The following was presented at DMT’09 (May 10-13, 2009).

The contents are provisional and will be superseded by a paper in the DMT’09 Proceedings.

Surficial Material and Bedrock Geologic Mapping at the Missouri Department of Natural Resources, Division of Geology and Land Survey

Collecting surficial material cores.

Surficial materials include all unconsolidated material between the top of bedrock and the ground surface. Residuum (formed in place by the decomposition of bedrock) and alluvium (stream deposited material) are examples of surficial materials.

Additional information about surficial materials is obtained by drilling and coring. This is a cooperative effort between the Missouri Department of Natural Resources, Division of Geology and Land Survey and the Missouri Department of Transportation. Surficial materials include all unconsolidated material between the top of bedrock and the ground surface. Residuum (formed in place by the decomposition of bedrock) and alluvium (stream deposited material) are examples of surficial materials.

Field data entry into ArcPad.

In the field, geologic cross sections are developed within an ArcMap project that the geologist uses for data collection, interpretation, map creation and layout.

Base maps have been improved in two ways. The appearance has been muted by representing contour lines and text as a dark gray color. This allows the geology to be more prominently displayed. In addition, DGLS has begun using DRGs that are produced in-house at higher resolution than the standard USGS DRGs. In the example below, a paper topographic map was scanned at 400 dots per inch. The higher resolution base maps will improve the legibility of the paper product and the appearance of the digital image.

In 2008, DGLS began using an ArcMap plug-in called CrossView (A-Prime Software) to construct the geologic cross sections included in the layout. CrossView significantly reduces the amount of time necessary to create a cross section. With this plug-in, the geologist can display information from well logs and even drape the newly created geologic map across the topographic profile.

In the office, the data is transferred to the ArcMap project for data interpretation, map creation and layout. The process evolves each year. DGLS is currently in the process of transitioning from paper to electronic field notes.

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Map size reduced to fit poster

**DESCRIPTION OF MAP UNIT:**

The map shows the distribution of different geological units across the Reform Quadrangle, Callaway County, Missouri. The units are color-coded and labeled to indicate their presence and location. The map illustrates the relation of these units to the surrounding topography and other geological features.

**LEGEND:**

Legend includes symbols and abbreviations used on the map, such as bedrock geology, topography, and other geological features.

**CORRELATION OF MAP UNITS:**

The map includes a correlation chart that lists the units and their corresponding numbers, as well as their relationships to each other.

**SUPPORT DATA MAP:**

The support data map provides additional information, such as cross-sections and detailed geological sections, that complement the main map.

**ECONOMIC GEOLOGY:**

The economic geology section discusses the potential for mineral resources and other economic aspects within the quadrangle.

**BIBLIOGRAPHY:**

A list of references and sources used in the compilation of the map is included in the bibliography section.

**MAP SIZE:**

The map size is reduced to fit the poster, and the dimensions are stated on the map.

**ACCESS PERMITS:**

Access permits need to be granted to visit any privately owned land.