



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
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Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

June 15, 2017

(804) 698-4000
1-800-592-5482

Mr. John Centofanti
Corporate Director
EQT Corporation
625 Liberty Avenue, Suite 1700
Pittsburgh, Pennsylvania 15222

RE: Mountain Valley Pipeline - Review of June 1, 2017 Submittal in Response to Request for Information

Dear Mr. Centofanti:

Attached please find the Department of Environmental Quality's comments regarding your responses to our May 19, 2017 Request for Information.

If you have any questions, please contact me at: 804-698-4038 or melanie.davenport@deq.virginia.gov.

Sincerely,

A handwritten signature in blue ink that reads "Melanie D. Davenport".

Melanie D. Davenport
Director, Water Permitting Division

Mountain Valley Pipeline

DEQ Review Comments - Request for Additional Information

In accordance with Guidance Memo No. GM17-2003, Interstate Natural Gas Infrastructure Projects – Procedures for Evaluating and Developing Additional Conditions for Section 401 Water Quality Certification Pursuant to 33 USC Section 1341, on May 19, 2017 the Department of Environmental Quality (DEQ) requested information from Mountain Valley Pipeline (MVP) in order to evaluate whether additional 401 water quality conditions are necessary to ensure the protection of water quality. On June 1, 2017 MVP submitted its response document. In addition to reviewing the MVP document (including appendices), DEQ also considered other available project information specifically the Federal Energy Regulatory Commission’s (FERC) draft Environmental Impact Statement (EIS) and the Commonwealth of Virginia’s comments on the draft EIS (dated April 6, 2017), submittals and regulatory requirements associated with the development of Annual Standards and Specifications and stormwater and erosion and sediment control plans as they relate to appropriate site specific best management practices and the US Army Corps of Engineers Nationwide Permit 12. Finally, on June 7-8, 2017 DEQ convened a two day meeting in Lexington, Virginia to discuss the MVP document. Attachment A to this document contains the agenda, attendee list and notes from this meeting.

Please provide responses and revised documents as appropriate to the following comments:

Project-related Upland Ground-disturbing Activities within 50 feet of Surface Waters

No additional information needed.

Identification of Perennial Surface Waters

No additional information needed.

Permanent Right-of-Way Maintenance Measures

1. Include a description of any ROW maintenance and inspection measures to be used in areas of slopes greater than 30 percent or include more detail in Section 6.0 of the Landslide Mitigation Plan.

Plan to Protect Water Quality from Acid Forming Materials (AFM)

No additional information needed.

Hydrostatic Testing and Dust Control Protection Measures

1. Explain if the water for dust control will be purchased from municipal sources, as with hydrostatic testing, or if other surface water sources will be used. The Fugitive Dust Plan states only that “water will not be withdrawn from streams for dust control”. Explain if water will be directly withdrawn from any other surface water sources, such as lakes, ponds or quarries etc., to be used for dust control or other activities. Surface water withdrawals for all purposes,

including dust control and HDD, of less than 10,000 gallons per day from non-tidal waters and less than 2 million gallons from tidal waters per day are excluded from VWP Permit requirements (9VAC25-210-310.A.11).

2. If daily withdrawals from dust control or HDD exceed 10,000 gallons per day from non-tidal waters and 2 million gallons from tidal waters per day, a VWP Permit in accordance with 9VAC25-210 et. seq. is required.
3. Provide a drawing showing the proposed location of discharge areas for hydrostatic testing water.

Riparian Buffer Protection

1. MVP should state that removal of riparian buffers not directly associated with the project construction activities is prohibited. Disturbance and removal of riparian buffers from project-related upland ground disturbing activities that would occur within 50 feet of any perennial, intermittent, or ephemeral surface waters should be avoided where possible, and minimized if 50 feet is not possible. Removal of riparian buffers shall not be allowed where stream bank stability under normal flow conditions would be compromised.

Spill Prevention Control and Countermeasure (SPCC) Plan

1. SPCC Plan should include information as referenced in Attachment B (Kimballton-Klotz Karst) page 10.

Specific engineering and best management practices to be used in areas of steep slopes and slide prone areas.

1. The plan should include notification to DEQ prior to initiating construction activity in areas with greater than 30 percent slopes. The notice should include at a minimum, the anticipated start date, location and duration of activity.
2. Include procedures and notifications to be implemented in the event a slide results in an impact to state waters.

Blasting Plan

No additional information needed.

Water Quality Monitoring Plan

1. There appears to be upland construction activity near MP 204.3 at Little Stony Creek, which is designated as a Class VI "Good" Wild Trout stream. Please confirm potential impacts.
2. There appears to be upland construction activity near MP 222 at Mill Creek and MP 241/242 at Upper Bottom Creek, both designated as Class VI "Good" Wild Trout streams. Please confirm potential impacts.
3. If confirmed that upland construction will occur within 50 feet of these Class VI streams (identified above), the agency requests that the MVP monitoring plan include at least one monitoring station to evaluate impacts to Class VI trout waters.

