

State Department of Geology and Mineral Industries

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DIATOMITE IN THE TELOCASSET AREA (Supplemental report #1) Union County

This report contains an up-dating of the records for this prospect as per the results of test drilling done by this Department during the summer of 1971. It is supplement #1 to the original file report written under the same title by H. S. Wagner, May 27, 1950.

Foreword: The decision to include this prospect in an explorations program conducted throughout eastern Oregon during the 1971 field season was based largely on the strategic attractiveness of its location with reference to already established major transport and utility facilities, for which reason it was deemed to the best interest of the State to clarify the question of whether or not the makings of a minable deposit did in fact exist at this site.

General: A total of five tests were drilled on this prospect in an area embracing the old homestead well-site described in the parent report and seemingly significant portions of the adjoining terrain where light colored soils and fragments of lump diatomite turned up by plowing or located around randomly spaced badger holes indicated that undisturbed lakebeds existed at shallow depths. These tests ranged between 25 and 45 feet in depth in the approximate vicinity of the hole locations as indicated on an attached photocopy of the 7 $\frac{1}{2}$ minute Telocasset topographic quadrangle. All tests were drilled with a Department-owned power auger under the direction of Donald Bagg.

In the absence of data concerning the precise dip and strike of the strata underlying the test area it can't be said that no overlapping exists between the sections explored. However, the relative location of the test sites in terms of altitude and lateral spacing was such that each drilled hole is believed to have penetrated a substantially different section of the underlying strata in most instances. Under the circumstances, the test program can be accepted as having been reasonably relevant from the standpoint of revealing the existence of any truly thick diatomite bed within the bounds of the area explored had any been present at near-surface levels.

The way it turned out hole #1 proved to be in fine to medium gravel throughout most of the 25 feet it was sunk before being abandoned. Otherwise diatomaceous cuttings were present in appreciable amounts in the mud recovered from all other holes as was anticipated. At the same time, however, this mud also contained appreciable and seemingly consistent amounts of lakebed clay throughout most of the distances from which cuttings were recovered. Under the circumstances the only conclusion that can be drawn is that the sections thus probed consisted of a succession of relatively thin diatomite layers interbedded at close intervals with normal lakebed sediments and that no truly thick, unbroken deposit of massive diatomite underlay any of the drilled sites as had been hoped for.

Conclusion: In view of the above-described findings the outlook for anticipating massively bedded diatomite at near-surface levels in this sedimentary basin can no longer be described with the degree of optimism suggested by the accounts summarized in the original report.

Report up-date
H. S. Wagner
April 5, 1973

Diatomite in the Telocaset Region

Foreword: Diatomite is to be seen at several places in the lakebeds which occur in the vicinity of Telocaset, 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 understood 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 badger holes and dug wells of early homesteader vintage. In most instances the general geologic setting in the vicinity of these occurrences is such as to indicate small, strictly local deposits of inconsequential size from a minerals resource standpoint. In one instance, however, there is a belt in which the badger hole and dug well evidence appears to extend 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 reworked by cultivation. They constitute the foothills to a much larger and higher basalt capped hill. A white cast to the soil occurs at the base and on the lower flanks of these hills. This is in some places conspicuous, and in some not so, 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 with respect to this conjecture, namely that an appreciable thickness might occur here, comes from a resident farmer whom the writer interviewed in line with an attempt to run down possible 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 foothill ridge somewhat above one of the stronger white soil areas. This well proved dry. It is now almost completely filled in, nor are there any diatomite fragments to be seen in the soil surrounding the collar. The informant, Mr. G. V. 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 well of recent date sunk on a site critically located with reference to the belt of diatomite indications under discussion. While this is a 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 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, one of the early homesteader's wells^{around} which chunks of diatomite were present, 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 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 $5\frac{1}{2}$ 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

mile belt of diatomite showings is situated in the NW $\frac{1}{4}$ of section 4 and the E $\frac{1}{2}$ of section 5; T. 6 S.; R. 40 E.

The latter location, the one chiefly under discussion here, occurs within about one fourth of a mile from the main Union Pacific line as has already been mentioned. It is a like distance from a good county road which connects with U. S. Highway 30 at two points. At its nearest connection, the U. S. highway is but slightly more than a mile from the diatomite belt. A major electric power line crosses the county within about four miles of the occurrence.

Portions of this diatomite belt traverse land understood to belong to Messrs. G. V. and G. G. Wilkenson. Other ownership may exist as well on other sections of the occurrence, and from the 1935 edition of the Metskar township map it is apparent that some of this may be state and county land. At any rate, the strongest showings and the site of the dug well in which the fifty foot thickness of diatomite was reportedly encountered, is on the Wilkenson property.

General: The belt of diatomite indications trends in a general northeast-southwest direction. In this it tends to parallel the rail line. More significant from a mining standpoint is the fact that the terrain rises gently from the elevation of the rail line so that an initially dry and subsequently drainable quarry site can be envisaged, provided of course that prospect development should disclose mineable thicknesses of good quality diatomite to prevail in the occurrence. The lakebeds appear to be identical to those in the Lower Powder Valley. These latter contain large and excellent grade deposits of diatomite which are especially well developed in the vicinity of Keating. Both 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 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 seemingly 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 originated from an obviously small occurrence (also badger extracted 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 this report will have to be prospected before either their thickness or grade can be determined. In this respect, however, its 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 should a mineable 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.