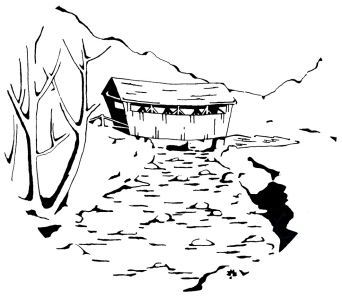

Indian Creek Watershed Association
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January 21, 2016

Mike Hatten
Regulatory Permits - Energy Resources
Department of the Army
Huntington District, Corps of Engineers
502 Eighth St
Huntington, WV 25701-2070

Scott Mandirola, Director
Division of Water and Waste Management
WV Department of Environmental Protection
601 57th St SE
Charleston, WV 25304

RE: 401 Certificates and 404 Permits for Mountain Valley Pipeline Application
Federal Energy Regulatory Commission (FERC), Docket #16-10-000

Indian Creek Watershed Association (ICWA) is a non-profit community-based organization in Monroe County, West Virginia. ICWA volunteer members have serious concerns about deficiencies that we have discovered in the Resource Reports submitted by Mountain Valley Pipeline (MVP) in its application to the Federal Energy Regulatory Commission (FERC), Docket #16-10-000. We are raising these issues to the West Virginia Department of Environmental Protection (WVDEP) and the US Army Corps of Engineers (USACE) as they relate to the issuance of 401 certificates and 404 permits under the Clean Water Act.

MVP is seeking a permit to construct a 301-mile, 42" natural gas interstate transmission pipeline that would entail clear-cutting a 125-foot construction easement and digging (or blasting) a roughly 10-foot deep continuous trench across 22 miles of Monroe County's ridges, forests, farmlands and streams, culminating with the crossing of Peters Mountain on the West Virginia/Virginia state line. The pipeline route will ascend Peters Mountain above the headwaters of the county's largest public water district, passing through a complex karst region close to a major spring that has historically supplied water to a fish hatchery and trout restaurant.

With 2016 marking ICWA's 20th year as an active watershed association, we have built up considerable knowledge about the water-related issues facing Monroe County and familiarity with specific areas within the Indian Creek Watershed that will be affected by the proposed pipeline. Over the years, ICWA has conducted stream monitoring on Indian Creek, and in 2014-2015, completed a baseline stream monitoring project on Hans Creek, a major tributary that will be affected by construction of the MVP. (This monitoring project was initiated in early 2014, before any knowledge of the proposed pipeline.) Another long-term project, independent of the pipeline and undertaken with guidance and support from West Virginia University's Geology Department, is to map the springs on Peters Mountain, drawing together both historic data and new field research in an effort to gain a more complete understanding of the interconnectedness of the aquifers along this vital water resource for the county. In 2015, ICWA worked with other community organizations to develop and share a "landowner impact report form" to provide landowners with a means by which to report significant features of their property (including water, land use, etc.) that could be affected by construction such as the MVP.

ICWA members are volunteers, however, not professionals. While we are fortunate to have among our members geologists, county sanitarians and others familiar with water and watershed issues, and to have access to site-based information from landowners along the route, we are mainly "eyes and ears" and information gatherers when it comes to a project of the scale of MVP.

The West Virginia Department of Environmental Protection (WVDEP) and the US Army Corps of Engineers (USACE) are charged with the responsibility of issuing certification and permits for construction of the MVP in West Virginia. Thank you for the level of attention reflected in comments and instructions that you have provided to the FERC and MVP to date.

We feel compelled to bring additional concerns and deficiencies that we have found to your attention, so that you can include these in your considerations of the MVP proposal and their certification and permitting applications to your offices. Please note that these are our *preliminary findings* and we expect to be submitting more information as we gather more data from individual landowners on and near the route.

Based on the information contained in the MVP application and other submittals, ICWA respectfully requests that the WVDEP and USACE:

1. **Require MVP to fund an independent analysis of the interconnectedness of the aquifers along and near the proposed pipeline route before the WVDEP and USACE consider any 401 or 404 permits.**
2. **Require individual site-based 401 and 404 permits for each stream and wetland crossing, including the area of receiving streams and wetlands that would be impacted**

from runoff and sedimentation due to the construction of the pipeline trenches and access roads.