4. The station(s) cited to evaluate impacts to wild trout streams should include a method to check wild trout populations before, during and after construction.
5. 6 of 9 sites included in Table 2 include threatened or endangered species. The monitoring plan should include a method to check threatened or endangered species populations before, during and after construction.
6. Lat/long coordinates of the above, adjacent and below sites along each selected reach should be provided as soon as possible. Sub-meter accuracy, as indicated in the monitoring plan, is not immediately necessary but an estimate of the distances from monitoring sites to activity areas would be beneficial.
7. The proposed monitoring frequency for chemical parameters is far less than normally relied on to make water quality determinations. One reading for DO, pH, conductivity, and turbidity done before, during, and after construction is insufficient to determine if there is an actual water quality impairment. To make such determinations, the agency prefers continuous monitoring of these parameters for a duration of one month to occur before, during, and after construction. However, DEQ requests that, at a minimum, three grab samples be collected at each site before, during, and after construction (total of nine samples per site). The grab samples should be collected at least one week apart.
8. There is no detail on how far apart benthic monitoring will occur during the project. For benthic parameters, changes to the community will happen over time. DEQ recommends that benthic sampling be conducted one month before, immediately after, and at least a month after actual construction.
9. The document specifies that duplicate chemical/physical sampling via two staff collecting samples at the same time and location will occur. Does this mean every sample will be collected in this manner? If not, please specify the frequency of duplicate sampling.
10. DEQ requests that the agency be notified to enable observation of at least one benthic sampling event to document performance of the sampling teams. In addition, DEQ requests that the contracted laboratory provide two randomly selected benthic samples, as selected by DEQ, including all identified organisms and material from which they were sorted, in order to verify identification accuracy and sorting efficiency. This is a routine procedure when the agency evaluates submitted data.
11. DEQ staff can provide guidance on adherence to Standard Operating Procedures for all aspects of the proposed monitoring, as requested by the contractors.
12. DEQ requests that all raw data be provided in electronic form.

Karst Mitigation Plan

1. All field surveys for identification of karst features and associated documentation shall be completed and submitted to DEQ at least 14 days prior to initiation of land disturbance activities in those areas.
2. The plan should include notification to DEQ prior to initiating construction activity in areas with karst terrain. The notice should include at a minimum, the anticipated start date, location and duration of activity.

3. Provide clarification regarding field investigation procedures occurring between tree clearing and initiation of construction activity.
4. To further evaluate flow paths for significant karst features in the vicinity of the project, MVP shall develop a Karst Dye Tracing Plan to be submitted and approved prior to initiation of land disturbance activities in karst terrain. See Attachment B.

Description of Onsite Environmental Monitoring and Inspection Measures to be Implemented During Construction.

No additional information needed.

Attachment A

AGENDA

Department of Environmental Quality 401 Conference – June 7th and 8th, 2017 to be held at Virginia Military Institute in Lexington VA - Marshall Hall

Shenandoah Room – attire business casual

Wednesday June 7th

DEQ , ACP and MVP

9:00am to 5:00pm

- On-site environmental monitoring and inspection measures
- SPCC Plan
- Riparian Buffers
- Hydrostatic testing and dust control
- Acid forming materials
- Right-of-way maintenance measures
- Water quality monitoring plan

Thursday June 8th

DEQ, DCR, DMME, WVA Department of Environmental Protection and staff from ACP and MVP

9:00am to 5:00pm

- Engineering and bmps in areas of steep slopes
- Blasting plan
- Karst plan
- Wrap-up next steps

Below is a link to the VMI Post map showing Marshall Hall and Marshall Parking:

http://www.vmi.edu/media/content-assets/documents/VMI_Post_Map_small.pdf

Attendee List

June 7, 2017			
Name	Organization	Phone	Email
Bob Bisha	Dominion	804-273-3010	robert.bisha@dominionenergy.com
Brenda Winn	DEQ	804-698-4516	brenda.winn@deq.virginia.gov

Brian Clauto	EQT	412-295-4184	bclauto@eqt.com
Colin Olness	ACP	304-203-9011	colin.p.olness@dom.com
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James Golden	DEQ	804-698-4220	james.golden@deq.virginia.gov
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Justin Curtis	Aqualaw	804-716-9021	justin@aqualaw.com
Matt Hoover	EQT	412-258-5627	mhoover@eqt.com
Melanie Davenport	DEQ	804-698-4038	melanie.davenport@deq.virginia.gov
Michael Rolband	Wetland Studies and Solutions	703-679-5602	mrolband@wetlands.com
Rick Linker	Dominion	804-819-2863	rick.linker@dominionenergy.com
Rick Weeks	Dominion Energy-ACP	804-771-3623	richard.f.weeks@dom.com
Robbie Clark	Wetland Studies and Solutions	703-679-5632	rclark@wetlands.com
Sandra Mueller	DEQ	804-698-4324	sandra.mueller@deq.virginia.gov
Spencer Trichell	ACP	804-263-8950	spencer.trichell@dom.com
Steve Hardwick	DEQ	804-698-	steven.hardwick@deq.virginia.gov
Tony Cario	DEQ	804-698-4089	anthony.cario@deq.virginia.gov

June 8, 2017			
Name	Organization	Phone	Email
Bill Balfour	DAA-MVP	304-667-7099	bal4karst@hotmail.com
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Ted Lewis	GeoConcepts Engineering	703-726-8030	tlewis@geoconcepts.eng.com
Wil Orndorff	VDCR	540-230-5960	wil.orndorff@dcr.virginia.gov

Meeting Notes

June 7th, Start - 9:00

Hydrostatic testing and dust control:

- Water source(s) need to be identified for hydrostatic testing activities and dust control.
- Water discharge from hydrostatic testing will occur in uplands for both projects. Water quality testing of discharge water will be required.

