Contamination/ Sedimentation of Bottom Spring and Salmon Spring by MVP construction in the karst.

1980's Dye tracing performed from the sink point on Dry Run Creek to Bottom Spring and Salmon Spring under Johnson's Ridge established a direct connection of water flow under Johnson's Ridge.

2004 & 2005 DCR performed new dye tests at the same points and came up with the same results. The underground flow of water in the karst traveled under Johnson's Ridge.

Bottom Spring in Parsons' pasture flows into the Roanoke River and supplies water for Roanoke and Salem while Salmon Spring also flows into the Roanoke River but additionally was the household water supply for 3 families on the farm property via a Ram pump. The Ram does not use electricity, but instead is powered off the continuous water pressure of the spring. This Ram had been in operation for about a century and in fact was the sole supply for a Grade A dairy from the 1940's to the 1970's. While this dairy was in operation, water tests were performed at regular intervals by state inspectors.

When sediment contaminated Salmon Spring in September 2018, the landowners decided to drill two new wells at their own expense to supply the farm rental properties as they could not in good conscience continue to use this supply of water compromised by the pipeline.

To think that it is "just sediment" is not to understand that when earth is turned and eroded, herbicides and pesticides long banned are exposed and reenter the food chain. Please see Dr. Tina Smusz's letter to M. Norman Oliver, MD, State Health Commissioner for the Virginia Department of Health and Daniel Carey, MD Secretary of Health and Human Services for the State of Virginia, dated September 10, 2018. Also to dismiss as "just sediment" is to close your eyes to the fact that the pipe coating leaches off the pipe and a number of carcinogenic compounds make up this coating. No agency has yet deigned to test the compounds that break down and chalk off the coating even though they are aware of the potential. Please see Dr. Tina Smusz's letter to FERC dated January 23, 2019.

In 2014 the pipeline was in precertification stage and Wil Orndorff, the Karst Protection Coordinator from DCR and his assistant, gained permission from the landowners to survey the cave. Unbeknownst to the landowner, Wil Orndorff allowed Draper Aden, designated karst experts for the MVP project, to go into Old Mill Cave with him at the same time. Salmon Spring, the family's drinking water source, flows through Old Mill Cave.

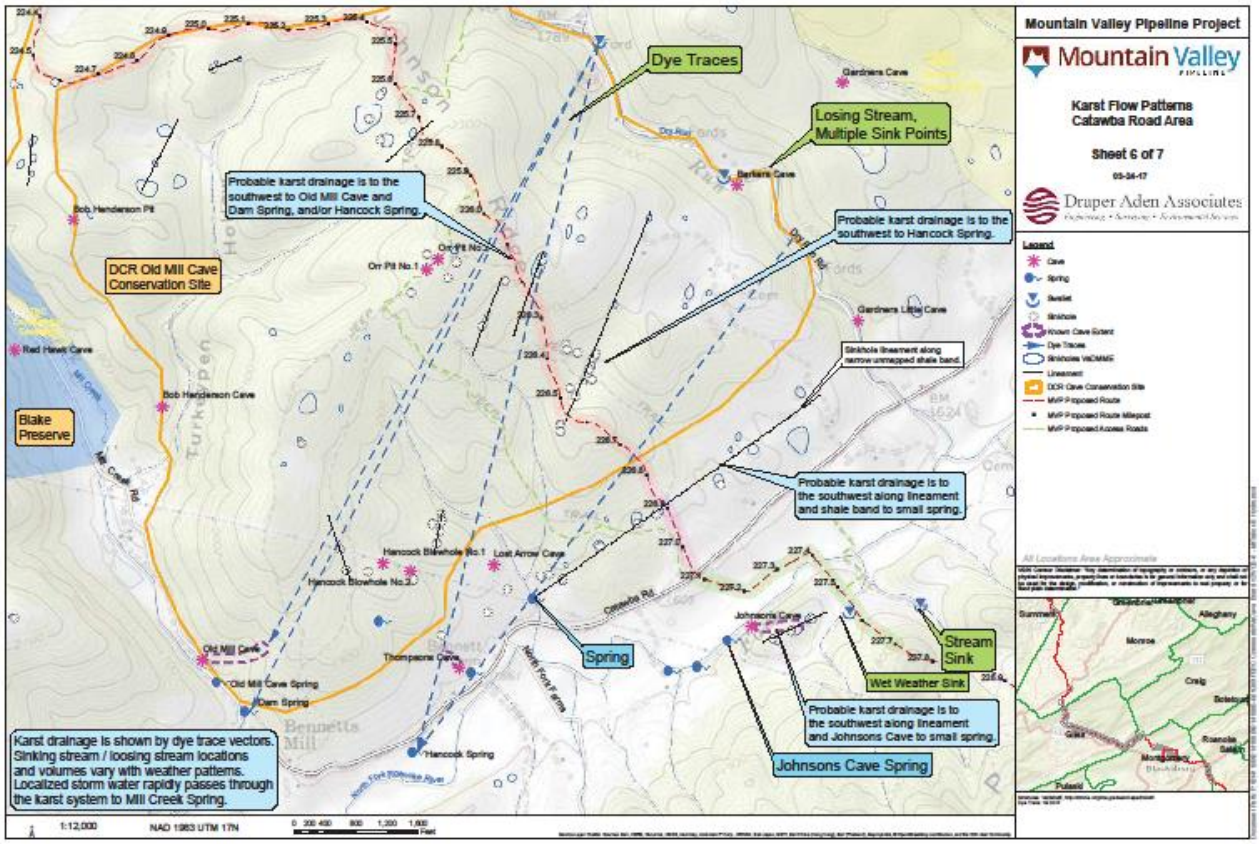
At the request of the landowner, Mr. Orndorff generated a report on 08/12/16 stating that, "The Old Mill Conservation site has the three globally rare invertebrates and the significant cave. The number and rarity of these occurrences give the Old Mill Conservation Site third order significance (B3, which corresponds to high significance.)" He also states, "This conservation site protects cave and karst associated element occurrences, including a state designated significant cave. The conservation site boundary includes the land overlying the cave and the watershed of the cave stream as determined by dye trace studies and topographic analysis."

