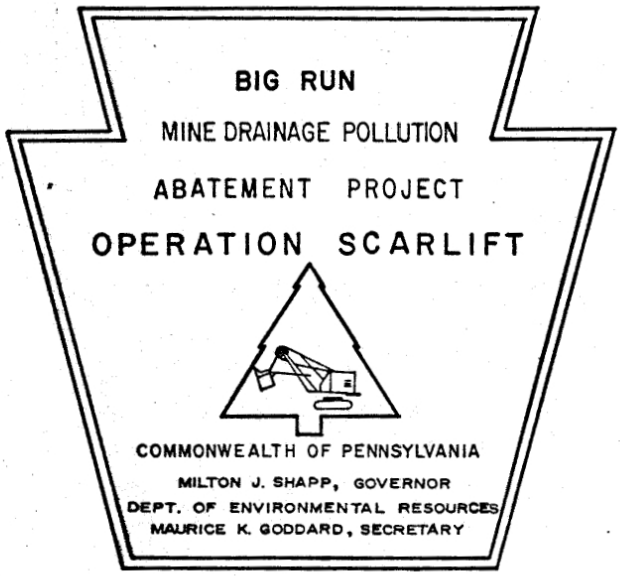


BASIN DESCRIPTION

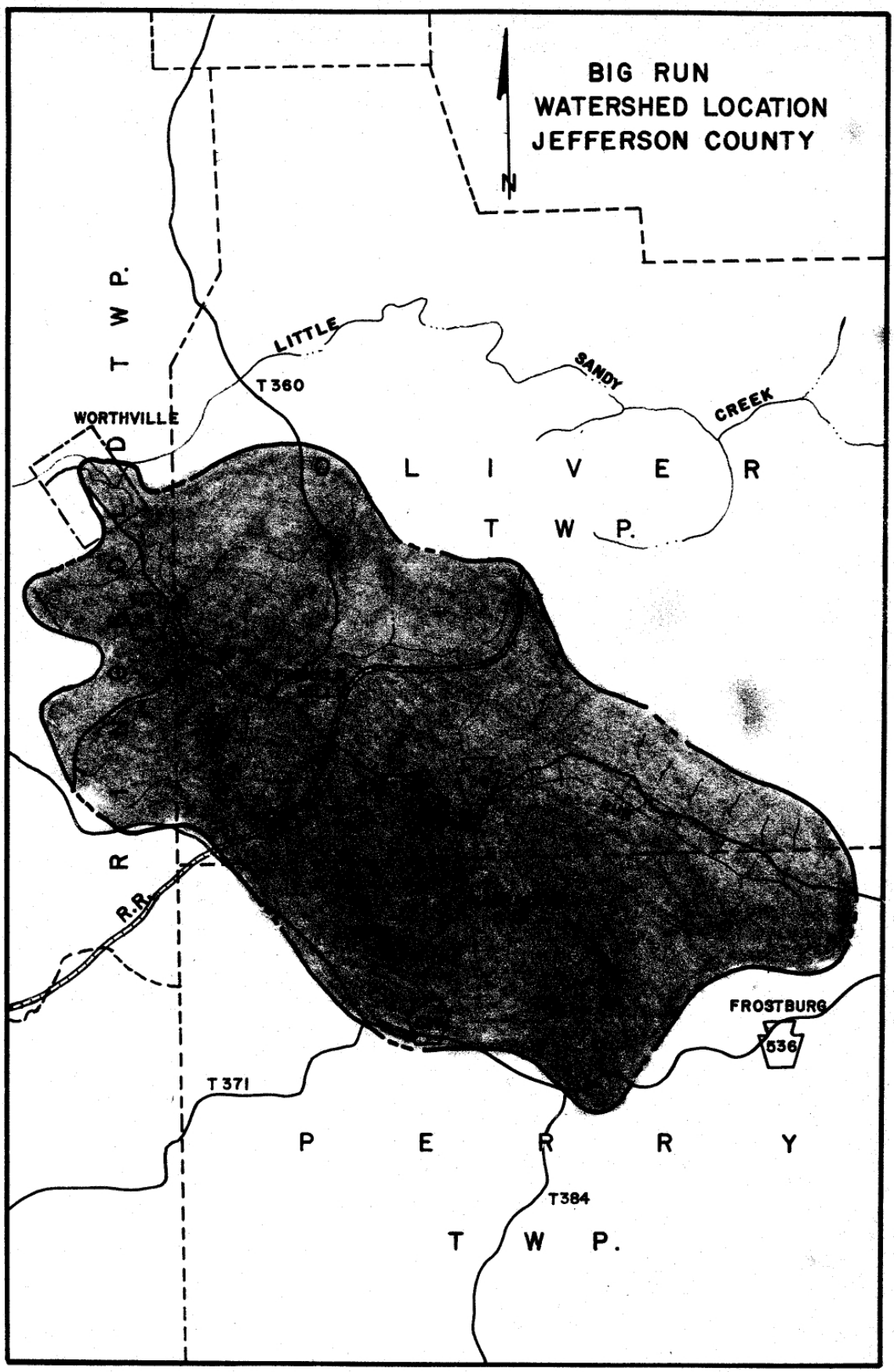
BASIN DESCRIPTION

LOCATION

Big Run Watershed is situated in the northern portion of Perry Township, the southwestern portion of Oliver Township and the southern portion of Ringgold Township, Jefferson County. The center of the watershed is located near the Village of Sprankle Mills and 11 miles south of Brookville, Pennsylvania. The 17.7 square mile watershed is approximately 7.5 miles long and 4.5 miles wide. The main stream meanders through the watershed and is approximately 7 miles long. Big Run flows in a northwesterly direction to its confluence with Little Sandy Creek. From there Little Sandy Creek flows west to its confluence with the Redbank Creek west of Worthville, Pennsylvania. There are nineteen unnamed tributaries to Big Run and one named tributary, McCracken Run.

PHYSIOGRAPHY AND GEOLOGY

The topography of the Big Run Watershed consists principally of steeply sloping, heavily wooded hills and valleys. The axis of the Worthville Syncline is at the extreme northwesterly limit of the Big Run drainage basin and is approximately perpendicular to the direction of the flow of Big Run. The strata rises approximately 1045' in a southeasterly direction approximately 2.5 miles to the Sprankle Mills Anticlinal Axis which extends in a northeasterly - southwesterly direction and is approximately parallel to the Worthville Synclinal Axis. From the Sprankle Mills Anticlinal Axis the strata dips irregularly in a


BIG RUN
WATERSHED LOCATION
JEFFERSON COUNTY
N
T W P.
LITTLE
SANDY
CREEK
T 360
WORTHVILLE
L I V E R
T W P.
R
R.R.
FROSTBURG
536
T 371
P E R R Y
T384
T W P.

9

