The West Crater-Soda Peaks area covering about 100 km is located 35 km southeast of Mount St. Helens in southern Washington State. It is one of several Quaternary monogenetic High Cascade volcanic centers overlying the Ohanapecosh Formation of the Western Cascade Group and interstratified glacial till.
These volcanic centers are the most westerly of the range.

Fifteen rock units are differentiated ranging from surficial deposits to basaltic and andesitic lava flows to volcaniclastic sedimentary rocks and diorite intrusions. The 36 m. y. to 28 m. y. old Ohanapecosh Formation underlies the entire map area and is composed of interstratified basaltic lava flows and volcaniclastic sedimentary rocks. Numerous Tertiary basaltic and andesitic dikes, plugs, and sills intrude the Ohanapecosh Formation. Thirteen High Cascade basaltic to andesitic volcanic units are defined in the area, ranging in age from 360,000 years for the Basalt of Soda Peaks to no younger than 2,000 years for the fresh blocky andesites of West Crater. Except for the andesites of South Soda Peaks, Bare Mountain and West Crater, the units occur as scattered lava flows in single flow units. The volcanic features are highlighted by the occurrence of a 60 m-deep, 300 m-wide explosion crater at Bare Mountain and a 54 m-high andesite dome followed by two andesite lava flows at West Crater.

The Ohanapecosh strata are deformed into a series of broad shallow folds of Tertiary age plunging to the northwest. Although the area lies along the southward projection of the Mount St. Helens seismic zone, no large scale faulting was observed. The density of the volcanic centers, 13 centers within 2 less than 100 km, may indicate underlying zones of weakness. The intrusions are aligned chiefly northwest and northeast,
parallel to the two regional structural trends in the Cascade Range of southern Washington.

The High Cascade rocks are high-alumina calc-alkaline basalts and andesites. On the basis of major and trace element chemistry, the rock units are divided into four chemical groups, the Soda Peaks chemical group, the Sister Rocks chemical group, the Bare Mountain chemical group, and the West Crater chemical group. The volcanic rocks of the map area are probably the products of several magmatic processes, differentiation of unrelated sources, or the partial melting of a heterogeneous source.