In 2016 the MVP route was changed to avoid the edge of Blake Preserve also known as Mill Creek Springs Natural Area Preserve, and moved to Johnson's Ridge along a line of sinkholes directly over the

dye tested water flow. In the DEIS for the MVP, the statement was made under Section 4.4.2.4, that "Mountain Valley has routed the MVP to avoid important karst/sinkhole features and vegetation communities at the Mill Creek Springs Natural Area Preserve." The Old Mill Cave Conservation Site has not received this same treatment. There has been no effort by MVP to preserve this cave and its watershed.

Mrs. Francis Parsons and her daughter Ms. Linda Parsons Sink had filed the dye test maps and their concerns about the contamination of their springs with sediment as well as petroleum products resulting from construction, with FERC as well as DEQ, before and after the route change. Attached is an MVP map with the dye traces as well as the pipeline route. The high concentration of sinkholes in this area is unfortunately not shown on this map.

Attachment 1 for Linda Parsons Sink Letter dtd July 17, 2017



It is notable that the Mill Creek Springs Natural Area Preserve (labeled Blake Preserve on the far left side of the map) is on the same creek and only a quarter of a mile distant from the Old Mill Creek Cave Conservation Site (labeled just above "Blake Preserve") where Salmon Spring emerges to the surface in the same area of karst.

Construction on Johnson's Ridge started in Mid April and the first contaminations of Bottom Spring occurred May 18, 2018 and May 27, 2018. In the lifetime memory of neighboring farmers born on their family land, they had never seen any sediment in Bottom Spring after a rainfall. Now, for the first time, it looked like it was "boiling mud".

The following 2 pictures show Bottom Spring after a rain event and later in a more normal state where the rocks at the bottom can be seen.

MVP's own mitigation plan requires that when karst features have connectivity to the subterranean environment and the potential to impact groundwater, the karst specialist will consult with MVP Construction regarding appropriate mitigation. Mitigation activities would be conducted in conjunction with recommendations from the appropriate state agency (Virginia Department of Conservation and Recreation).

Because of the contamination, Wil Orndorff the Karst Protection Coordinator with DCR, went up on Johnson's Ridge to the MVP ROW(Right of Way) and put dye in a swallet in the trench. A few days later the dye was recovered at Bottom Spring, and as he said in a later meeting, there is a 99.9% chance that the sediment in Bottom Spring comes directly from the pipeline ROW. In a report to the Virginia Cave Board in October 2018, Mr. Orndorff said that although only one swallet had been tested there were other sinkhole areas in the trench that should be dye tested to gain a more complete picture of the water flow from the trench. In fact, in an email to the landowner he again stated that more dye testing was needed in the sinkholes along the trench.

But by December 5, 2018 in a meeting with the landowner, DEQ, MVP and Draper Aden, Wil Orndorff then downplayed the seriousness of the connection of the sinkholes to the groundwater saying that no further testing was needed. The pipe was covered, and the landowner was told that there would be no more runoff into the sinkhole. This appears to contradict the mitigation plan established by MVP recommended for minimizing the risk of impacting karst features as dye testing was now deemed unimportant for the other sinkholes.