Water quality monitoring plan:

- Wild trout water locations need to be specifically identified.
- Verify that Class VI waters were evaluated. DEQ will provide a Class VI GIS layer.
- Applicants need to continue working with consulting agencies regarding T&E.
- Monitoring plan should include: lat/long coordinates of the sample locations; DO, pH, conductivity, and turbidity (minimum of 3 times before, during, and after construction at one week intervals; benthic parameter sampling before and after construction.
- All raw data provided in electronic form.

Acid forming materials:

- How much topsoil is needed to provide an adequate cap?
- Provide any pre-construction surveying and sampling that is planned.
- Need contingency plan if AFM encountered unexpectedly.

Specific engineering and BMPs to be used in areas of steep slopes and slide prone areas:

- Is there an industry standard for construction in steep slopes/slide prone areas? If so, provide it. What is mileage and location of steep slopes?
- Notify DEQ prior to work in previously identified steep slope/slide prone areas.
- Need a contingency plan and notification to DEQ if unexpectedly encountered.
- Notify DEQ when working in Giles Seismic Zone.
- Blasting Plan should detail measures used to protect water quality when blasting.

Riparian Buffers:

- DEQ still evaluating buffer requirements between limits of disturbance and stream.

Permanent R/W maintenance measures to minimize erosion or other water quality impacts:

- Verified FERC requirement to maintain corridor in riparian areas and clear once every 3 years. FERC buffer width is mean high water mark to 25 feet wide. FERC doesn't allow corridor mowing.
- Signage needed to protect riparian areas that should not be mowed/maintained.
- Need consistent descriptions of R/W widths.
- Follow FERC-required set-backs in wetland/stream areas.

June 8th, Start - 9:00am

- WVDEP desires to work with Virginia as much as possible on the states' authorizations.
- Meeting goals are
 - ensuring companies have not overlooked karst features,
 - what verification processes are needed if any,
 - ensuring best management practices and monitoring plans are adequate,
 - ensuring mitigation measures are identified,
 - determining what potential conditions may apply to VA certification
- DCR - Overall, karst features along the alignments have been documented and the data is good.
- Karst information is being shared among agencies and among the pipeline companies.
- Some spots may include sensitive receptors and more data may be required.
- Goal is to look at areas where data gaps exist to find where potential discharges may go if spill control measures fail.

Water flow in karst

- Trench depth is in epi-karst zone that does not typically include spring/well flows that would be used for drinking/human use supply.
- Trench depth (10') is too shallow to affect subsurface water supply flows in karst.
- Blasting is limited such that rock is fractured at a depth no more than 10-12 feet, just enough to allow mechanical equipment to remove material.
- Any localized disruption to shallow spring systems will most likely come from sediment, and can be identified and mitigated.
- Porous bedding in trench allows perpendicular underground water flow to pass through.
- Trench breakers prevent inadvertent water flow along the pipe trench – includes a drain outlet to release water in a controlled manner.

Dye Trace Studies

- Dye trace studies needed in certain places such as limestone dominant area - dye trace to determine where sinking streams exit and interaction of springs/karst/sink holes.
- Objective of dye study is to better understand where inadvertent release may end up in order to mitigate efficiently.
- Dye tracer tests would be helpful for public water supply system identification.

- Where short flow times in karst occurs, important to have contingency plans ready to implement.
- Include schedule in dye trace plan for review and approval time – summer may be OK while winter provides more water and faster results.
- Include mechanisms to communicate releases if they occur.
- Potential VA condition: submit dye tracing/study plan prior to land disturbing activities in areas identified with sensitive features - as suggested by VDCR and VDEQ - in order to inform remediation efforts. Implement testing when property access is available.

Karst Plan Comments

- Leaks from equipment are a potential but are readily controlled and prevented –such measures are already in the plans.
- MVP karst mitigation plan incorporated and adjustments made to avoid sensitive karst features.
- No caves on MVP alignment.
- All MVP VA parcels have been viewed in the field.
- MVP karst inspectors will be used during tree clearing and through construction.
- MVP has contacted public water suppliers for coordination of water supply for project needs and prevention of issues to supplies.
- ACPs plan describes dye study methodology such as remote sensing, desktop analysis, etc.
- ACP made route adjustments within FERC-approved corridor due to cave presence and conservation areas.
- ACP is working to adjust the route to avoid known areas with a high concentrations of karst features, based on data review.
- Recommend moving construction laydown/contractor yard areas away from spring areas.

Peter's Mountain:

- There is no aquifer on/in Peter's Mountain – there is surface drainage down the mountain that becomes subsurface flow at the sandstone/karst interface and flow through a boulder pathway (not technically springs, rather discharge of surface flow that is under such rock cover).

Attachment B

Areas of significant karst development potentially impacted by the MVP Pipeline

Recommendations for dye trace investigations

June 14, 2017 Revision

Wil Orndorff

Karst Protection Coordinator

Division of Natural Heritage

Virginia Department of Conservation and Recreation

Once a route has been selected and approved by FERC for the Mountain Valley Pipeline project, DCR recommends performance of dye trace studies to determine hydrological connections and relationships associated with sensitive karst features at risk from construction and operation of the pipeline. These include any such features in the construction right-of-way and all other disturbed areas, including access roads and staging areas, as identified during the karst survey performed by the project's consultants, Draper Aden and Associates. Such studies will greatly aid in spill response and recovery in the unlikely event of a discharge of sediment or chemical contaminants to a sensitive karst feature.

