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MILLER MINING COMPANY URANIUM PROSPECT

In Northeastern Oregon

Tungsore Hardrock Group

by
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Copied from report furnished by
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Joseph, Oregon,
November, 1955.

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MILLER MINING COMPANY URANIUM PROSPECTS IN NORTHEASTERN OREGON

ABSTRACT

The Miller Mining Company of Joseph, Oregon, has systematically explored for and now controls several groups of uranium claims and prospects. They are located in the Wallowa Mountains and nearby Snake River Canyon of northeastern Oregon.

Geologically, the claims are of two types: the granite - quartz - pegmatite (hard rock) type and the hydro-thermal vein in sedimentary (soft rock) type. Preliminary geologic investigations on the ground and assays indicate exceptionally good prospects.

All of the findings to date, geologic and economic, point toward a successful mining operation. It is recommended that negotiations be started immediately toward acquisition of at least a portion of the properties.

Introduction

The purpose of this report is to evaluate two groups of uranium claims held by the Miller Mining Company of Joseph, Oregon. These are the Tungsore Hard Rock Group and the Soda Creek Spring Prospect. The company is an interest of the John G. Miller Construction Company of Waterloo, Iowa and the Miller Mill and Mfg. Company of Joseph, Oregon. Approximately one week was spent in the field sampling and doing geological reconnaissance. The work was delayed and made difficult by the armed threats of claim jumpers to Miller employees and the distances necessary to travel in a short time by car, foot and horseback.

Prospecting has been carried on for several months in a well organized and business-like manner by the company, which has spent $15,000 to date in exploration, cinch work, and the surveying of claims, principally on the two groups of claims and prospects under consideration. Large areas have been systematically covered in northeastern Oregon and west central Idaho. Presently they are spending approximately $250.00 per day on the Tungsore Hardrock group.

It would have been impossible to gather the data and evaluate the prospects without the help of Homer and Aaron Miller who went to considerable time and expense to expedite matters and make the trip a pleasant one. Special thanks is due to Ernest Wells, a Miller Mining Company employee, who is an experienced mining man and practical geologist of acumen.

TUNGSORE HARDROCK GROUP

Location

The Tungsore Hard Rock group of claims, consisting of approximately 20 in number, is located at the head of Copper Creek, a tributary of Eagle Creek in Secs. 22, 23, 27 & 28, T5S R43E, Union County, Oregon. No detailed map of the group was available as the two engineers surveying it had just begun the survey. It will probably cover, plus or minus, one square mile and extend to the divide between Copper and Trail Creeks on the north. On the west the group extends to near the top of the divide of the East Fork of W. Eagle Creek. To the northeast and southwest the claims extend well up the valley wall, and on the southeast well down the valley of Copper Creek. (See accompanying map of the Union

Ranger District, Whitman National Forest and geological map of the Wallowa Lake Quadrangle.)

Climate

Rainfall and temperature in northeastern Oregon are controlled by altitude and topography. Generally the precipitation is greater at higher elevations, and the mean temperature is lower. While Baker, Oregon, may average 12-15 inches of precipitation a year, it would be considerably higher in the prospect area where at Boulder Park winter snowfall may be 10 feet. Winter temperatures of zero would not be unusual in the high mountains, but there are no prolonged periods of sustained cold as such fronts are frequently broken by warm Chinook winds from the Pacific coast 300 miles to the west. The prevailing winds are westerly and localities, such as Copper Creek, which are protected from them have less than average precipitation for their altitude. At the Cornucopia Mine, 15 miles to the southeast along the front of the mountains, the average annual precipitation is around 45 inches. At Sparta 15 to 20 miles to the southeast, the mean annual temperature is around 45 degrees and the rainfall around 16 inches. Snowfall there over a 4 year period varied from 82 to 133 inches per year.

