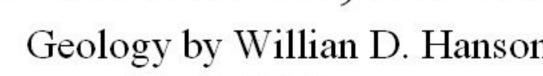
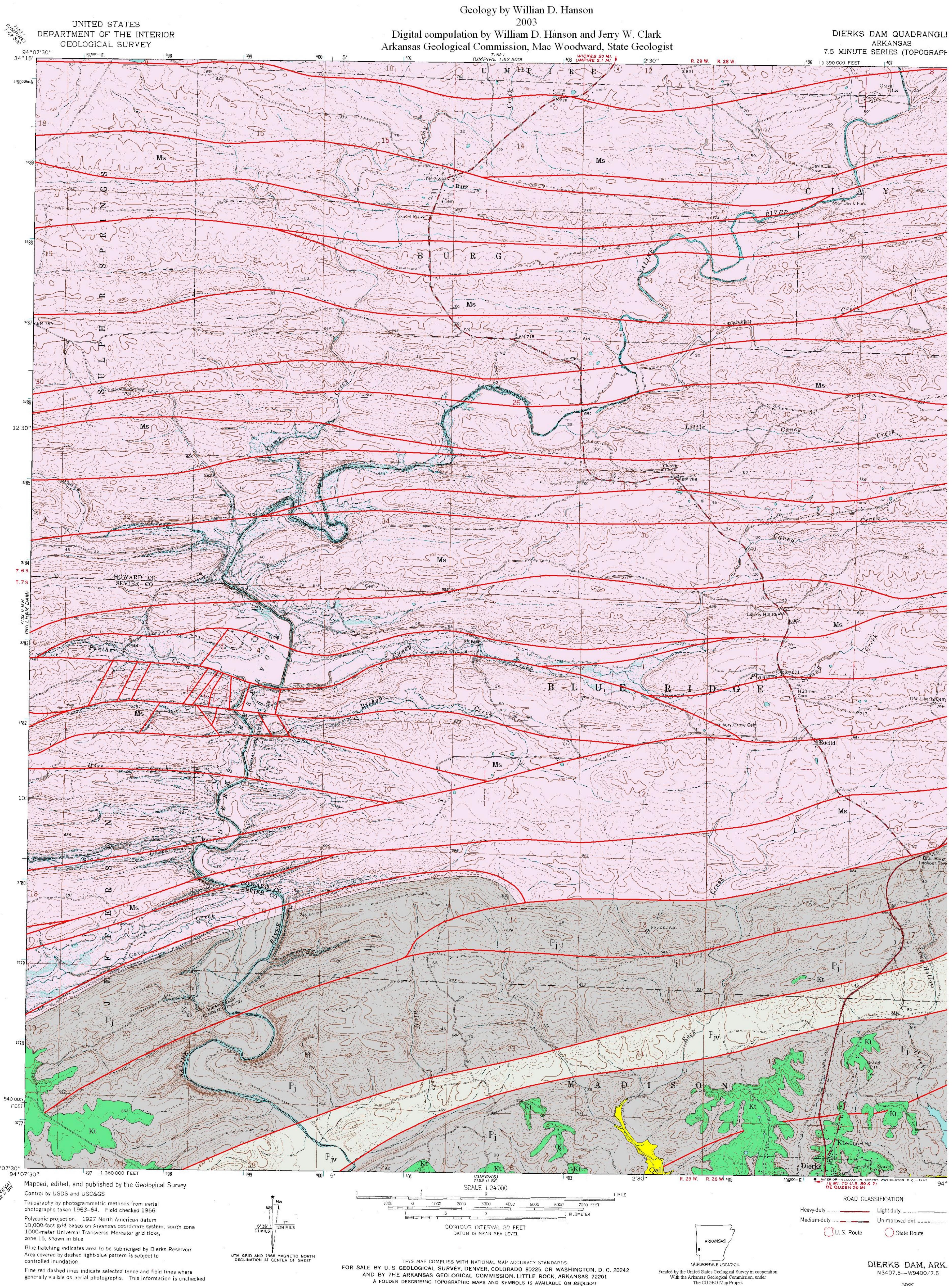
GEOLOGIC MAP OF THE DIERKS DAM QUADRANGLE, HOWARD AND SEVIER COUNTIES, ARKANSAS





CORRELATION OF MAP UNITS

Qal	Quaternary	Cenozoi
Ki	Cretaceous	Mesozoi
Pjv Pj	Pennsylvanian	Paleozo
Ms	Mississippian	