3. **Require individual site-based stormwater permits and WVDEP monitoring of all pipeline sites during construction.**

In support of this request, we submit the following:

A. GEOLOGY IN MONROE COUNTY AND THE MOUNTAINS OF WEST VIRGINIA

1. **The geology of the proposed pipeline route through Monroe County differs significantly from that of most of the other counties in West Virginia.** The significant presence of karst limestone and perhaps other fractured geological formations make the ground and surface waters especially susceptible to pollution. The existence of karst underlayment, and the hazards it poses to certain forms of development, is described in the Monroe County Comprehensive Plan: *A significant portion of Monroe County is underlain by geology and landforms generally defined as "karst," typified by limestone outcrops, caves, sinkholes and springs. Because these features often provide direct conduits from the surface to groundwater, runoff contaminants dramatically increase the risk of widespread health and environmental impacts* (Monroe County, West Virginia Comprehensive Plan. 27 July 2009, p. 15).

2. **Within Monroe County, the pipeline would cross individual streams which vary significantly in their geological features (e.g., karst terrain and/or steep slopes on mountain) and would require markedly different approaches to mitigation and avoidance.** A single statewide or nationwide permit would not adequately address the varying geology and different requirements for mitigation and avoidance necessary under the requirements of the Clean Water Act.

3. **There is insufficient (if any) industry experience constructing a 42" pipeline over mountainous terrain such as that proposed to be crossed in West Virginia; therefore environmental oversight must be at its most stringent.** Mountain Valley Pipeline, LLC and EQT have no experience building a pipeline of this size. When asked at an open house about overall industry experience constructing a 42" pipeline in mountains, EQT representatives referred to the Rockies Express Pipeline (REX), which transports gas from the Rocky Mountains of Colorado to eastern Ohio. However, while it is generally referred to as a 42-inch line, the REX is actually comprised of three segments. The first (REX-Entrega), which transports gas from western Colorado and Wyoming to Weld County in northeast Colorado, is a 36-inch pipe. The 42-inch REX segment starts in Weld County, Colorado, situated in flat country on the western edge of the Great Plains, and continues east across the plains of the Midwest towards Ohio. Our research has not revealed an existing 42-inch pipeline that crosses comparable U.S. mountain regions.

4. **Pipeline construction that includes deforestation, trenching and compaction of steep ground on ridgetops and steep slopes has significant short- and long-term effects on runoff and sedimentation in the receiving streams.** Upon close inspection of MVP's topographic maps, one sees that the pipeline either crosses streams or wetlands, or it is running up steep slopes to meet the tops of ridges where it travels until it comes to the end of the ridge, runs down a steep slope, crosses or runs alongside a creek and then runs up another steep slope and repeats the process. Under these conditions, individual stormwater permits should be required to prevent damaging runoff and sedimentation on both sides of the ridge.

5. **The narrowness of many ridges, both ascending shoulders and along ridgetops, will require "leveling" similar to mountaintop removal to establish the proposed construction width of up to 125 feet.** Construction activities under these conditions – which will entail significant displacement of vegetation, soil and bedrock affecting both sides of the ridge – should be held to the same water quality standards as those expected of surface mining. Standard pipeline construction mitigation practices will be inadequate to contain the runoff and sedimentation and potential landslides. With most landowners along the pipeline route dependent on their own private springs and wells, the likelihood of temporary and/or permanent impairment of water supplies for families on and near the pipeline is extremely high. Individual stormwater permits should be required.

B. **DEFICIENCIES IN MVP's SUBMISSION TO THE FERC**

According to the FERC conference call summary, as of January 5, 2016 MVP had not submitted applications for 401 or 404 permits to either the WVDEP or USACE. However, ICWA would like to stress that the information submitted to the FERC by MVP to date is insufficient for the state and federal agencies to consider a permit.

MVP has failed to perform adequate field observation of stream crossings and other sensitive aquatic areas as required by 33CFR320. Through examination of the MVP application, USGS information, and stakeholder fieldwork in the past few months, landowners and ICWA volunteers have discovered several inaccuracies and omissions in MVP's reports of its fieldwork and desktop reporting. Data submitted by MVP is incomplete and must not be relied upon for creating best management plans for crossing individual streams. For example:

1. **MVP erred in not adequately studying the individual and cumulative consequences of stream crossings in Monroe County.** MVP submitted copies of USGS topological maps and tables of stream crossing and wetland information.[1] Based on MVP's information, a

[1] MVP Resource Report 2—Water Use and Quality, and Appendices 2-A Waterbody Crossing Tables and 2-B Wetland Crossing Tables.

preliminary count shows at least 19 stream-crossing sites and 7 wetland crossings, all of which aquatic conditions are subject to jurisdictional requirements of both 401 and 404 permits. In addition, there are multiple occurrences where the pipeline runs adjacent to perennial, intermittent or emergent streams and multiple additional temporary and permanent workspaces located within 50 feet of both streams and wetlands.