southeasterly direction toward the Punxsutawney Synclinal Axis. The Punxsutawney Synclinal Axis lies approximately 2.5 miles southeasterly from the southeastern limit of the Big Run drainage basin. Total relief in the basin is approximately 660 feet.

Surface formations in the two counties in which the watershed is situated range generally from the Homewood Sandstone in the Pottsville conglomerate to the Allegheny Series. There is exposure of the various formations in the middle and upper reaches of Big Run where mining has shown some formations in the Allegheny group above the Clarion coal seam. The Lower Kittanning seam of coal has been mined at various locations within the Big Run Watershed.

The drainage from the mines on the Clarion and Lower Kittanning seams is predominantly acidic with large concentrations of iron and sulfate. The mildly fluctuating rate of submergence and the variable base level resulted in an open water to swamp to fluvial-deltaic depositional sequence responsible for complex stratigraphic nature of the coal deposits. Such an environment of deposition often contains areas of restricted water and high biochemical oxygen demand, resulting in an-atmosphere of reduction. The high content of sulfritic compounds such as pyrite and marcasite in the coal seams and adjacent strata reflect this condition. Limestone, was occasionally deposited and/or precipitated in back swamp areas during periods of sedimentary cycle. When this limestone occurs below a coal seam, the acidity caused by oxidation and hydrolysis of these iron disulfides in the mine drainage is neutralized to various degrees. The resultant higher pH causes the ferrous iron to be precipitated as ferric hydroxide or yellowboy.