

# State Department of Geology and Mineral Industries

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Portland, Oregon

## Preliminary report on U<sub>3</sub>O<sub>8</sub> occurrence south of Salem on River Road (Illahe Hill), Marion County, Oregon

Name of property: Sam F. Speerstra (Illahe Hill)

Location: SW $\frac{1}{4}$  sec. 6, T. 8 S., R. 3 W., along south River Road south of Salem approximately 4 miles from the city limits.

Development: On the east slope of Illahe Hill a 10-foot vertical face was excavated in the past for fill dirt. The highly fossilized Eugene (Illahe) formation in this exposure has long been the object of field trips by geology classes. About three shallow holes have been dug at about 200 feet apart in a line running uphill to the west from the base of the hill. Several more holes were dug on the face of another spur on Illahe Hill about 500 feet north of the first group.

General geology: Illahe Hill is entirely sandstone and shale of the Eugene formation of upper Oligocene age which has a northeast dip of about 10°. East of the hill a few hundred feet the Eugene formation is again exposed in the road cuts. It is capped in the Salem Hills by the Columbia River basalt.

Mineralization: The only evidence of mineralization in the area is the presence of large (5 foot diameter) boulders of fossilized sandstone which have been entirely silicified. This may indicate a silicified rib running through the hill. The origin of the uranium mineralization in the sandstone is not known. It seems improbable that leaching from the once overlying basalt could have provided a source. If this basalt source is ruled out the possibility that acid volcanic ash of the Eugene formation deposited by water was the source of the U<sub>3</sub>O<sub>8</sub>. The chemical breakdown of the ash in altering



to clay freed the  $U_3O_8$  if present along with the silica, which may have migrated to favorable areas within the sandstone interbeds and were thus deposited. Hydrothermal veins in the Eugene formation have never been observed, therefore such an origin seems improbable.

Observations: The scintillometer indicated a general count of about twice background over the area having 6 inches to a foot of soil overburden. On surfaces which were exposed by scraping off the overburden the count increased to three and four times background. The Geiger counter indicated small areas or spots of high count on the rocks, probably from individual crystals of  $U_3O_8$  similar to those found on the sample submitted to this office. The highest reading was about 0.032 mR/hr while background was 0.015 mR/hr over the deposit. Normal background away from the deposit was 0.008 mR/hr. The high readings on exposed rock were consistent over most of the hill on the Speerstra property. A ridge of Eugene formation sandstone in the Salem Hills was about twice background in old roadcuts which indicates a large area for the deposit.

A sample of core from about 3 foot depth taken from the top of Illahe Hill, pulverized and checked radiometrically by the scintillometer, indicated a  $U_3O_8$  equivalent of 0.32 percent.

0.043	reading on sample
0.011	reading without sample
0.032	difference x 10 = 0.32%

Recommendations: It was advised that a dozer remove the soil cover in strips so that the radioactivity could be plotted in a grid pattern. These results should be used to direct core drilling. Areas showing good cores could then be shot and sampled for assays which will either prove or disprove the presence of a commercial ore body.

Report by: H. G. Schlicker

Date of visit: 3/1/56