MVP is required to comply with the provisions of the Clean Water Act in crossing **all** streams and wetlands. The Clean Water Act confers jurisdiction over all blue line streams, regardless of size, to the USACE and WVDEP. Because the small streams in Monroe County are often headwater streams on the Great Eastern Divide, MVP must be held to the highest available standard for protecting these streams and waterbodies.

2. **MVP's filing is flawed by its failure to consider the effect of karst on stream crossings. MVP has ignored the implications on water contamination and water disappearing/re-routing due to the presence of karst terrain.** MVP failed to consider the fact that several of the streams in Monroe County originate on or flow through karst terrain and a 42" pipeline crossing those streams should have necessitated a full analysis of the underlying geology BEFORE even proposing such a route. In a further failure of responsibility, once MVP discovered insurmountable geological obstacles in their route, as reported by MVP's own consultant Draper Aden, it did not make necessary changes to avoid those obstacles. For example, the MVP consultant warned that Rich Creek Spring is large, serves a fish hatchery, and is the headwaters of Rich Creek which serves as a backup water supply for the RSPSD which supplies public water for southern Monroe County. "The presence of sinking streams and open throat sinkholes could provide direct conduit to the subsurface flow."[2]

   Also, in the Resource Reports submitted with its application, MVP omitted significant areas of Monroe County that have visible but unreported or underreported karst and other fractured geological formations. Some of these are described in ICWA's submission to the FERC—*Karst-related Features on the Proposed MVP Corridor in Monroe County, WV*[3]—a copy of which is included with this document (Attachment 1). MVP erred by ignoring the general problems of constructing in the karst features that could be found in Draper Aden's desktop review. It also failed to identify some significant karst features through required fieldwork on properties to which it was allowed full access.

3. **MVP's filing is deficient in provision of site-specific measures to mitigate impacts related to erosion, sediment control, bank stabilization, or bank revegetation.** All

[2] MVP Preliminary Screening Analysis, Karst, Water Supply and Geologic Hazards, Appendix 6-D, Table 1, January 23, 2015.
[3] Accession number 20151113-5109 on Docket CP16-10.

stream crossings are described as "open cut dry ditch" with no evidence that a comparison of different engineering alternatives with their effects on aquatic health has been performed.

MVP also fails to identify mitigation methods for crossing wetlands in Monroe County. In the maps of Wetlands and Waterbodies crossed by the MVP Project, seven wetlands that were identified by MVP surveyors are crossed by the proposed pipeline. Several of these are in locations where access roads and ancillary temporary workspaces (ATWS) are also involved. The MVP maps are inadequate for allowing careful analysis of the potential streams and waterbodies affected. This includes, for example, all water, alignment and access road maps in the area of the Hans Creek Narrows (approx. MP 186.7), which has been identified by property owners and neighbors as a section of particular environmental concern.

C. SITE-BASED INFORMATION PROVIDED BY ICWA AND LOCAL MONROE COUNTY GROUPS

1. The contrast between MVP desktop and field survey results and that of ICWA working with individual landowners supports the need for individual stream 401 and 404 permits. The Clean Water Act requires field observations and field data by certified professionals. A proper review and analysis should include input from the landowners and people with intimate knowledge of the precise location of stream features and the effects of runoff on streams over several seasons.

2. By collaborating with community organizations, ICWA has been able to gain access to specific data included in the landowner reports.[4] These data, which include descriptions and maps of properties on the proposed corridor show in detail some of the karst and waterbodies that would be affected by the pipeline construction. ICWA has used these data and site visits to prepare this report, as well as to prepare the aforementioned *Karst-related Features on the Proposed MVP Corridor in Monroe County, WV*.

   Note: Many property owners in this area and elsewhere along the corridor, while refusing to permit MVP surveyors access in advance of FERC issuing a certificate of approval for the project, have indicated their willingness to consider having environmental surveys conducted under FERC's guidance. These landowners, many of

[4] *"Save Monroe Information and Updated Reports from Landowners On and Near the Proposed Route in Monroe County, WV, regarding important features of their property."* Accession numbers 20151125-5114 and 5115 on Docket CP16-10 and *Border Conservancy Information and Updated Reports from Landowners On and Near the Alternate 110 Route in Monroe County, WV, regarding important features of their property.* Accession numbers 20151125-5117 and -5118 on Docket CP16-10. (Note: Data reports were originally submitted in June 2015 and updated October 2015 during MVP pre-filing Docket PF15-3.)

whom submitted resource information directly to the FERC presumably would be willing to provide information during the comment period for 401 and 404 Individual Permits for waterbody crossings on their property as well as individual stormwater permits.

