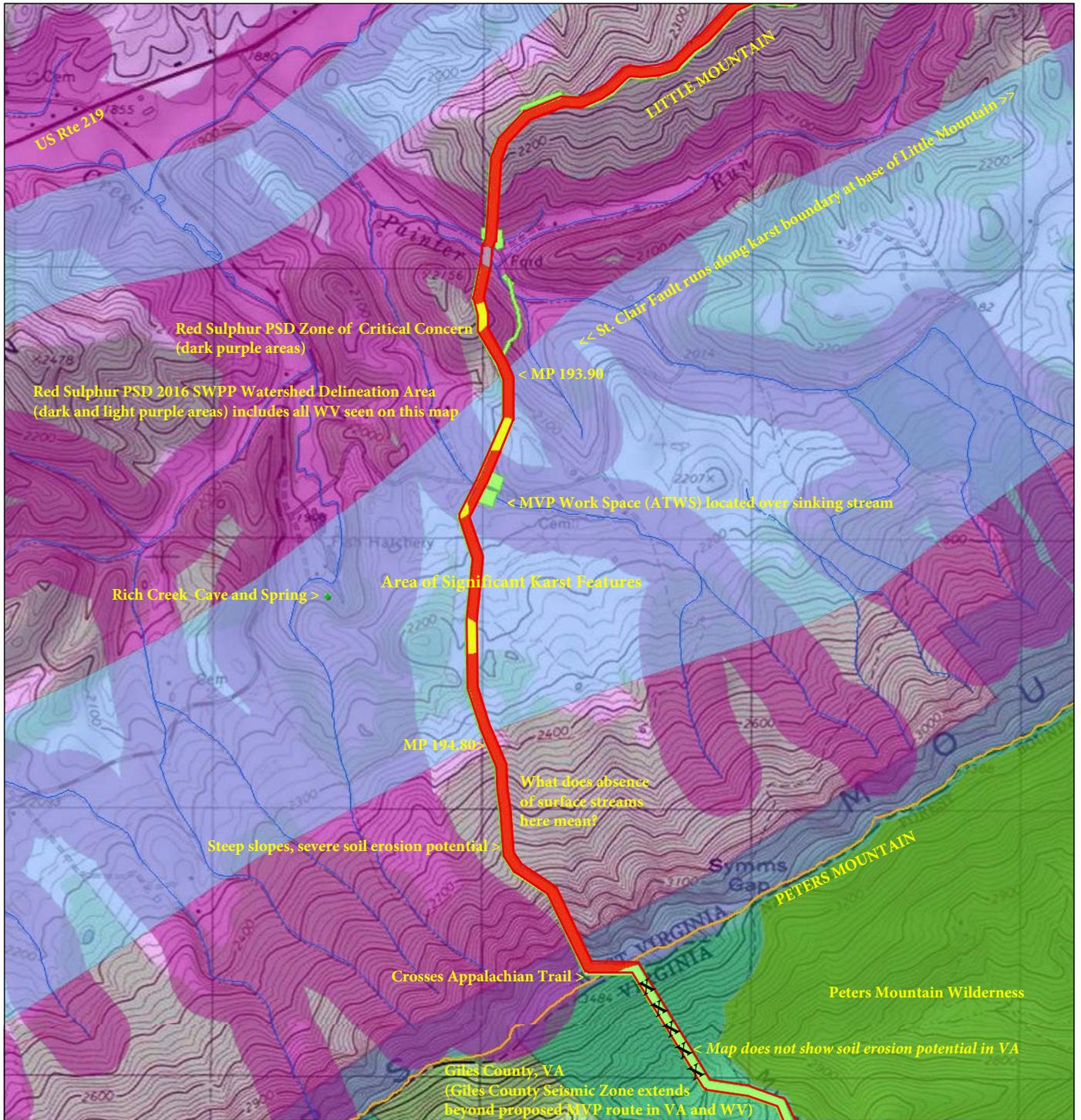


Figure 3. Peters Mountain Crossing: Karst, Steep Slopes, Seismic Hazards

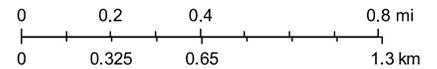


July 13, 2016

Annotations in yellow added to Figure

1:18,056

- MVP_proposed_route_buffer
- George Washington National Forest
- MVP_Proposed_Route_Soil_Erosion**
- Severe
- Moderate
- Not rated
- MVPtemp_impact_diss
- * karst_springs
- NHD_flowline_MVPcounties
- at_centerline (Appalachian Trail)
- Appalachian_karst
- ZCC
- RedSulphur_watershed
- Designated Wilderness



Source: ICWA Interactive Environmental Map
<http://indiancreekwatershedassociation.org/icwa-interactive-environmental-map>

Description of Peters Mountain Crossing: Karst, Steep Slopes, Seismic Hazards

Figure 3. Peters Mountain Crossing: Karst, Steep Slopes, Seismic Hazards serves as one example of the need for the federal and state agencies to require an in-depth independent hydrogeological study of critical watershed areas, especially in regions of karst and where public and private drinking water sources are affected.

The springs of Peters Mountain are the primary source waters for Monroe County's three public water districts, hundreds of private springs and wells, and an award-winning water bottling company. They form headwaters of most of the county's watersheds. The map shows that MVP's proposed route poses daunting construction problems and risks permanent environmental damage to this important water resource:

- A double band of limestone and karst runs along the entire length of Peters Mountain. The proposed MVP route crosses a complex region of exposed karst features that include sinkholes, caves, a sinking stream, and recent evidence of active subsidence in the area (reported in an earlier ICWA comment to the FERC). The MVP workspace to the south of County Road 219/24 is located over a stream (identified on the NHD flowline layers) that goes underground in this area.
- The prolific Rich Creek Spring, identified on the map as a "karst spring," emerges from the Rich Creek Cave and forms the headwater spring of Rich Creek. It is located on property that has historically been a fish hatchery and recently a popular trout restaurant.