Below is a description of dye tracing needs, if any, by specific karst segments of the current proposed pipeline corridor.

Kimballton-Klotz Karst (200.7 – 202.3) – Existing data sufficient

Any release to karst features in this area will either resurge at Klotz Spring or be captured by the Kimballton Mine. These features should be specified in the Spill Prevention Control and Countermeasures Plan.

*Kow Camp Karst (204.6 – 205.5) – Dye trace needed

In this area, the corridor passes north (upstream) of some caves and sinkholes (see Figure 1.) One cave, 8 Second Cave, lies within a drainageway and receives direct runoff from the corridor. Note that the potential for discharge is low, especially since the lies at or near the drainage divide northwest of the cave. 8 Second pit likely goes deep quickly, with the water resurging at either the Rise of Doe Creek or Klotz Spring. In addition, the access road joining the corridor at ~ MP 204.6 runs up a steep drainage crossing the middle Ordovician limestones. This drainageway should be reviewed carefully for stream sinkpoints. If there are stream sinkpoints they should be traced. Accidents resulting in discharges of sediment or contaminants are at least as likely along access roads as in the corridor itself.

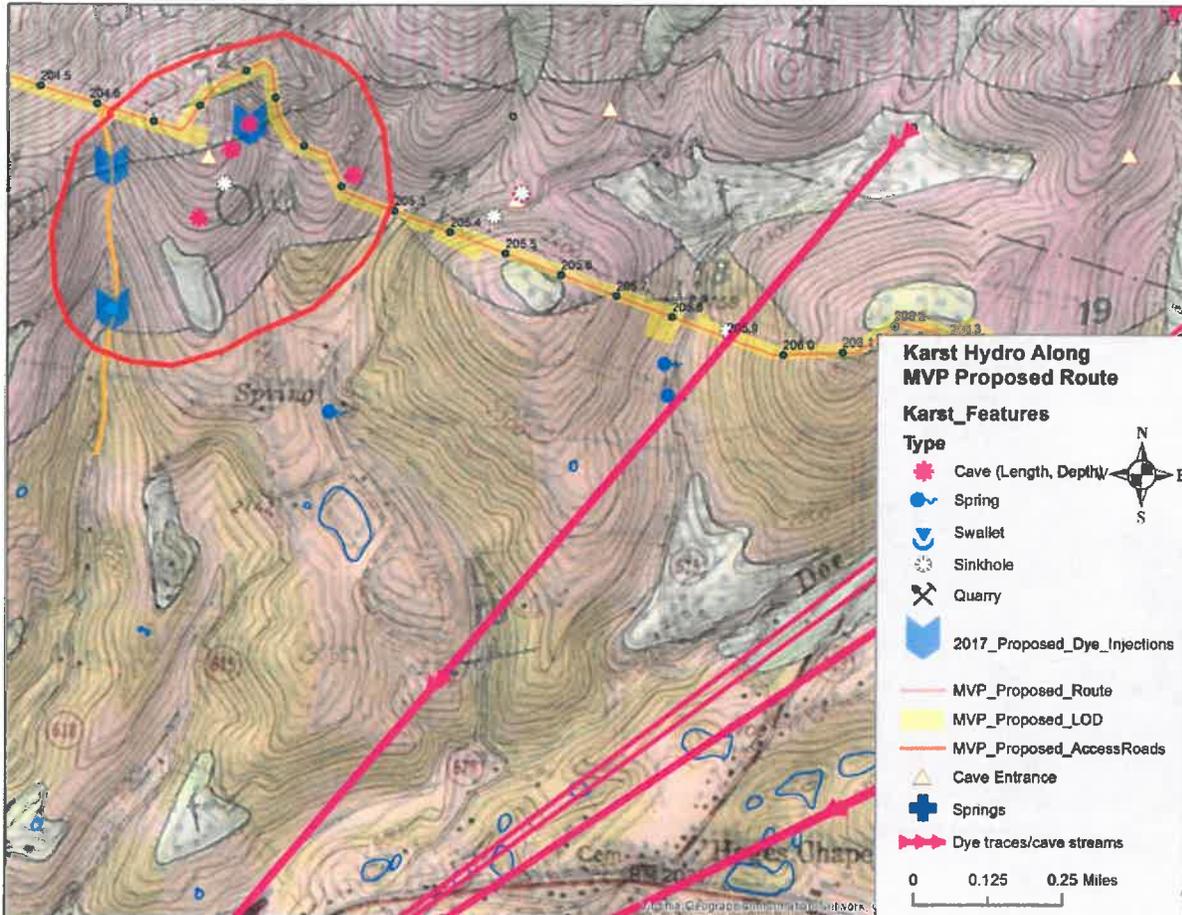


Figure 1. Kow Camp Karst

Doe Creek Spring Basin (205.5 – 208.2) – Existing data sufficient

There are very few sensitive features mapped in this area. Extensive dye tracing has been performed showing that discharges to karst return to the surface at a major spring near Eggleston (the Rise of Doe Creek.)

