



4. Dr. Davis' testimony (p. 4) discusses concerns involving the stability of steep slopes where Pierre Shale or other expansive clays, such as bentonite, can "absorb large amounts of water during wet periods, leading to instability and potential failure," and subsequent surface water contamination. How will Keystone address these concerns?

Answer: Ground movement, including landslides, seismic events and subsidence, and heavy rains and flooding, account for a very small percentage (1.08%) of pipeline incidents (PHMSA 2008). To prevent pipeline damage, Keystone considered slope stability during the routing and design process. Once the pipeline is operating, Keystone will conduct aerial patrols to monitor the pipeline right-of-way for signs of slope instability as well as other threats to pipeline integrity. This surveillance is required by Federal Regulation at 49 CFR 195.412. Keystone continually evaluates slope stability over the life of the pipeline. If Keystone suspected damage to the pipeline's integrity, Keystone would inspect the pipeline as required by PHMSA Special Condition 53c.

Dated this 24 day of July, 2015.



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