 \text{ thousands} \end{array}$$

$$V =$$

1.7851

1.7851

1.77

114137

114957

17851

3.049627

~~3.05~~

.275

3.02

1375

8250

.83875

54¢ per lb of cube

.84

2000

\$ 1680.00

20

.54

80

160

\$ 16.50

FRANK A. BARRETT
AT LARGE
WYOMING

R. R. GARDNER
SECRETARY

LILLIAN STARK
ASS'T SECRETARY

Congress of the United States
House of Representatives
Washington, D. C.

COMMITTEES:
PUBLIC LANDS
IRRIGATION AND RECLAMATION
INVALID PENSIONS

HOME ADDRESS:
LUSK, WYOMING

March 16, 1943

Dr. Horace Thomas
University of Wyoming
Laramie, Wyoming

Dear Dr. Thomas:

The people around Cokeville, Wyoming are quite anxious to have a mill built there to process the vanadium ore to be recovered from the deposit there. I don't know how valuable that may be, or just what the outlook is in regard to the same. If you have any dope on this discovery and prospects out there, I will appreciate it if you will send it to me.

With very best wishes, and kindest personal regards, I am

Yours very truly,


FAB-L

Frank A. Barrett

March 22, 1943

Congressman Frank A. Barrett
House of Representatives
Washington, D.C.

Dear Congressman Barrett:

I have received your letter asking for information on the vanadium development on Sublette Ridge, north of Cokeville, Wyoming. The U.S. Geological Survey has been carrying on an exploratory program on the vanadium-bearing beds for six or more months and it is likely that you can obtain greater detail from them than I can furnish. The facts, however, are as follows:

The situation is of major importance to the state and vanadium mining may become one of our important industries. Utah and Colorado have been the major vanadium producing states, but the deposits there are pockety and can be worked only by individuals who "gopher" out the ore. It seems almost certain that Wyoming will become the foremost vanadium producing state and the project will make the United States self-sufficient in producing this vital war metal since we have been dependent upon imports for a major part of our supply. As you know, vanadium is necessary in the production of certain types of steel.

The vanadium occurs as a bedded deposit in the phosphatic formation, which also carries thin beds of hornblende rock about which we have heard so much in the past years. The vanadiferous bed has been traced for a distance of about 70 miles between Cokeville and Afton. The vanadium content is rarely over 1% for three feet of thickness, but a three foot bed carrying an 0.7% V_2O_5 is considered of commercial grade. Consequently, there are billions of tons of vanadium ore available.

The Homestake Mining Company (Wyodak Coal and Mfg. Co.) explored the Raymond Canyon area in cooperation with the Bureau of Mines and the U.S. Geological Survey. When a sufficient quantity of ore had been proven underground the company began operations to produce the ore. I visited that locality last Thanksgiving time and work had just been started. The company is operating as an agent for Metals Reserve Corporation and at the present time has built a 200-man camp, installed trams, driven tunnels at 125-foot intervals, and are piling up ore. One of the officials of the Homestake Company told Governor Hunt last week that the project may eventually employ 10,000 men.

Congressman Bennett.

-2-

3/22/43

Raymond Canyon is located about 15 miles north of Cokeville, and the mine is only about a mile east of the Wyoming - Idaho line. Montpelier is about 25 miles away and will likely be the center of operations, although I should like to see Cokeville receive attention.

The Bureau of Mines and the U.S. Geological Survey are carrying on other investigations in Dry Creek Canyon, about 5 miles southeast of Alton. Seven tunnels have been driven along four lines of outcrop and the ore seems to be proving up to expectations. Because of snow conditions it has been necessary to discontinue the project temporarily.

I trust you are having a pleasant winter in Washington, and send my very best regards.

Cordially yours,

Horace D. Thomas
State Geologist

HDT:mie

Wasa from

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Afton, Wyo.
March 7, 1943

Dr. Horace D. Thomas,
State Geologist
University of Wyoming
Laramie, Wyo.

Dear Bill:

I have been meaning to write you ever since your near-visit in Montpelier when you left a note. I was most sorry to have missed you and your wife and the aggravating part of it is that I was in the hotel all the time but happened to be in Sam Lasky's room. He is U.S. G.S. Regional Geologist and was in Montpelier on an inspection tour.