Topography

From the mountain front to the top of the highest peaks there is a difference of approximately 6,000 feet, the elevations varying from 4,000 to 10,000 feet. The elevation at Boulder Park is about 5250 feet, while at valley bottom in the Tungsore group of claims the elevation is 6750 feet.

Culture

Farming, lumbering, prospecting and mining are, in that order, the principal industries of the area. Population is relatively sparse, Baker with a population just short of 10,000 being the principal city. La Grande, 42 miles north of Baker, is somewhat smaller Baker is 225 miles (air) from Portland, Oregon, a city of over 300,000, approximately 300 air miles from Spokane, Washington to the north, and 475 miles northwest of Salt Lake City, Utah.

Transportation

La Grande and Baker are on a main line of the Union Pacific Railroad, Baker being 44 mile from the Tungsore group. Baker and La Grande are both served by West Coast Airlines Company. They are on U. S. Highway No. 30 which connects Portland and Salt Lake City. Highway 203, a hardtop, connects La Grande and Baker via Medical Springs, the Junction from which one takes off for Boulder Park on dirt and gravel road, a distance of 15 miles

GEOLOGY

Historical

A Triassic section of considerable, but unknown, thickness was intruded by a batholith during late Jurassic or early Cretaceous time, forming the ancestral Wallowa Mountains. By Miocene time the mountains had reached maturity, and it was then that the entire area was covered by the Columbia River basalt flows, consisting of many different flows with intercalated sediments up to 200 feet and more in thickness. The sediments are lacustri and fluviatile. Exposures in the Minam River canyon indicate a maximum thickness of 3,000 to 4,000 feet for the flows.

Shortly thereafter the two northwest-southeast faults created the horst which forms the present Wallowa Mountains. Subsequent erosion removed most of the Columbia River basalt from the higher elevations and some of the Triassic sediments, leaving the batholith exposed over large areas and the mountains in a topographic stage of late youthful or early mature topography. Valley configuration was considerably altered by Pleistocene alpine glaciation. For example, Copper Creek on which the group is located, is a U shap valley with a cirque and hanging valley at the northwest end. The advantages of such a configuration over sheer cliffs for a mining operation are obvious.

A so-called lower sedimentary series of thin bedded brown and black slates are thought to be Carboniferous.

Igneous Petrology and Mineralogy

The granite batholith in the area of Copper Creek is compsed of a relatively light gray quartz diorite and granodiorite. Dark, almost black, dike-like masses which appear to be hornfels, found in the area, may be altered xenditha of sedimentary rocks, probably shales. Numerous feeder dikes of Columbia River basalt cut through the granite.

The history of vulcanism and metamorphism is indeed complex, and it is difficult, if not impossible, to ascertain whether certain veins and outcrops are metamorphosed igneous or sedimentary rocks. The compsition of the granitic rock is variable. It has a medium grained texture and, according to Ross, is composed of sodic andesine, subordinate orth clase, quartz, biotite, muscovite, hornblende, and augite with ilmenite, titanite and other minor accessory minerals. Proportions vary considerably. Professor Goodspeed of the University of Washington believes some of the Wallowa Mountain crystallines may hav been formed from pre-existing sediments by the process of "granitization".

At the No. 1 and No. 2 claims there is a very coarse brown pegmatite dike, the extent o which could not be ascertained during a short reconnaissance. It appears that it may cross the valley floor and be exposed on the other wall as a much finer grained rock. Associated with it is a very large quartz vein which was not measured. The dike has l feldspar and biotite crystals. The quartz vein and dike are the zones with which the uranium ore is associated. In the number 3 claim the mineralized zone is a quartz vei which measures approximately 140 feet by 40 feet on the surface.

The igneous petrology and mineralogy are very complex with much secondary alteration o

Minerals, and they would require petrographic analyses to work out the history and relationships satisfactorily. To date only reconnaissance has been undertaken in this area by the Oregon and U. S. Geological Surveys.