- The proposed MVP route altered the original route—moving it slightly to the north away from the Rich Creek Cave and Spring. However, MVP Resource Report 6 noted that the direction of the unmapped cave system heads northeast, i.e., in the direction of the pipeline.
- On Peters Mountain, the MVP route ascends steep slopes with severe erosion potential. Increased erosion, sedimentation, and potential contamination from equipment leaks or spills will be channeled into the highly vulnerable karst complex near the base of the mountain. The route lies within the Watershed Delineation Area included in the Red Sulphur Public Service District (RSPSD) 2016 Source Water Protection Plan and close to the Zone of Critical Concern.
- The karst in this area has not been sufficiently studied or mapped by federal and state agencies to identify all of the problems MVP excavation and construction and operation could encounter or create. The Interactive Environmental Map supports the call for independent hydrogeological studies **before** approving a route across this critical watershed area.
- Not reflected on this map are the St. Clair Fault, which runs parallel to Peters Mountain near the base of Little Mountain, and the Giles Seismic Zone. Seismic activity has produced massive slope slippage on the Virginia side of Peters Mountain and sustained damage in Monroe County, compounding the long-term risks of embedding a 42-inch natural gas pipeline in this region.
- The Appalachian Trail would cross the pipeline at the WV/VA border and has an access trail on the WV side located about a mile to the north of the pipeline. The historic Symms Gap "turnpike" crosses the ridgeline near the MVP route, continuing on the Virginia side down Mystery Ridge, which the MVP route is also projected to follow.

Interactive Mapping elements used in Figure 3

Basemap: USA Topo Maps (USGS 7.5 minute topographic map)

Layers: MVP proposed route, Soil Erosion Potential, MVP temporary impact (incl. ATWS, access roads), Streams: NHD flowline, Public water supply: Zone of critical concern, Red Sulphur PSD watershed delineation area, Karst, Appalachian Trail, JNF/GW National Forest, Peters Mountain Wilderness