



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF MINING PROGRAMS

STRUCTURAL INFORMATION

08/2021

Description

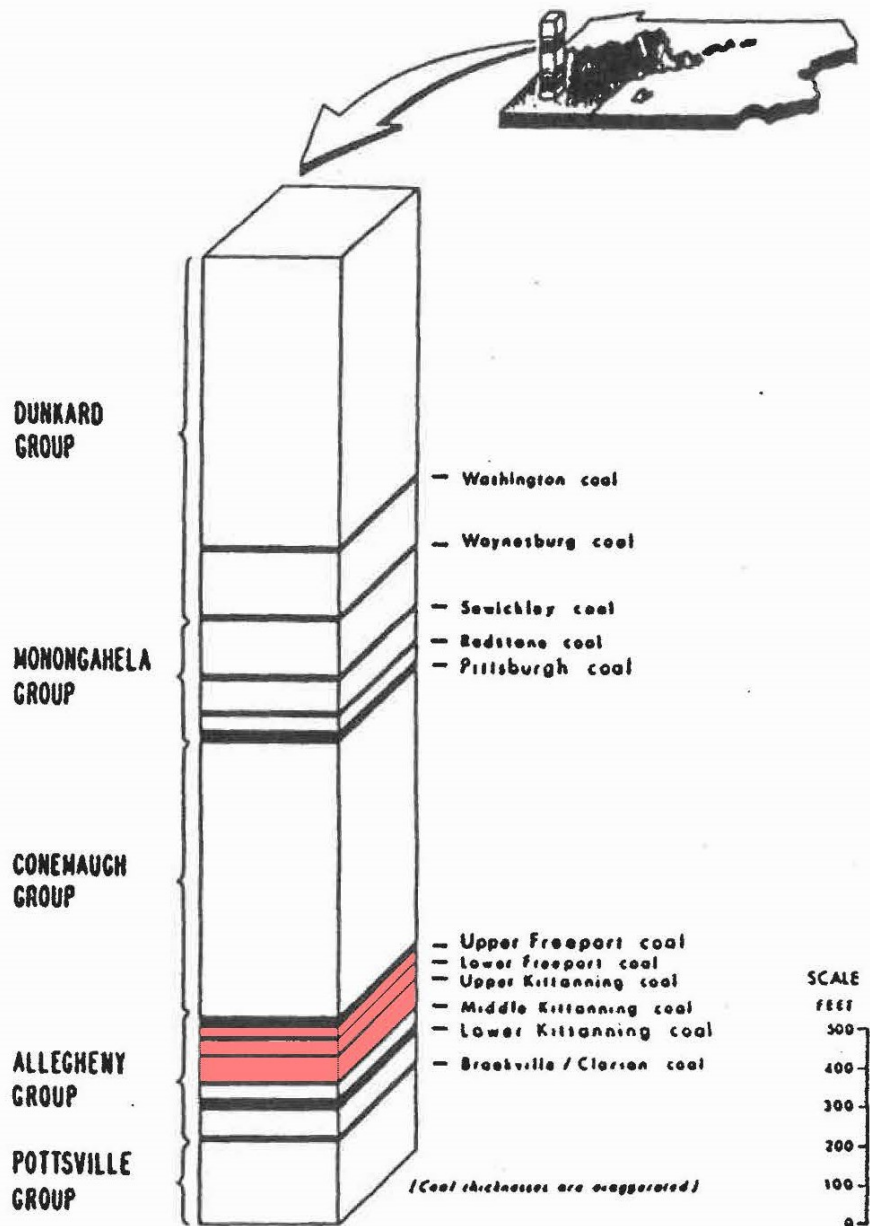
Describe the local geologic structure and its relationship to the regional structure. Use diagrams and regional structural relief maps where applicable (in addition to stratigraphic cross section(s) submitted on web form. Reference sources of information.

The permit area is situated along the northern edge of the Winder 7.5 minute USGS topographic map (see the attached map) and is located in the Appalachian Plateaus physiographic province. The local geologic structure is consistent with the regional structure which consists of a series of broad, gently plunging, open folds having moderate amplitudes and generally trending northeast-southwest. The stratigraphy of the overlying strata is contained in the Conemaugh Group, with the coal seams, ranging from the Upper Freeport (E) to the Middle Kittanning (C), residing in the Allegheny Group.

The predominate local feature is the Wilmore Syncline which lies approximately 1 mile to the northwest of the central portion of the permit area. The entire permit area lies on the southeastern flank of this syncline. The general strike of the local structure is N 25° E as based on drill hole information compiled for the permit application and supplemented by drill holes from the adjacent Mine 78 deep mine. The permit area is dipping in a northwestern direction towards the Wilmore Syncline at approximately 4%.

The geologic description is based on local drilling information, supplemented by information obtained from Mineral Resource Report 101, "Bedrock Geologic Map, Coal-Resource Maps, and Digital Datasets of part of the Windber Quadrangle, Somerset County, Pennsylvania.

