

# State Department of Geology and Mineral Industries

1069 State Office Building  
Portland 1, Oregon

## INVESTIGATION OF ANOMALOUS LEAD AND COPPER CONTENT OF WATERS OF THE WILLIAMSON AND SPRAGUE RIVERS Klamath County, Oregon

In the course of running metal determinations of waters in the Klamath Basin drainage area, chemists of the Oregon State Board of Health found unusual concentrations of lead and copper in the Sprague and Williamson rivers near their confluence at Chiloquin. In an attempt to follow up and determine the source of these anomalies, an investigation was made by geologists R. G. Bowen and N. V. Peterson of the State Department of Geology and Mineral Industries.

The Board of Health reported 0.080 parts per million lead and 0.092 ppm copper at the Pine Ridge bridge crossing on the Williamson River (Board of Health Station K-1). This would make a total of 0.172 ppm heavy metals, an amount readily detectable by the dithizone test used by the Department of Geology. Two samples were tested at Pine Ridge, one 50 ml and one 100 ml. Both were under the threshold values of 0.020 ppm for this test. Other tests were run on the Williamson River at Williamson River Mission (Board of Health Station K-3) and at Collier State Park. A 100 ml sample was taken at each point, again with results showing less than 0.020 ppm.

The Board of Health's Station K-2 on the Sprague River just above its junction with the Williamson River was also sampled. Again the results showed less than 0.020 ppm heavy metals. Three further tests were made up the Sprague River at intervals of 3 to 5 miles; again the results were less than 0.020 ppm total heavy metals.

Investigation by: R. G. Bowen and N. V. Peterson  
December 6, 1960

Report by: R. G. Bowen

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SUPPLEMENT TO REPORT ON  
INVESTIGATION OF ANOMALOUS LEAD AND COPPER CONTENT  
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Further investigation to determine the cause of the lead anomaly was conducted after returning to Portland. Once again samples of water collected by the Board of Health were tested by the Dithizone method and again heavy metals amounting to 0.20 parts per million were detected. Samples collected by Department of Geology investigators at this time were checked again, and once again heavy metals were below the threshold values of 0.020 ppm.

At this time chemists of the Water Pollution Department of the Board of Health checked with those who collected the water samples and found that the collectors used lead weights to stabilize their collecting buckets while taking the water samples. The amount of lead taken into solution by the water in the buckets at this time is sufficient to cause an anomaly of the magnitude found.

R. G. Bowen  
December 20, 1960