Tungsore Hardrock No. 1 and No. 2 Claims

These two claims are treated as one as they are adjacent and are a part of the same mineralized zones. They are located approximately 500 feet up the valley wall on the southwest side of Copper Creek. Both are "hot", giving readings on radiation detection instruments up to 10 to 15 times, or even more in some cases, above background radiation. Mineralization is associated with the pegmatite and quarts vein with the best ore being in small fissures. Inasmuch as leaching sometimes extends 10 to 15 feet into a vein, and the samples were "grab samples" taken without undue attempts to "high grade", it is probable that better ore is below the surface. (See attached report by Yapunchich, Sanderson, and Brown Laboratory.)

The almost identical results of the two types of assay give an indication of good ore. According to Mr. Olin Hart of the Atomic Energy Commission, Billings, Montana Office, such ores as those under consideration are spotty and in small pockets. Currently U_3O_8 is being mined in New England as a gangue with the rare earths. These are oftentimes more valuable than the uranium with which they are associated, particularly in pegmatite dikes, and such a possibility should not be overlooked as regards this group of claims. Among the rare earth elements are scandium, yttrium, lanthanum, cerium, praseodymium, neodymium, samarium, europium, gadolinium, terbium, dysprosium, erbium, thubium, holmium, lutecium, and ytterbium. These occur in many combinations such as fluorides, carbonates, silicates, phosphates, columbates, and tantallates, minerals which are found principally in granites, gneisses and pegmatites. The carbonate or acid leach process is used in milling.

In the Boulder batholith near Helena, Montana, thorium and uranium are found in pronounced silicifications in shear zones. Pitchblend in veins 1 to 3 inches was disseminated by ground water and redeposited in shear zones averaging 3 feet wide. The Tungsore deposit, particularly the numbers 1 and 2, may, upon further study, be found to be of this type. The Midnight Mine of the Newmont Company near Spokane, Washington, mines an ore disseminated by ground water along an argillite granite contact, with pitchblend below the zone of weathering. This area was originally prospected for copper, of which there is an abundance of low-grade ore throughout the mountains.

Tungsore Hard Rock No. 3

The No. 3 claim (see photo plate) is located near the top of the divide between Copper Creek and the East Fork of West Eagle Creek, approximately 1,000 feet above the floor of Copper Creek. The "grab samples" taken here did not assay as high as those of the No. 1 and 2 claims, but this is not necessarily significant. The quarts vein which carries the mineralized zones measures 140 x 40 feet on the surface. In this case there is an old prospect tunnel approximately 40 feet in to the vein from which some of these samples were taken. The vein is big, and it appears that there is probably a pretty good reserve on this claim.

Originally the prospect was staked for copper. Molybdenum is also present in copious quantities in small pockets.

Market and Transportation Costs

The Atomic Energy Corporation maintains buying stations at Salt Lake City, Riverton, Wyoming, and Edgemont, South Dakota. They report that it is almost a certainty that a buying station will be opened in Spokane, Washington, in the not too distant future. This obviously would be the closest buying station of the four, and would be a considerable factor in the economics of mining ore in northeastern Oregon. Rail freight rates from Baker to Spokane are 0.34 cents per hundred pounds for the first 300 miles on carload rates, or $7.00 per ton. On a larger contract basis the rate would be somewhat lower. The road distance from Baker to Spokane is about 340 miles, while from La Grande it would be about 300 miles. The AEC pays a haulage allowance of $6.00 per ton on the first 100 miles. Hence, if the station is opened at Spokane, the rail haulage cost would be absorbed largely by the AEC. The distance from the prospect area to Baker is 42 miles. Using La Grande as the rail terminus would add 15 miles (all pavement) to the truck haul, or a total of 57 miles from mine to rail head, but would decrease the rail mileage by 42 miles. By contracting truck haulage from the mine to the rail terminus, which reputedly is cheaper than owning the trucks, it would appear that La Grande might be the logical terminus. The truck haul from the mine to Medical Springs would be approximately 20 miles. Of this, three to four miles would have to be built, i.e., the distance from Boulder Park to the mine. Preliminary observations by men experienced in such operations indicate it would be a relatively simple and inexpensive project, very little blasting being necessary. Additional cost might result from possible Forest Service regulations or specifications for such a road in a designated primitive area as this.