Wil Orndorff contradicted his own statements that he made earlier in an email to the landowner in the fall stating that he was "hoping to do a couple of more traces this fall, among other things to verify that Salmon Spring is connected to sinkholes along the MVP corridor about ½ mile north of where the leak in the trench released water to the underground stream feeding Bottom Spring." It would seem that a Virginia State employee would insist that the protocols from the mitigation plan would be followed to determine if sinkholes impacted by the pipeline were linked to the drinking water supply.

May 31, 2018 was the date of the first meeting with the landowners, DEQ, MVP, and Draper Aden on the Parsons & Sink property as the landowner at that point was worried that Salmon Spring, the household water supply, was now in danger. Draper Aden took samples from Bottom Spring, Salmon Spring overflow pipe and at the house site. The landowner had also contracted with Downstream Strategies, a reputable water testing company from West Virginia to do a baseline test of Salmon Spring household water since independent testing is of paramount importance to collect data that are unbiased by any entity with commercial interests in the results.

Draper Aden tested those same sites 5 more times, but never gave the test results to the landowner until months later in August. Testing subsequent to the first water test was not optimally timed by Draper Aden, as it was days after a rainfall and sedimentation event before testing occurred and the water was mostly clear by then. Also those tests were mainly for turbidity with more comprehensive testing only done July 31, 2018.

On July 31, 2018, Joshua Gladhill, EQT contract land agent, asked for permission for Draper Aden to walk the bank of the North Fork of the Roanoke River. At that time, since no water test results had been received by the landowner, the value of further testing by Draper Aden seemed to be negligible as up to that point they had just been testing for turbidity, so permission for further access to the property was denied.

Finally in August, the water test results were released by Draper Aden to the landowner with the explanation that MVP Corporate headquarters had been hanging on to the data so Draper Aden claimed that they did not have the authority from MVP to release the information sooner.

In late September, after a total of 6 water tests by Draper Aden on behalf of MVP, the contamination was continuing. Delegate Chris Hurst was asked to help out as he represented Mrs. Francis Parsons. His office made numerous attempts to get information from DEQ and after months of trying was able to facilitate a meeting scheduled for December of 2018.

FERC compliance monitors were particularly inept in dealing with karst. Three different monitors visited the property, 3 different times with no understanding of how water could go into a sinkhole in the pipeline trench and come out 500 feet lower and a third of a mile away.

The landowner is continuing to reach out to DEQ, FERC, and legislators for help with the on-going sediment contamination of the springs. To date, the landowner has emailed pictures and details more than 20 times, since construction began on the pipeline.

On December 5, 2018, a meeting was convened with the landowner at the local library for a discussion of the water supply sedimentation issues with Draper Aden, DEQ, DCR, and MVP. It was particularly unproductive as the meeting emphasis seemed to be that the sediment would disappear now that the pipe was in the ground and the trench was covered up with a “filtration system” in place. This begs the larger question of the potential carcinogens chalking from the pipeline coating directly into the water supply of thousands. This problem was dismissed as so miniscule in nature as to be not worth the time and effort to test for it.

In this meeting, the landowner distress with continual sedimentation from the pipeline was rejected as unimportant, and temporary. This statement was not particularly heartening since Wil Orndorff had also previously stated before pipeline construction, that constructing over Johnson’s Ridge would not present any problems for the springs on the Parsons/Sink property since the overburden was hundreds of feet thick and the pipe trench would only be 10 feet deep.

Wil suggested that the landowner should just drill a well to solve sedimentation problems, apparently forgetting that in karst, drilling a well is no guarantee that surface water will not find a pathway into the well.

This December 2018 meeting ended with the landowner cooperation to allow Draper Aden more water testing with negotiated conditions. The negotiated tentative agreement was put forth to Draper Aden on Friday, February 15, 2019, when the landowner mailed a copy of the acceptance of the tentative

agreement to Draper Aden with an email requesting that if the proposal for the finalized conditions had not been delivered by Wednesday, February 20, 2019, to call the landowner and another copy would be sent. Draper Aden stalled until Monday, February 25 to notify the landowner that the tentative agreement was not yet received. The landowner then again resent the proposal of terms by email February 25, 2019 and Draper Aden responded that they had received it on February 26, 2018.

Tentative Terms of the agreement are in general the following:

1. Parameters to test
2. Notification of landowner of entry onto property
3. Raw Results sent within 24 hours to landowner from Draper Aden
4. Testing will continue for 6 months at which time a reevaluation will be made
5. Testing will be performed within 24 hours of a ¼ inch rain