

# State Department of Geology and Mineral Industries

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## MEMORANDUM

OTTO SOLBERGER WATER WELL

Washington County

Introduction. The Otto Solberger water well, located in the NE-NE sec. 20, T. 2 N., R. 2 W., Washington County, was drilled on top of a ridge at an elevation of approximately 800 feet (see Hillsboro quadrangle). This ridge is one of a group of incised spurs that form the west slope of the Portland Hills in this general vicinity. The well was drilled <sup>(Nov. 1947)</sup> by Glenn Harty, <sup>666 E. Main St., Hillsboro</sup> who brought it to the attention of the Department. Of particular interest was his report that he brought up a large amount of tarry or greasy material <sup>& sea shells</sup> on his bit at an approximate depth of 600 feet.

Geology. The Portland Hills are largely made up of flows of Columbia River basalt, underlain by Oligocene marine sediments. Locally, flows of Pliocene Boring lava occur as intracanyon filling. Tan to reddish deposits of silty clay are draped over most of the ridge areas for a good distance down each flank. This silty clay tends to hide the bedrock except in places where roadcuts have exposed the underlying material.

The general structure of the Portland Hills is asymmetric anticline; the east limb being much steeper than the west. Although difficult to delineate because of the underbrush and silty clay, faulting is probably fairly common along both flanks. This is indicated by the variation in thickness of the Columbia River basalt from one ridge to another as shown by well drilling logs. Erosion subsequent to the faulting appears to have removed much of the Columbia River basalt in certain areas, although some of the apparent thinning may be

due to the presence of old high areas in the underlying Oligocene sediments. A thin Miocene basalt section apparently occurs in the area of the Solberger well as the following log on this well reported by Mr. Harty indicates:

23' Red to tan silty clay  
40' Basalt  
527' Blue shale  
11' Sea shells  
6' Tarry material in a sandy matrix  
607' T.D.

Results of investigation. The area was visited on November 1, <sup>1960</sup> by the writer in company with Mr. Harty to learn whether there might be sufficient exposures of bedrock to show the possible presence of an oil seep in the canyon walls below the well location or a minor flexure off the flank of the Portland Hills anticline that might serve as an oil trap. Unfortunately the cover of underbrush, soil, and silty clay obscured most of the bedrock, even in roadcuts, so that little could be learned concerning the local structure. The only bedrock noted beneath the red silty clay was weathered basalt, presumably Columbia River, cropping out along the lower flanks of the ridge. Also, some fresh basalt boulders were seen in the bed of the east fork of McKay Creek. A road reconnaissance was carried out in the general area surrounding the well location, but I was unable to find any evidence of an oil seep or the possible presence of sedimentary beds beneath the silty clay or Columbia River basalt exposures.

Although no direct evidence of a seep or oil trap could be found in the area around the Solberger well, it is of interest to note that Sunray - Mid-Continent Oil Company drilled an exploratory test, <sup>(1957, Drill Permit #25)</sup> a little more than 3 miles to the northeast in sec. 12, T. 2 N., R. 2 W., on an apparent "high" along the east

flank of the major anticline. In 1946, Richfield Oil Company put down a test hole on the crest of the main structure about 7 miles to the southeast in sec. 23, T. 1 N., R. 1 W.

From the information available, neither the Sunray - Mid-Continent or the Richfield tests found any evidence of oil in the drill hole. The log of the Sunray well shows that it penetrated almost 800 feet of Oligocene-Miocene sediments, starting from the surface, before reaching the Eocene basalts. The Richfield well first penetrated 800 feet of Columbia River basalt, then 1200 feet of Oligocene sediments on top of the Eocene basalts. The log of the Sunray well mentions several sandy zones in the sedimentary section, but most of these are fine-to very-fine-grained and "dirty", with little, if any, permeability.

There should be similar structures to that drilled by Sunray along the west flank of the Portland Hills anticline, and these could serve as possible traps for oil migration. The main problem in this area, as shown by the Glenn Harty and Sunray drill logs, appears to be the general lack of porous sandstone horizons beneath the Columbia River basalt that could act as a reservoir into which any oil that may have developed could accumulate.

Report by: R. E. Corcoran

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