3. ICWA's preliminary on-the-ground observations are a strong signal that professional work needs to concentrate in this area. We submit that the WVDEP and the USACE must require a full analysis of every stream crossing, and that fieldwork and analysis should be performed by professionals who can interpret the observed facts on the ground, as well as the hydrogeological implications of formations on nearby properties (for example presence of caves, underground streams and evidence of subsidence).

D. CONSTRUCTION IN KARST AND ON STEEP SLOPES

1. **Blasting in karst can have permanent effects.** In evaluating MVP's permit application, the USACE is required to consider *33 § 320.4 (a)(2)(iii) The extent and **permanence** of the beneficial and/or detrimental effects which the proposed structure or work is likely to have on the public and private uses to which the area is suited* (emphasis added). In the best case scenario, the construction of an open trench through the waters of Monroe County may cause relatively short-lived deleterious effects (except perhaps on the aquatic life whose lives would be shortened by the construction process). However, MVP has indicated that it will use blasting *when deemed necessary*, a construction technique that could prove devastating to the existing karst terrain.

2. **MVP itself acknowledges the insurmountable and permanent effects of blasting in karst:** In its explanation for rerouting the line in Giles County, MVP stated that lternative 200 was identified "*to avoid pipeline constructability issues relating to several areas of karst topography with known sinkholes and caves,* construction near a number of residences, and construction near private water wells" *[emphasis added].* [5]

3. **Recent dye-tracing by ICWA and Monroe County landowners has documented a karst-related resurgence in the waterbody of Indian Creek at a location extremely close to the proposed pipeline crossing,** as reported in *Karst-related Features on the Proposed MVP Corridor in Monroe County, WV,* and the main stem of Hans Creek has a large section where it disappears underground, only to resurface again downstream (Attachment 1). The fragility of the structural integrity of stream beds must be considered in the USACE evaluation of permit applications and maintained in any eventually permitted construction activity.

[5] Alternative 200 Update of Mountain Valley Pipeline LLC under PF15-3. Accession number 20150826-5049 on Docket PF15-3.

4. **Construction on steep slopes above streams and karst formations compounds the potential for negative impacts.** As documented by the Dominion Pipeline Coalition in their case study and dramatic photos of a 12" Columbia Gas of Virginia (CGV) "upgrade" pipeline over Peters Mountain to the south of the proposed MVP route, significant erosion and sedimentation problems can be associated with pipeline construction on steep slopes (http://pipelineupdate.org/case-study-no-1/). These problems are serious in their own right, but the added complication of severe runoff and stormwater discharge above known karst formations where public and private water sources are affected makes pipeline construction in these circumstances an act of public endangerment.

5. **Construction on and near karst on Peters Mountain has already resulted in a significant water contamination event**. Clear-cutting activity by a private landowner in 2012 and construction of the much smaller (12") CVG natural gas transmission pipeline over Peters Mountain near Peterstown in 2013 have demonstrated the interconnected nature of aquifers in karst terrain. The Red Sulphur Public Service District (RSPSD) provides water for about 4,000 people, more than 25% of the county. In operation for more than 80 years, it has enjoyed exemplary water quality and clarity, with the raw water from its primary source, the Coburn Spring located in karst terrain on Peters Mountain, rarely ever measuring up to 5 NTU's in turbidity.[6] A comment by RSPSD reported that following both the clear-cutting of timber and pipeline construction, its water turbidity increased to 400 NTU's for sustained periods.[7] More important, in July, 2015, the RSPSD was taken out of service for a period of two and one-half weeks due to a *diesel fuel* contamination associated with equipment on the CVG natural gas transmission pipeline construction site. The contamination resulted in investigations by the Virginia Department of Environmental Quality (VADEQ)[8] and by the Monroe County Sheriff's office.

E. **PUBLIC INTEREST**

1. **A clean water supply for the residents of Monroe County is a significant resource that is protected under the public interest review requirements of the Clean Water Act.** 33CFR320.4(a)(1) requires that the USACE conduct *an evaluation of the probable impacts, including the cumulative impacts, of the proposed activity and its intended use on the public interest.* ICWA maintains that there is no public interest to be gained from

[6] Motion to Intervene of Red Sulphur Public Service District under CP16-10. Accession number 20151127-5129 on Docket CP16-10.

[7] Comment of Jerry L. Pitzer in Docket(s)/Project(s) CP16-10-000. Accession number 20151127-5156 on Docket CP16-10.