*Sinking Creek-Doe Creek Transition (208.2 – 211) – Dye trace may be needed

This area is underdrained by documented flow paths to the rise of Sinking Creek and/or Doe Creek. However, karst features on surface may also discharge to Sinking Creek upstream of its sinkpoint. Two sensitive areas, mp 208.9-209.3 and 209.75 – 210.05, cross steep channels cut into limestone and dolomite that are likely to have sink points (see Figure 2.) It should be determined whether any sinkpoints exist along these drainageways downslope of the corridor. If they do, these should be dye traced to determine whether they resurge at the New River, or at springs along Sinking Creek upstream of its sinkpoint.

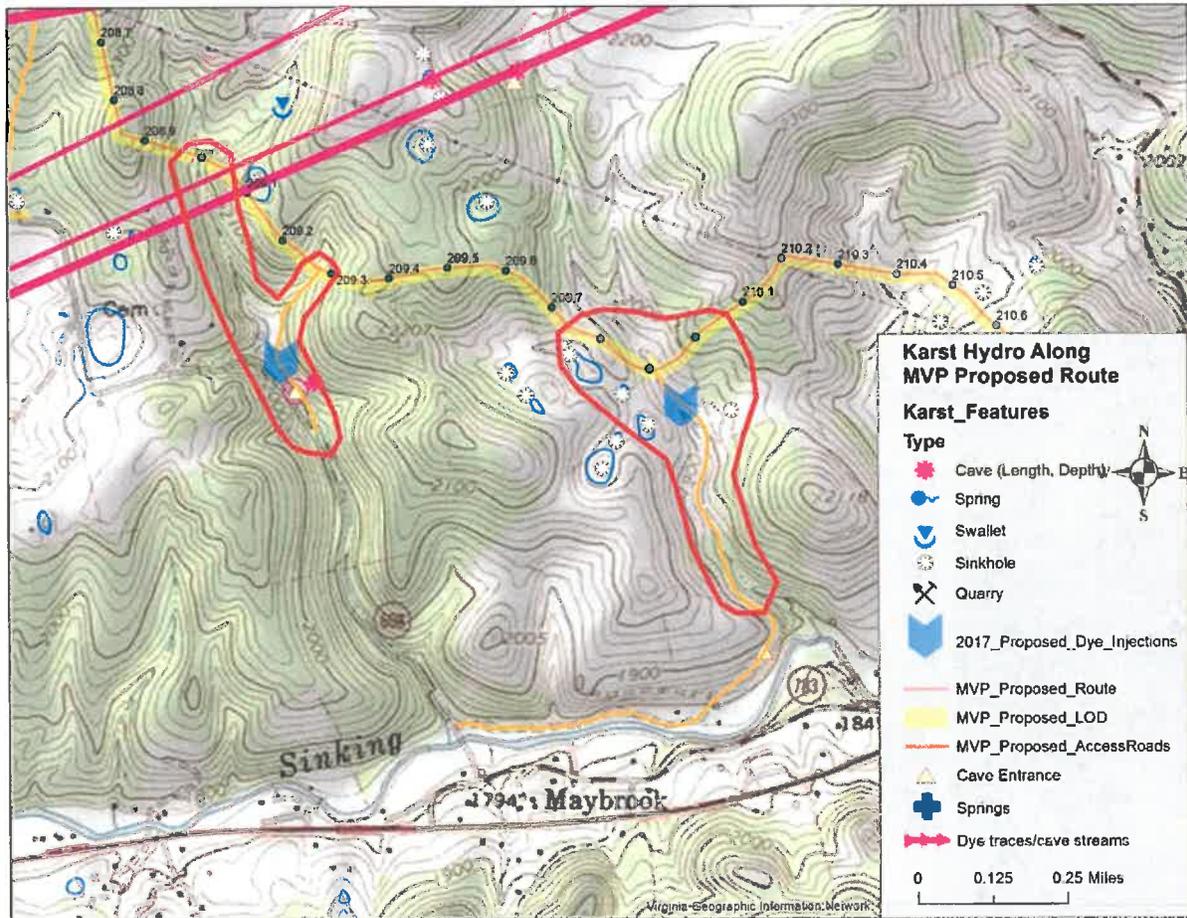


Figure 2. Sinking Creek - Doe Creek Transition

Sinking Creek Valley (211 – 213.7) – Existing data sufficient

Any release to karst features in this area will likely discharge rapidly to Sinking Creek. Furthermore, Draper Aden Associates reports no moderate or low impact features along this stretch of the corridor.

*Sinking Creek Mountain (213.7 – 218.5) – Dye tracing recommended

Multiple sinkholes, sinking streams, springs and a significant cave all lie along this stretch. “Moderate potential for impact” swallet and cave entrance identified at eastern end of section at base of Sinking Creek Mountain, and a “moderate potential for impact” to a spring is indicated at MP 214.26. Tracing should be performed to determine resurgence and recharge for these features, and spring basin divides along the flank of the mountain, including Canoe Cave spring. See Figure 3. Sufficient data to delineate would require 2-3 rounds of tracing, injecting dye into 4-6 features total.