General Considerations Pertaining to Mining

As Boulder Park is 3 miles from logging roads, it is possible that 6 to 8 miles of road from the mine would have to be kept open by the operators in the winter. Snow would be a problem on the average of at least 6 to 8 months of the year. Copper Creek is a perennial stream and should furnish an adequate water supply for such an operation.

Information obtained in Oregon and Montana indicates variable costs in extracting hard rock ore. From the facts available it appears that mining costs would average around 8 to 10 dollars per ton, including both tunneling and stoping. Vertical shafts would undoubtedly cost somewhat more.

A small lake lies in a meadow on a hanging valley at the head of the cirque 300 to 400 feet below the No. 3 claim, which would be advantageous in the operation of that claim. Timber is small and scattered, but adequate supplies are readily accessible.

Although claim jumpers created a legal situation, the Miller Mining Company is doing a thorough job of legally fulfilling its claim to title. Litigation, other than suing for a clear title, is, according to their attorney, quite remote.

Conclusions

While most uranium in the United States to date is being obtained from carnotite type

deposits of secondary minerals in sedimentary rocks and hydrothermal veins, this does not detract from the possibilities of the Tungsore Hard Rock group. The very fact that the AEC is about to open a buying station in Spokane indicates an upsurge of potential in the Idaho batholith area of which this prospect is, geologically, a part.

At this stage the difficulty of estimating reserves is difficult, but because there are three or more claims with ore cropping out in close proximity, and because other parts of the claim probably have ore a short distance below the surface, it would appear that one would be safe in saying that a fair amount of ore should be present in the group. This, together with the possibility of rare earths, makes the group unusually attractive.

Since arriving from the area 4 days ago the writer has been informed that a bona fide offer of $100,000 has been made for a 39% interest of the Tungsore Hard Rock group, and it is probable that news of the discovery will be out soon. Further, prospectors associated with the Miller Mining Company have, within the past 4 days, located other "hot" areas within the group as well as others reportedly as good in nearby areas. These are being staked now. The "hot" spots and outcroppings of ore are reportedly shaping up into a definite pattern.

Recommendations

It is recommended by this office that Northern Natural Gas Producing Company instigate negotiations immediately with the Miller Mining Company toward obtaining such interest as might be advantageous in the Tungsore Hard Rock group and/or some prospect of the same type in the immediate area.

s/ Emerson K. Beekly

State Department of Geology and Mineral Industries

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Diatomite near Telocaset, Oregon

Foreword: Diatomite is to be seen at several places in the lakebeds which occur in the vicinity of Telocaset, Southern Union County, Oregon, and also in a smaller lakebed occurrence situated a few miles to the southeast of the Telocaset occurrence. With the exception of one small pit from which it is reported that diatomite was at one time dug and shipped to Walla Walla for insulation purposes, the presence of diatomite in the area is otherwise indicated only by fragments in the earth extracted from gopher holes and dug wells of early homesteader Times #. In most places the geologic setting in the vicinity of these occurrences indicate small, strictly local deposits of small size. In one place, however, there is a belt in which the gopher hole and dug well evidence points to extension along the flanks of low rolling hills for an unbroken distance of about three quarters of a mile. These low hills are comprised of lakebed strata, the soil covering of which has been, in part and on the lower elevations, intensively worked by cultivation. They constitute the foothills of a much larger and higher basalt capped hill. A white cast to the soil shows at the base and on the lower flanks of these hills. This is (in some places) conspicuous, and in others less noticeable, but it serves to indicate that the hidden diatomite strata may occur here in appreciable thickness as compared to the showings existing elsewhere in the area. The only other information bearing on this occurrence was obtained from Mr. G. V. Wilkenson, resident farmer, whom the writer interviewed in an attempt to run down well log data which might throw light on the subject.