[8] Supplemental Information of Judy Azulay under CP16-10. Comment re pipeline/sinkhole pollution of Red Sulphur Public Water District drinking water. Accession number 20151127-5151 on Docket CP16-10.

operation of the MVP pipeline: The MVP pipeline is not proposed to deliver natural gas to people in Monroe County or, to our knowledge, as of this date to anyone in West Virginia for domestic or commercial use. In light of the fact that there is no "trade-off" (i.e., balancing the public interest with an acceptable level of pollution), the standard of prevention of environmental degradation should be set accordingly high. As part of its public interest analysis, 33CFR320.4(a)(1) requires the USACE to evaluate: *conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people.* Of these, we wish to draw particular attention to the requirement that the 401 permit protect the drinking water of landowners on and near the route. Clearly, NEPA requires attention to this criterion in enumerating *water supply and conservation, safety, food production, and the needs and welfare of the people.*

2. Monroe County landowners use their water for a variety of activities including drinking water, agriculture and recreation. A survey of Monroe County landowners on and near the two routes proposed by MVP during the pre-filing process identified a wide range of water features and high concern about potential impacts on water.[9] (See Attachment 2.)

3. In what seems like a deliberate affront to the residents of Monroe County, MVP does not include the Red Sulphur Public Service District in its list of public water supplies near the pipeline route, even though its own map reports that "Approximately 5.4 miles of the proposed Route is within the Red Sulphur PSD Watershed Delineation Area,"[10] and even though several times during the past year MVP was notified of the presence and importance of the RSPSD springs. In fact, in its February 2015 description of reasons for proposing Alternate Route 110, MVP listed concern about the Red Sulphur Public Service District as one of the reasons to avoid the original route.[11] The minor shift made in the final proposed MVP route is an empty gesture and does not, in fact, move the pipeline out of the karst complex and recharge area for the Rich Creek spring and headwaters.

4. While MVP may assert that environmental degradation related to pipeline construction and operation is temporary, according to its own consultants blasting and excavating in karst terrain can cause permanent impact to and loss of springs and wells. MVP's plan to

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[9] Save Monroe Information and Updated Reports from Landowners On and Near the Proposed Route in Monroe County, WV, regarding important features of their property. Accession #20151013-5158 on Docket PF15-3

[10] MVP Resource Report 2, Appendix 2C3, p. 2, Figure 2-C-3 *Red Sulphur Public Service District Watershed and Zone of Critical Concern*, October 2015.

[11] Accession number 20150218-5315(30173110) on Docket PF15-3.

use blasting and trenching to cross waterways, especially those in karst terrain, could result in the creation of new disappearing streams which would rob landowners either on or near the route of their historic water sources. In fact, Monroe County itself has several well-known examples of sinking streams including tributaries of Indian Creek such as Hans Creek and Laurel Creek, and tributaries of Rich Creek on Peters Mountain.

F. AVOIDANCE AND/OR MITIGATION

The discharge of dredged material into the waters of the US must be avoided and minimized, where it is practical to do so. Under 40CFR230.10(a)(2): *An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.*

1. **Cost:** Viewed as a whole, this MVP project is expensive. Building a structure through rugged, difficult mountainous terrain has its costs. But landowners in Monroe County did not ask MVP to undertake such a venture. This project will do nothing to enhance or further protect the environment cumulatively, nor in any of the areas listed in the Clean Water Act. In fact the only effect it will have on the environment is degradation. Accordingly, the cost of constructing environmentally appropriate stream crossings is minimal when compared to the total cost of the project. Even with the most environmentally responsible practices, however, not all stream crossings proposed by MVP may be environmentally viable. In fact, 40CFR230.10(a)(2) speaks directly to this possibility: *. . . If it is otherwise a practicable alternative, an area not presently owned by the applicant which could reasonably be obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity may be considered.*

2. **Logistics:** This is not an emergency or even exigent project. An adequate timeframe exists for the FERC and MVP to do the competent and thorough fieldwork called for. MVP should be required to use its extensive engineering resources to investigate the geological and biological nature of the aquatic resources that it is proposing to disrupt. High quality, fish-spawning mountain streams that provide habitat for diverse aquatic species and drinking water for landowners cannot be replaced once destroyed.

3. **Existing technology:** MVP with no justification has chosen an “open cut dry ditch” crossing of the streams in Monroe County. Clearly the technology exists to use horizontal directional drilling technology (HDD), tunneling under these streams to avoid traversing critical aquatic resources, thus eliminating the discharge of material into the waters of the United States. Such a requirement would be consistent with the provisions of Section 404.

G. CONCLUSION

MVP's ultimate route selection, including stream crossings, was arbitrary, ignored individual aquatic circumstances and consultant's advice, and was made with insufficient field observation and analysis. The proposed pipeline would transect the county and cross multiple geological and karst formations. MVP admitted to Monroe County landowners that it chose the route by fly-over and desktop review. Moreover, where MVP has performed limited field observations it apparently ignored the advice of its consultants. For a pipeline of this magnitude – the first of its size to cross the Appalachians, and possibly the first 42" to cross comparable mountainous terrain in the U.S. – safeguards must be in place to protect the water that is vital to the lives and livelihoods of West Virginia residents in Monroe County and along the entire length of the proposed pipeline.