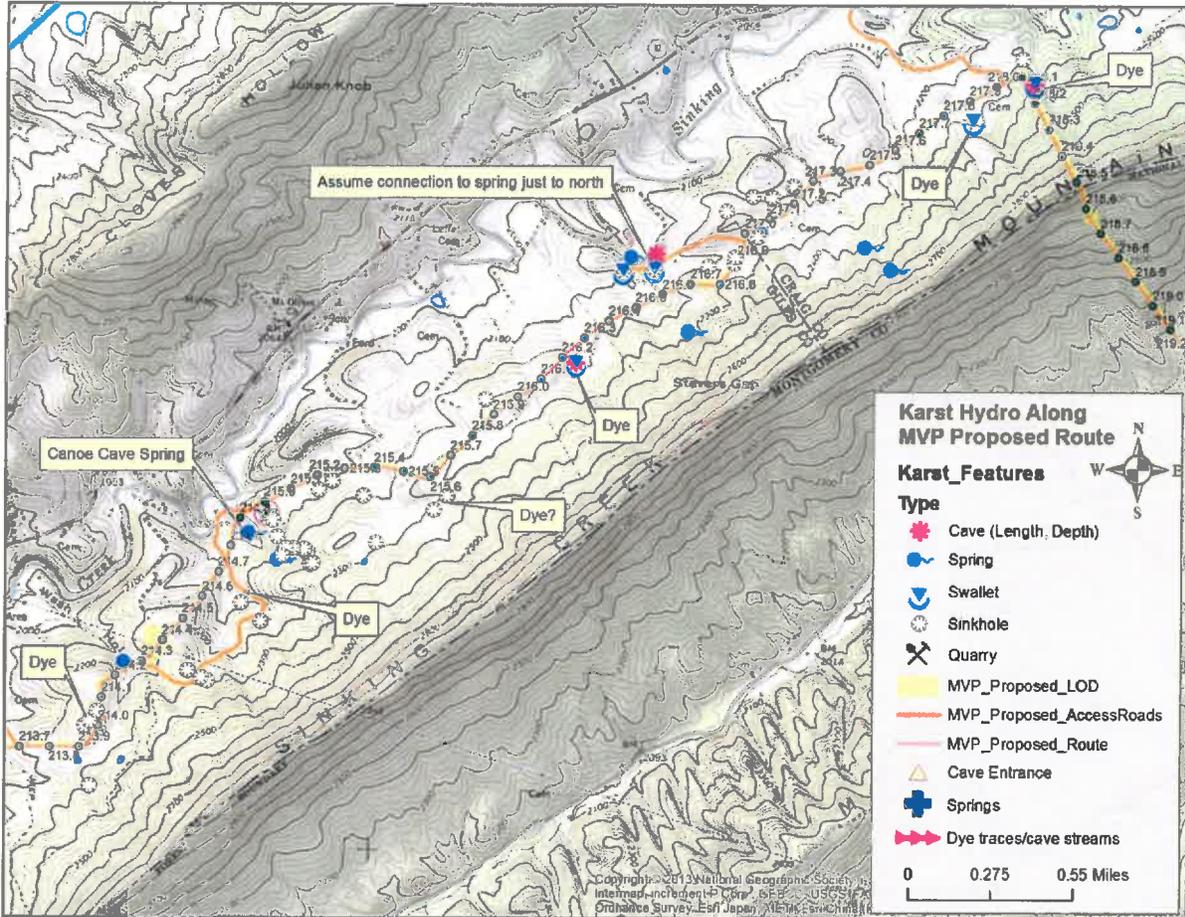


Figure 3. Karst along north slope of Sinking Creek Mountain, MVP

Slussers Chapel Karst (221.4 through 223.6) – Existing data is sufficient

All karst features in this area drain to Mill Creek Spring via Slussers Chapel Cave.

*Mill Creek Divides Karst (223.6 through 225.5) – Additional dye tracing recommended

Specific resurgences are not defined for karst features in this area. Features in the northern end may drain to Slussers Chapel Cave and Mill Creek Spring, or to small springs along the Mill Creek Valley. Eastern extent probably goes to Old Mill Cave and spring, either directly or via resurgence on Dry Run. There are only 2 documented sensitive karst features in this area. The feature at mp 224 considered moderate potential. DCR recommends dye tracing of this feature, and the second feature as well if determined practicable.