~~This farmer~~ sunk a sixty-foot well (half dug and half drilled ~~in about 1935~~) on the lower flank of the fotthill ridge somewhat above one of the stronger white soil areas. This well ~~proved~~ was dry. It is now almost completely filled in, ~~no more~~ There are no ~~any~~ diatomite fragments to be seen in the soil surrounding the collar. ~~The informant,~~ Mr. ~~[illegible]~~ Wilkenson, reports, however, that the well penetrated diatomite at a depth of about ten feet from the surface and remained in diatomite to the bottom. The overburden was lakebed material and soil. This proved to be the only recent well ~~of recent date sunk on a site~~ critically located with reference to the belt of diatomite ~~indications under discussion.~~ Although the report ~~While this~~ is hearsay ~~report due to the fact that the well is now filled in,~~ it is of interest because ~~of three facts. One is that~~ Mr. Wilkenson showed ~~demonstrated to the writer~~ that he knew diatomite when he saw it, ~~and therefore his verbal report may be accepted as at least equal in value to a commercial well driller's log. Secondly~~, Moreover, one of the early homesteader's wells around which chunks of diatomite were found, was situated within a few hundred feet of the Wilkenson well ~~site~~, and at a lower elevation on the hillside where a thinner overburden could be expected. ~~Thirdly, and of most significance,~~ this belt of diatomite indications is situated within one quarter of a mile of the Union Pacific main-line. It is chiefly because of this location with reference to transportation that this occurrence is described ~~considered worthy of special write up even though the observable showings are as meagre as they are.~~

~~Location.~~ ~~Telocaset is situated in Union County, Oregon.~~ The major lake bed occurrence, ~~and it is really~~ (a small one as compared to the lakebed areas further to the south in the Baker Quadrangle) covers some 5½ sections in the Antelope Valley area adjacent to, and directly south of Telocaset. This embraces all, or portions of sections 27, 28, 29, 31, 32 and 33; T. 5 S.; R. 40 E.; and sections 3, 4 and 5 in T. 6 S; R. 40 E. The three quarter

The lakebeds in question and their contained diatomite are described by Gilluly in his bulletin on the Geology and Mineral Resources of the Baker Quadrangle (U.S.G.S. Bull. 879). ~~This~~ The Keating diatomite is also described in ~~even~~ greater detail by Moore in his bulletin entitled "Non-metallic Mineral Resources of Eastern Oregon (U.S.G.S. Bull. 875). As the Telocaset lakebeds seeminly correlate with the Lower Powder lakebeds, there is every reason to presume that their contained diatomite may correspond in general type and quality with the Keating diatomite. ~~In this respect,~~ the only sample of diatomite from the Telocaset quadrangle ~~given laboratory examination~~ examined by the Spokane Office originated from ~~an obviously~~ a small occurrence (also ~~badger extracted~~ Gabbert Pit samples) ~~situated~~ in section 18, T. 6 S.; R. 41 E. This is some six miles to the southeast of the Telocaset occurrence under discussion here. The laboratory report on this sample (JB-369) showed it to be composed mainly of small melosiras diatoms with approximately 30-35 percent of the sample being composed of opaline silica and diatom fragments.

~~It should be obvious from the foregoing comments that~~ the belt of diatomite ~~showings which constitute the subject of~~ underlain by the this report will have to be prospected before either ~~their~~ the thickness or grade can be determined. ~~In this respect, however,~~ The location with reference to rail, highway and power facilities, appears ~~such as~~ to warrant the expenditure of prospecting money at least to the extent of sinking three or four exploratory holes, ~~by way of establishing the facts, for~~ In the ~~should~~ is found a minable thickness of good grade diatomite ~~be present~~ here the occurrence is better situated with reference to transportation and power than are most of the better known deposits located elsewhere in eastern Oregon.