1. **ICWA requests that as part of the permit process, MVP be required to fund an independent analysis of the interconnectedness of the aquifers along and near the proposed route before the WVDEP and USACE consider any 401 or 404 permits.** The range of travel of pollutants in the areas of the pipeline traversing karst topography is not known because of the intrinsic nature of karst. Therefore, ICWA requests that the WVDEP and USACE require dye tracing, water parameter comparisons and other methods of determining aquifer connectedness. Such a study needs to be conducted over multiple seasons and a range of high and low water conditions in order to more accurately assess the changing underground patterns that can take place under different conditions. The afore cited example of the diesel pollutant discharged into the Red Sulphur Public Service District drinking water supply is a case in point that must not be repeated, but should be viewed as an object lesson that such avoidable contamination is both possible and unacceptable.

2. **ICWA requests that the WVDEP and USACE require individual 401 and 404 permits, rather than general permits, for all waterbody and wetland crossings, including the areas of the receiving streams that would be impacted from runoff and sedimentation due to the construction of the pipeline trenches and access roads.**

    a. Federal and state regulations require that the procedure for each water crossing must be tailored to the individual aquatic circumstances of each stream with the realization that there may need to be re-routing of some sections. MVP should have chosen the route on the basis of actual conditions on the ground. Instead it appears MVP has ignored and misrepresented the facts on the ground with the apparent hope that its route would not be carefully scrutinized by state and federal authorities or by the public. The necessary level of study of aquatic conditions can only be accomplished by the USACE and WVDEP requiring individual permits.

    b. Deficiencies in MVP's submission of data to the FERC, as well as the specific information gathered and submitted by landowners and ICWA volunteers,

demonstrate the importance of input from stakeholders with intimate and accurate knowledge of characteristics of specific aquatic sites along the pipeline corridor. Complete information can only be obtained through public interest review procedures outlined in the requirements of individual, not general, permits.

3. **ICWA requests that the WVDEP require individual stormwater permits, rather than a general project permit** for all construction that would lead to runoff and sedimentation in the streams in Monroe County. Pipeline construction that includes deforestation, trenching and compaction of steep ground on ridgetops and steep slopes requires WVDEP stormwater permits. Because of the nature of the construction, the presence of karst and the varied topographic conditions along the length of the pipeline in Monroe County, ICWA requests that the WVDEP require **individual** stormwater permits to prevent runoff and sedimentation.

4. **ICWA further requests that the WVDEP director require WVDEP inspectors to be on-site during all pipeline construction in Monroe County.** Significant erosion and sediment problems can be associated with pipeline construction over steep slopes and through karst terrain. (e.g., the aforementioned 12" Columbia Gas of Virginia (CGV) "upgrade" pipeline over Peters Mountain). These serious problems might be prevented by the presence of qualified WVDEP inspectors who can protect the public health and environment.

Thank you for considering these important issues and requests.

Please let us know how we can best support your further investigation of permit applications for the Mountain Valley Pipeline.

Sincerely,

Indian Creek Watershed Association Board of Directors
Judy Azulay, President; Scott Womack, Vice President;
Howdy Henritz, Treasurer; Nancy Bouldin, Secretary

Email: info@IndianCreekWatershedAssociation.org

CC: Federal Energy Regulatory Commission
United States Environmental Protection Agency

ATTACHMENT 1

Indian Creek Watershed Association
P.O. Box 711
Union, WV 24983

November 13, 2015

Ms. Kimberly Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, D.C. 20426

RE: Karst-related Features on the Proposed MVP Corridor in Monroe County, WV
Docket No. CP16-10

In a letter dated 10/14/2015, Indian Creek Watershed Association (ICWA)* voiced concern about the Mountain Valley Pipeline (MVP) project with respect to its potential impact on the drinking water in Monroe County, WV. Specifically, we are concerned about MVP's apparent lack of knowledge of (and inadequate attention to) the karst topography, springs, wells and creeks along the pipeline route in this region, and the consequent effects of their pipeline on drinking and other waters in Monroe County. Our first letter shared recent data from landowners on and near the proposed corridor related to the high number of springs that would be threatened by pipeline construction and operation, as opposed to MVP's identification of only 1 spring in Monroe County. We are writing today to share similar data about karst-related features in the county.**

MVP has stated that the Alternative 200 route in Giles County, Virginia, was identified "*to avoid pipeline constructability issues relating to several areas of karst topography with known sinkholes and caves, [emphasis added]* construction near a number of residences, and construction near private water wells" (MVP Alternative 200 Update, 8/26/2015).