DESCRIPTION OF MAP UNITS

Tokio Formation (Upper Cretaceous) - The Tokio Formation consists of cross-bedded sand, gravel, gray clay, and volcanic ash. Basal cross-bedded gravels are approximately 30 feet thick. Minor sand and clay lenses occur within the gravel, while sand commonly fills the interstitial spaces around the gravel. Thinner beds (less than 1 foot in thickness) and lenses of gravel occur within the formation's sand intervals. The gravels range from pea-size to 6 inches in diameter and are composed of quartz, novaculite, sandstone, and quartzite. Iron-oxide-cemented conglomerates may be present locally. The cross-bedded sands are medium-to-fine-grained quartz with minor amounts of heavy minerals, glauconite, iron-oxide concretions, and rip-up clasts of gray clay. Sands weather yellow to orange-red in color. Gray clays are lignitic, pyritic, fossiliferous, and may contain leaf imprints. The volcanic ash is light gray to white and has altered to kaolinitic clay. The source area for much of the formation's sediment was the Ouachita Mountain region. The formation outcrop belt extends from near Arkadelphia, southwest to the Arkansas-Oklahoma state line, and dips to the south at approximately 80 feet per mile. The approximate thickness in the quadrangle is 80 feet. The unit was deposited in a nearshore marine environment on an unconformable surface which separates it from the underlying Woodbine Formation (Upper Cretaceous).

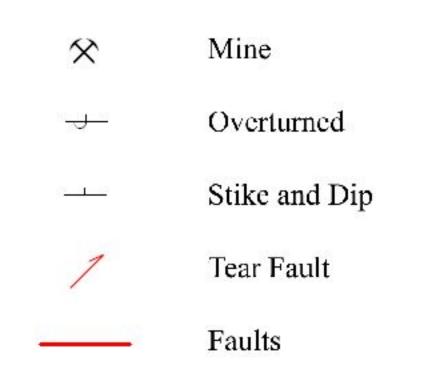
Stanley Shale (Mississippian) - The Stanley Shale is composed predominantly of grayish-black to brownish-gray shale, with lesser amounts of thinto massive-bedded, fine-grained, gray to brownishgray feldspathic sandstone. Weathering causes the shale to turn olive-gray and the sandstone to become more porous and brown. Interbedded layers of thin black siliceous shale and chert are present and are used to subdivide the formation in other areas. Locally, volcanic tuffs (primarily the Hatton Tuff Member) and a quartzose sandstonechert conglomerate unit (Hot Spring Sandstone Member) are present in the lower Stanley. Conein-cone and calcareous silty concretions are present in shale. About 8,500 feet of the Stanley is present in the quadrangle. All of the formation is exposed except for about 1,600 feet of the upper portion and 1,200 feet of the lower portion. Most of the Stanley is Late Mississippian (Chesterian) as indicated by the presence of conodonts and plant fossils. The formation is a deep-water marine turbidite sequence, derived primarily from a landmass (Llanoria) that existed along the southern margins of the Ouachita trough.

Jackfork Sandstone (Pennsylvanian) - The Jackfork is thin to massive-bedded, fine- to coarsegrained, brown, tan, or bluish gray quartzitic sandstone with subordinate brown silty sandstones and gray-black shale. Toward the north of its outcrop area the shale units of the lower and middle Jackfork take up more of the section and the sandstones are more lenticular, often occurring as chaotic masses in the shale. Minor conglomerates composed of quartz, chert, and metaquartziteoccur notably in the southern exposures of the formation. The Jackfork rests conformably on the Stanley. The formation is generally between 3500 to 6000 feet in thickness.

Johns Valley (Pennsylvanian) The Jojn Valley Formation consists of black shale with numerous intervals of brownish sandstone. Also small amounts of gray-black siliceous shale and chert have been noted. In the frontal Ouachita Mountains large quantities of erratic masses are common. The errotic masses consist of limestone, dolostone, cherts, and others. This unit was deposited in a deep marine environment and is about 500 - 1500 feet thick.

Alluvium (Quaternary) - Variably sized gravel overlain by unconsolidated sand, silt, and clay comprises the unit. This unit occurs in the floodplains of streams and rivers. The sediments form a rich loam and are excellent for agriculture. Gravels, primarily novaculite, originated in the Ouachita Mountain region and from local Cretaceous formations. Thickness varies from 0 to 25 feet. Areas of alluvium are presently receiving sediment deposition.

SYMBOL



REFERENCES

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McFarland, J. D., 1998, Stratigraphic Summary of Arkansas; Arkansas Geological Commission Information Circular 36, 39p