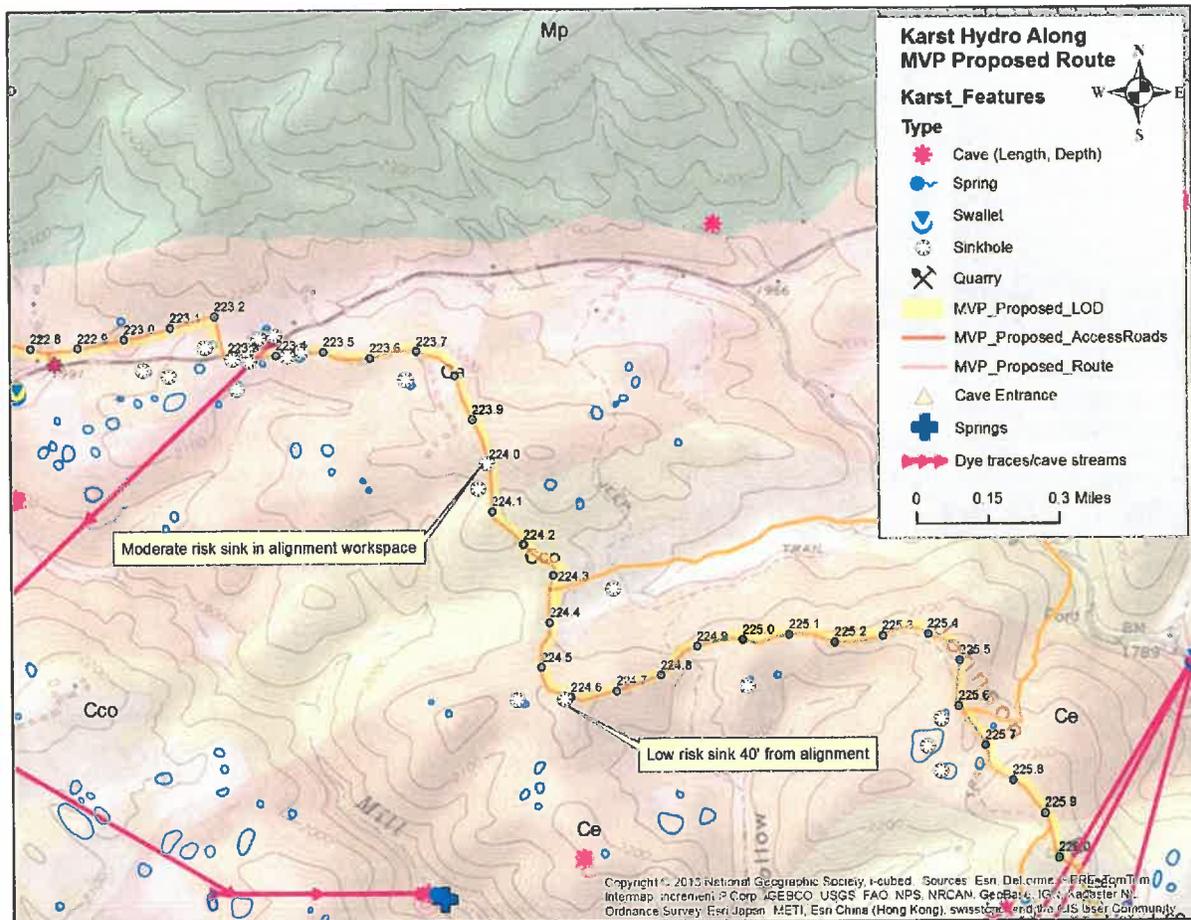


Figure 4. Mill Creek Divides Karst

Orr Pits and Johnson Ridge Karst (225.5 – 227) – Existing knowledge sufficient

Any discharge into sensitive features along this stretch of the corridor would resurge at either Old Mill Cave (aka Salmon) Spring or a spring on the Slusser and Grice Farm property (see Figure 5.)