The corridor through Monroe County also has significant areas of karst topography with known sinkholes and caves that present "pipeline constructability issues." These areas should be avoided by seeking an alternative route.

The examples cited below are only samplings of noted discrepancies between MVP's assertions and the facts on the ground. ICWA will be submitting additional data at a later date.

1. Karst features between Little Mountain and Peters Mountain (approx. mileposts 194 to 194.5)***

This area is located in the valley known as "Back Valley" between Little Mountain and Peters Mountain to the southwest of the town of Lindside.

MVP's Resource Report 6 (October 2015) identifies **11 sinkholes within 0.25 mile** of the MVP pipeline along a segment between milepost 191.2 and 194.6 (Table 6.4-3). The report identifies **2 caves within 0.25 mile** of pipeline mileposts 194.4 and 194.5 (Table 6.4-4). (Note: These are the *only* caves and sinkholes that MVP's report identifies near the pipeline corridor in the county.)

ICWA would like to point out the following additional data and issues in the immediate area:

- A landowner whose property is adjacent to the parcel on milepost 194.5 reports that sizeable **sinkholes have emerged** on their property within the past year or so, indicating **active subsidence in the area.**
- The **Rich Creek Cave** is the source of an important headwaters spring for Rich Creek, a back-up resource for the Red Sulphur water district, also known locally as the Wilson Mill or Trout House spring. The cave is described as follows in MVP's RR6 6.4.2.2:

  "At the closest point, at about MP 194.5, the pipeline would be about 1,500 feet west. The cave has not been surveyed or mapped. Rich Creek Spring daylights from the cave and the underground stream can be followed along a walking-sized passage for several hundred yards to the northeast."

  In fact, the cave is located to the west of the pipeline, which is correctly noted in Table 6.4.4. The table also cites an extent of 900 feet. If the cave does include a "walking-sized passage for several hundred yards to the northeast," that appears to mean **the cave is heading underground for a significant distance *in the direction of the pipeline.***
- A **"sinking stream"** near milepost 194.2 would be crossed by the pipeline and run close to or under a proposed MVP workspace.

These karst features are all part of a limestone formation that extends along the base of Peters Mountain for almost its entire length in Monroe County.

There is a dangerous combination of knowns and unknowns in this situation:
- *Known:* The limestone formation with related karst features extends the length of Peters Mountain.
- *Known:* There is evidence of active sinkhole formation in close proximity to the pipeline route.
- *Known:* Immediately after crossing the karst features of Back Valley, the pipeline route ascends Peters Mountain on the mountain's steep western slope.
- *Known:* The springs of Peters Mountain provide the source water for all three of the county's public water districts (serving close to 70% of households and all of its public schools, health clinics and government offices), as well as an award-winning water bottling company.
- *Unknown:* It is unknown what impact a contamination event might have anywhere along this critical water source, because the extent and possible interconnections of underground aquifers along Peters Mountain have not been studied or mapped.

This is why ICWA joins others, including the Red Sulphur Public Service District, the County Commission and the Town of Union, in asking for a comprehensive, independent hydrogeological study before any determination is made about permitting a 42-inch pipeline through Monroe Co.

In addition to these karst features near Peters Mountain, other sections of the proposed pipeline route would either cross or run above karst areas. Because of the unpredictable nature of karst, those sections of the pipeline also threaten the safety of essential water needed for homes, farms and businesses.

2. Karst features close to the MVP crossing of Indian Creek near Greenville (approx. mileposts 181.7 to 182)

In this section, the MVP corridor is routed above a well-known karst region immediately to the east of the pipeline, in and around Greenville. Sedimentation, erosion and contamination caused by pipeline construction—including heavy equipment traffic and transportation on county and access roads—could easily result in contamination of surface waters and karst-related groundwater.

(Indian Creek Watershed Association letter to FERC, November 13, 2015, p. 3)

Recent fieldwork by ICWA also shows the presence of karst in very close proximity to the pipeline itself at a critical location, the crossing of Indian Creek along Route 122. Indian Creek is a direct tributary to the New River.

