

OUTSTANDING GEOLOGIC FEATURE OF PENNSYLVANIA

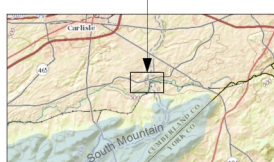
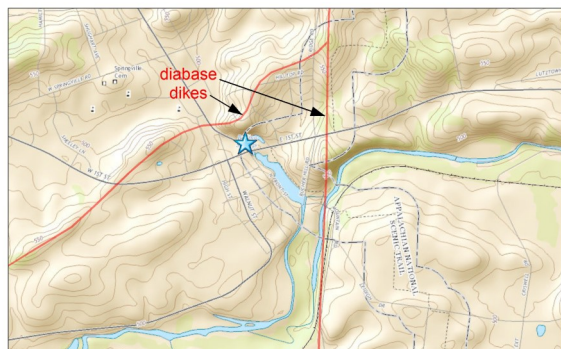
BOILING SPRINGS, CUMBERLAND COUNTY

Stuart O. Reese, 2016



Location

Boiling Springs, Cumberland Co., South Middleton Twp.,
lat: 40.1505, lon: -77.1289; Carlisle 7.5-minute quadrangle



0 0.5 Mi



Geology

Much of the precipitation that infiltrates the overburden of soil, sediment, and rock known as colluvium on the northwestern side of the South Mountain area slowly flows as groundwater into the carbonate rocks of the Great Valley. These carbonate rocks, folded limestones and dolomites, serve as productive aquifers.

The groundwater from South Mountain is naturally more acidic as it seeps through organic material and silica-rich rocks. When contacting the carbonate rocks composed of the mineral calcite, the acidic water dissolves some of the rock to enlarge the fractures, thereby creating larger openings called conduits, and in some places it produces much larger openings in the form of caves. These processes combine to set the stage for groundwater to discharge as large springs in the Cumberland Valley.

At Boiling Springs, a unique geologic setting enhances the occurrence of major springs. The folded limestones and dolomites of the Elbrook Formation with their solution-widened openings are typical of a carbonate-rock aquifer; however, an igneous rock called diabase adds another factor to the subsurface.

A branching Y-shaped, vertical diabase dike that intruded the limestone acts as a subsurface barrier because of its relatively impervious nature. As groundwater moves northward off of South Mountain, it becomes constricted by the walls of diabase and, driven by gravity from the mountain's elevation, is forced upward as large springs. The churning action of the two main springs is evident where they surface into the small lake as "boiling" springs.



Groundwater surfaces at one of the springs of Boiling Springs.

Recommended Reading

Way, J. H., 1986, Your guide to the geology of the Kings Gap area, Cumberland County, Pennsylvania: Pennsylvania Geological Survey, 4th ser., [Environmental Geology Report 8](#), 31 p.