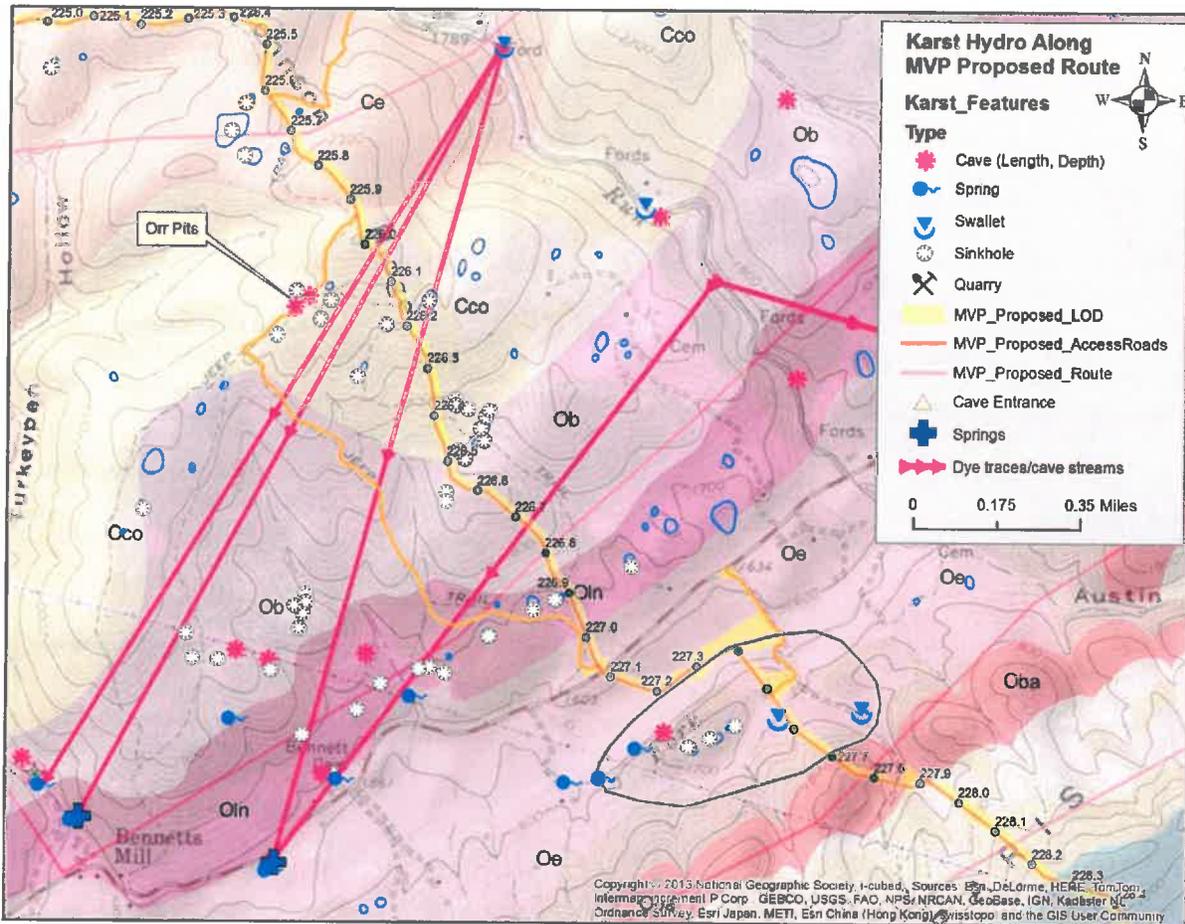


Figure 5. Johnson Ridge Karst

***Johnsons Cave Karst, Montgomery County (227.23 – 227.70) – Dye tracing recommended**

These features most likely all connect to Johnsons Spring and Cave system. DCR karst recommends dye tracing losing stream at 227.57 to verify this connection. If dye tracing not performed, the Spill Prevention Control and Countermeasures Plan needs to specify both 1) Johnson Spring and 2) the confluence of the North Fork of the Roanoke River with intermittent channels draining the northwestern slopes of Paris Mountain as spill recovery locations.

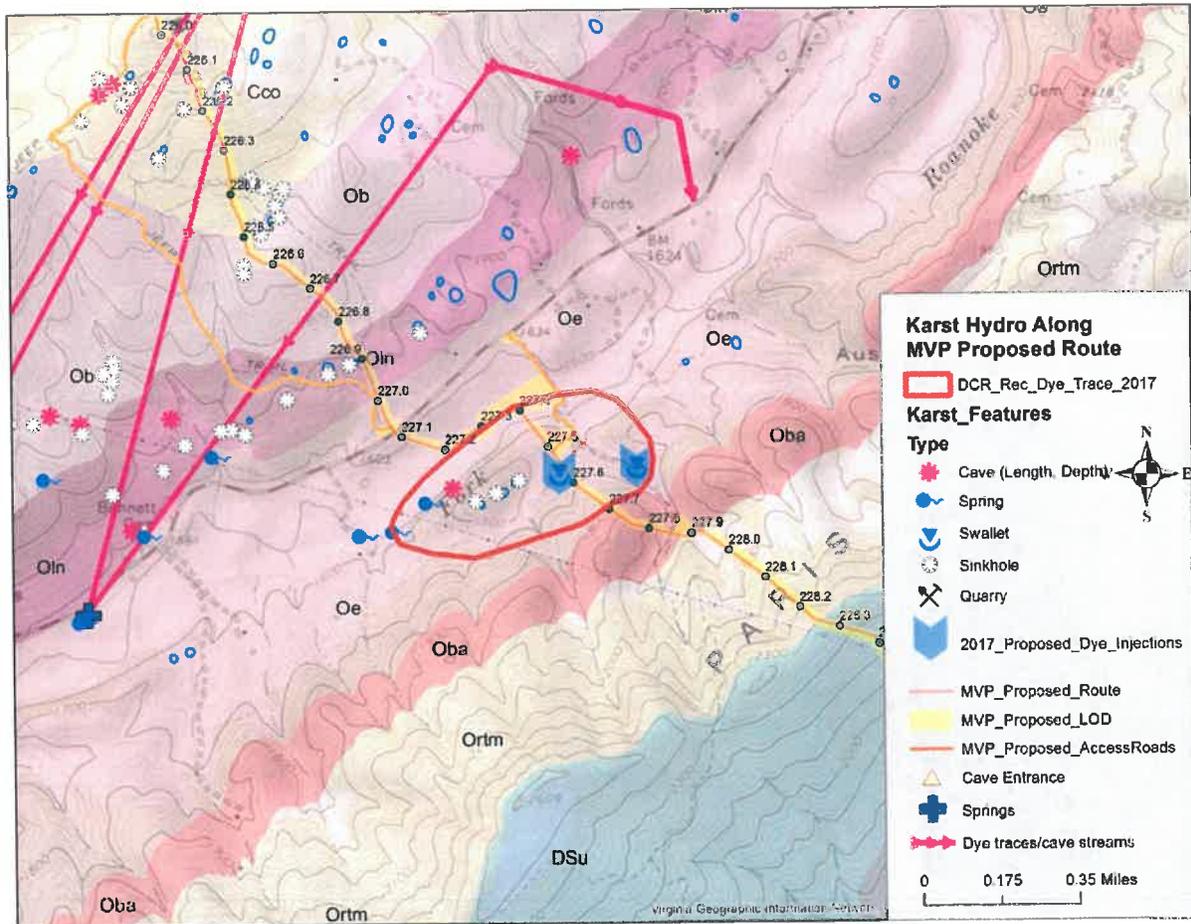


Figure 6. Johnsons Cave Karst

Lafayette Karst, Montgomery County (234.21 – 238.67) – no dye tracing needed

Multiple small features developed in Elbrook Formation (incl. Max Meadows Breccia.) The observed closed depressions are small and questionable in origin (Per MF, DAA communication, 6/5/2017.) They may not actually be karst features.

Procedures outlined in Karst Mitigation Plan should be sufficiently protective even in unlikely event of a release.