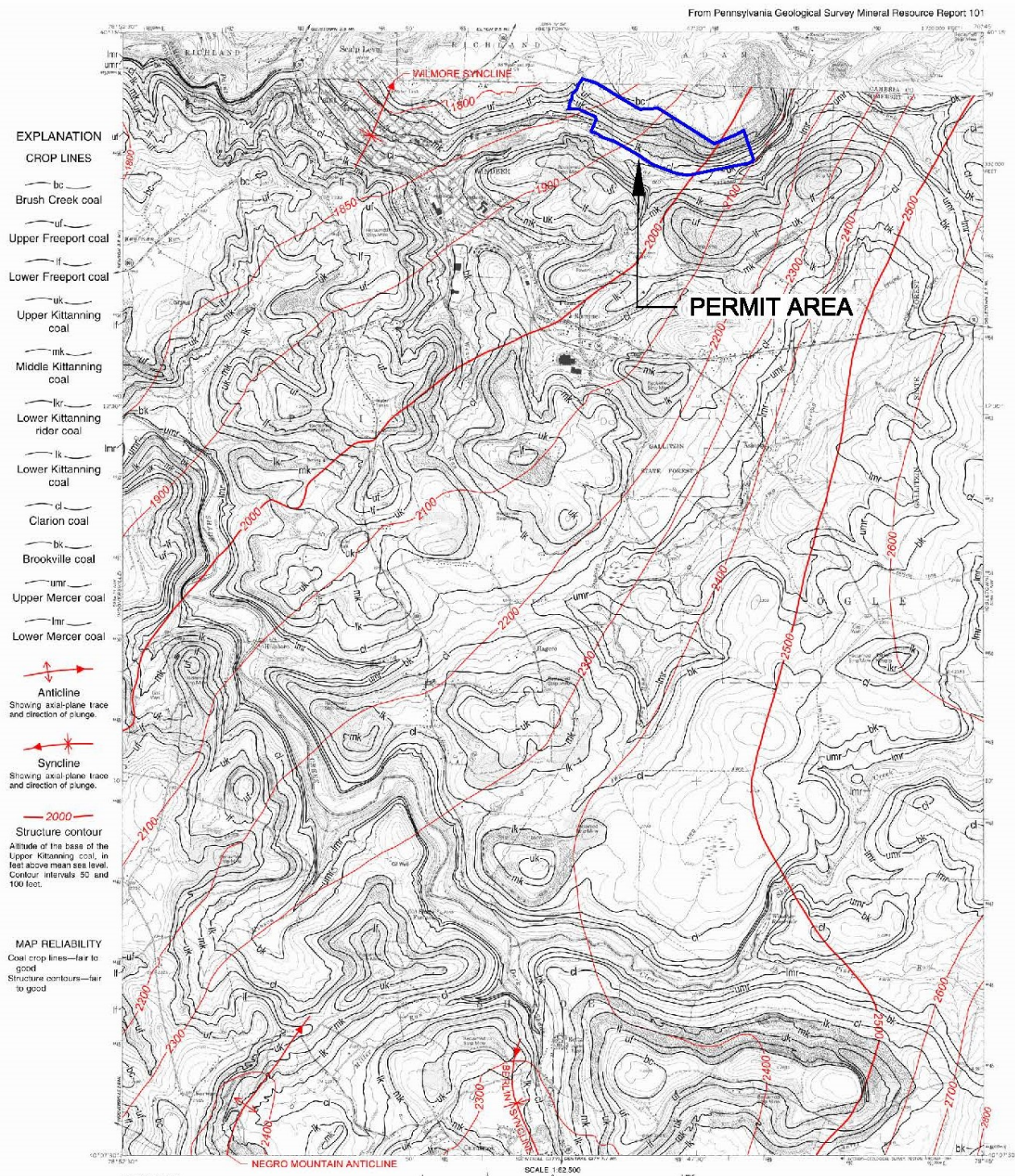
Description (cont.)



STRATIGRAPHIC POSITION OF PENNSYLVANIA'S MAJOR BITUMINOUS COAL SEAMS

Mining is being proposed for coal seams in the Allegheny Group, ranging from the Middle Kittanning Coal Seam to the Upper Freeport Coal Seam. Overlying strata will extend into the bottom of the Conemaugh Group formation.

Description (cont.)



Joints and Fractures

Indicate joint and fracture orientations on the Environmental Resources map (or USGS map if locations are outside limits), using standard joint strike and dip symbols, where fracture/joint measurements were taken. Rose diagrams may be submitted if available.

Type of Joint or Fracture	Lithology	Number of Measurements	Depth Below Surface	Aperture (width)	Map (Env Res or USGS)
Stress relief joint ⁽¹⁾	Sandstone	1	10' from surface	1 inch	Env Res

References and sources of the joint and fractures data (site specific measurements, publication source, etc.).

⁽¹⁾ Taken from the adjacent Hoffman No. 10 West Mine (SMP No. 11060103)