You have probably seen in the papers how Bill Rubey discovered the deposit during his years of work in this country. The vanadium is a bedded deposit and is confined to certain very continuous beds in the black shale unit directly below the Rex and above the Wells. The richest vanadiferous bed has been followed for a distance of about 70 miles and is remarkably constant in thickness, varying less than three feet in that distance. There is no megascopic way of distinguishing vanadiferous shaly siltstone from barren shaly siltstone. The ore bed is black, weathers rusty, and looks like any one of a dozen other beds in the member. Vanadium content varies considerably over wide areas but is rarely more than 1% for three feet thickness. A three-foot bed with V_2O_5 content of 0.70% is considered of commercial grade if accessible.

I entered the picture last August and worked in the mountains with a pack outfit from Afton to Nugget, trenching the black shale member, logging and sampling each minute unit and analyzing them for vanadium and phosphate. Several areas containing large tonnage of commercial grade vanadiferous ore were found, two of which have since been prospected, and one of which is now being commercially mined. The vanadium concentration is not in the phosphate, but in a shaly siltstone between the two main phosphate zones.

Wyodak Coal and Mfg. Co. (Homestake) and the Bureau of Mines, in cooperation with the Geological Survey made detailed topographic and geologic surveys of the Raymond Canyon area, trenched an area six miles long, and drove a few tunnels. When the grade of the ore was proven underground, the Bureau of Mines turned all their workings over to Wyodak, which as an agent for Metals Reserve Corporation, began active mining operations in Raymond Canyon only. They have built a 200-man camp, trams, tunnels at 125-foot levels, and are piling up the ore.



The Bureau of Mines, in cooperation with the Geological Survey,

and at the invitation of the latter, started tunnel exploration in Dry Creek Canyon, about five miles southeast of Afton. Seven tunnels were driven along four lines of outcrop. At present, the work has been recessed until April, but the ore seems to be proving up to expectations. Work here is rather hazardous during the winter months because of snow slides, and as the canyon is 2500 feet deep, the snow gets up some momentum. So far, no one has been injured but we have had about 30 slides across the narrow winding canyon road.

Another area being explored is the Paris-Bloomington district in Idaho, where Wyodak is opening up some old phosphate tunnels and investigating the vanadium possibilities (again not in the phosphate).

This is not for public consumption, but I believe this vanadium mining may turn into a major industry for Wyoming, so why don't you in your capacity as State Geologist bundle yourself and your wife into a station wagon and come up for an investigation? We have a comfortable house and would be happy to have you stay with us. I shall not be as rushed as in the past, until the first of April, anyhow, so will be glad to spend a day or two in the field with you and show you what is in the fire.

Work on the Survey is exacting, strenuous, and exhilarating, and I feel that I can do more good here than in the oil business, as far as the war effort is concerned. In the oil business I had occupational deferment; here I do not, so I do not know how long it will be before the army calls. I have been advanced to rank of Associate Geologist.

Please remember me to Doc and any other of my friends there. I feel like ancient history by this time, for it's been ten years since I graduated there. We shall be expecting you one of these days. Jane sends her best regards.

Sincerely,

Dave

David Love

March 22, 1943

Mr. David Love
U.S. Geological Survey
Afton, Wyoming

Dear Dave:

I am very grateful for your recent letter describing the vanadiferous layer of the Phosphoria, for it gave us a great deal of information that we lacked. Naturally we are curious to know what goes on and it has been impossible for me to get out there this winter. I expect, however, to get out that way in the late spring or early summer.

All my advanced classes have folded up as of this date. Every Junior or Senior in the department left with the advanced R.O.T.C. student. I shall still have three paleontologists but am uncertain as to whether to even hold a class for them. If so, I shall meet with them early in the week and leave the latter part completely open.

This is fine with me, for I have actually been trying to do two full time jobs. Our new President is very enthusiastic regarding the value of the State Survey, as is Governor Hunt. We are setting up a research station at the University which will be staffed by an industrial chemist and a metallurgist, besides other technicians. It will be their job to work out new or improved uses for substances which we, the Survey, believe to be present in large enough quantity to warrant investigation. I shall be able to hire additional help and it looks as though Hagner, new help, and I shall be free to do nothing but Survey work.

The Corner Mountain Mining concessite seems to be shaping up quite well. Kerby has made several shipments, one of which ran 4.7% KO₂. A letter this morning from Mr. Robertson says they expect to make their first shipment soon. British-American has discovered a new field between Pilot Butte and Maverick Springs. A drill stem test on the Sundance (Surprise!) showed for 40 bbls. per hour. We are going to experiment a real oil play this summer and many new operators are entering the state.

If anything of particular interest shows up out your way which would justify the expenditure of your valuable time, I wish you would tip me off.

Sincerely,

HET:mie

Harold D. Thomas, State Geologist