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Report by: N. S. Wagner
Date of report: May 27, 1950
References: U.S.G.S. Bulletin 875 and 879 by Moore and Gilluly
Geologic Map of the Telocaset Quadrangle (incompleted and unpublished, by N.S.W.
Informant: G. V. Wilkenson, Telocaset, Oregon.

DIATOMITE NEAR TELOCASET, OREGON

Diatomite is to be seen at several places in the lake beds in the vicinity of Telocaset southern Union County, Oregon, and also in a smaller lake bed area situated a few miles to the southeast of the Telocaset diatomite. With the exception of one small pit from which it is reported that diatomite was dug and shipped to Walla Walla for insulation purposes, the presence of diatomite in the area is indicated by fragments in the earth extracted from gopher holes and dug wells of early homesteader times.

In most places the geologic setting in the vicinity of these occurrences indicates local deposits of small size. In one place, however, there is a belt in which the gopher hole and dug well evidence points to extension along the flanks of low rolling hills for an unbroken distance of about three quarters of a mile. These low hills are comprised of lake bed strata, the soil covering of which has been, in part, intensively worked by cultivation. They constitute the foothills of a much larger and higher basalt-capped hill. A whitish cast to the soil shows at the base and on the lower flanks of these hills. This is conspicuous in some places, and in others is less noticeable, but it indicates that the hidden diatomite strata may be here in appreciable thickness compared to showings elsewhere in the area. The only other information bearing on this occurrence was obtained from a resident farmer, Mr. G. V. Wilkenson, whom the writer interviewed in an attempt to obtain well-log data which might throw light on the subject.

About 1935 Mr. Wilkenson sunk a 60-foot well (half dug and half drilled) on the lower flank of the foothill ridge somewhat above one of the stronger white soil areas. This well was dry. It is now almost completely filled in. There are no diatomite fragments to be seen in the soil surrounding the collar. Mr. Wilkenson, reports, however, that the well penetrated diatomite at a depth of about ten feet from the surface and remained in diatomite to the bottom. The overburden was lake bed material and soil. This proved to be the only recent well located so that it would penetrate this belt of diatomite. Mr. Wilkenson had no difficulty in identifying diatomite and his report should be given due weight. Moreover, one of the early homesteader's wells, around which chunks of diatomite were found, was situated within a few hundred feet of the Wilkenson well, and at a lower elevation on the hillside where a thinner overburden could be expected.

This belt of probable diatomite is situated within a quarter of a mile of the Union Pacific mainline. It is chiefly because of this location with reference to transportation that this occurrence is described.

The major lake bed (a small one compared to the lake bed areas farther to the south in the Baker quadrangle) covers some $5\frac{1}{2}$ sections in the Antelope Valley area adjacent to, and directly south of Telocaset. This embraces all, or portions of secs. 27, 28, 29, 31, 32, and 33, T. 5 S., R. 40 E., and secs. 3, 4, and 5, T. 6 S., R. 40 E. The three-quarter-mile belt of diatomite showings is situated in the $NW\frac{1}{4}$ sec. 4 and in the $E\frac{1}{2}$ sec. 5, T. 6 S., R. 40 E.

The belt of diatomite indications trends in a general northeast direction roughly parallel to the rail line. Judged from a mining standpoint the terrain rises gently from the level of the rail line so that a dry quarry site can be planned, provided of course that prospecting should disclose a minable thickness of good quality diatomite.

The Telocaset lake beds appear to be identical to those in the lower Powder River valley and contain large and excellent grade deposits of diatomite especially well developed in the vicinity of Keating.

N.S.W.

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OREGON GOLD MINE TO SHIP

The Humdinger gold mine on Williams Creek in Josephine County, Oregon, is under lease to W. S. Robertson and three associates. At present they are cutting a quartz lens on two levels. The quartz varies in width from 3 to 5 feet with most of the values in the sulphides. High-grade ore is being mined for shipment to Tacoma.

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