Caves:

- Greenville Saltpeter Cave on Laurel Creek is an historic cave system, mined for saltpeter during the Civil War. Designated in 1973 as a "National Natural Landmark," the cave is privately owned. It maintains a yearly count of the endangered Indiana bat.
- Indian Draft Cave is a small cave located along Wayside-Creamery Road, which parallels the pipeline to the east between Mileposts 179 and 182 on the MVP Topographic Map page 33 (October 2015).
- Hans Creek Cave (Haala Cave) is a shallow cave located near where Hans Creek joins Indian Creek, to the west of the pipeline.
- **Recent information from landowners also reveals an un-named cave about 0.25 mile from where the pipeline would cross Route 122 and Indian Creek.**

Sinkholes:

- Sinkholes are present in properties adjacent to the pipeline corridor in this area.

Sinking streams:

- Indian Draft runs along and criss-crosses the Wayside-Creamery Road east of the pipeline. The stream sinks below ground along at least one stretch in dry weather, re-emerging about 0.5 mile before it joins Indian Creek.
- Slate Run is a tributary of Indian Creek located on property in the pipeline corridor as it nears Route 122 and Indian Creek. Within a few hundred feet of Route 122, there is an active spring known as "The Bull Hole" along Slate Run. Between the spring and the Route 122, the stream enters the ground in dry weather. A recent dye-trace test at the point of insurgence showed its resurgence in the middle of Indian Creek. Slate Run appears to be quite close to the pipeline near the site of the Bull Hole spring and the stream insurgence, and would be bounded on the other side by a dirt road planned to be used as an access road. These features are also located between Indian Creek and an area targeted by MVP to be a construction work site. **This affected property was surveyed by MVP contractors. However, neither the spring nor the sinking stream are reflected in MVP's RR6 or alignment maps.**

Homeowners in this area rely on wells and springs for their drinking water and other uses. An independent hydrogeological study should be undertaken before permitting any route through this section to determine the extent of karst present, and what steps must be taken to protect the surface water and groundwater during pipeline construction and operation in the approach to and crossing of both Route 122 and Indian Creek.

Given what appears to be a related system of springs, caves, sinkholes and sinking streams, ICWA requests that an alternative route be selected for the pipeline.

3. Karst features along Ellison Ridge and in Hans Creek Valley (approx. mileposts 182 to 186.7)

After crossing Indian Creek on its way south, the MVP corridor rises steeply and then travels for several miles in the area of Ellison Ridge to where the pipeline route crosses Hans Creek in a section known locally as "The Narrows of Hans," at milepost 186.7. While the pipeline corridor

itself does not appear to be lying directly on karst, this is a region with numerous springs (as reported in our letter of 10/14/15), and landowners on this corridor have reported the presence of **one cave** on a property near the middle of this section and **one or more sinkholes** on two other nearby properties.

Clearly, the hydrogeology of Ellison Ridge is more complex than may appear from the text and tables offered by MVP's Resource Reports. Given the number and type of agriculture-related businesses—including a wild game preserve on the pipeline route, an organic micro-dairy immediately adjacent to the corridor, and an organic apiary adjacent to the corridor just south of the Narrows of Hans—the threat of water contamination, potentially magnified by karst-related features cannot be discounted.

Equally important, the area's historic Hans Creek Valley lies to the west of Ellison Ridge and receives the run-off from the ridge. This valley is home to numerous historic buildings and farms, including two working National Bicentennial Farms still owned and lived on by descendants of the Ellison and Larew settlers who first farmed the valley in the 1700s. It also supports the successful management of more than 450 acres of Organic Dairy Pasture (one of four organic dairies in Monroe County) and an organic blueberry farm, among other working farms and water-dependent activities in the valley.

Hans Creek itself is a sinking stream, with a major insurgence located below an old mill dam due west of milepost about due west of milepost 185.9 and resurgence approximately 0.30 mile downstream near the Hans Creek Church. Other less dramatic expressions of this karst or karst-like topography can be seen along other portions of Hans Creek. While this valley may not "show up" prominently as karst on USGS maps, something unusual is taking place underground that needs to be studied and better understood before approval is granted for the construction of a 42-inch pipeline that would parallel this historic and economically viable valley for its entire length, threatening it with potentially devastating effects from erosion, sedimentation and contamination of surface water and groundwater.

The preservation and protection of the Monroe County's natural water supplies is not an aesthetic choice; it is a matter of survival. It is also a matter of protecting the county's natural resources for economic development that benefits the residents who live and farm and work in this county (not that farming isn't work!).

* * *

This is an initial report, covering some of the karst features that ICWA has discovered through public information, landowner reports and field observations. We also cite the June 10, 2015 letter to Paul Friedman, FERC Project Manager for the proposed MVP, from Harold "Rocky" Parsons, Geologist and Fellow of the National Speleological Society who wrote, in part:

> Although some of Monroe County's karst topography can be avoided by routing the pipeline around those areas, I am not aware of any route the pipeline could follow that will not cross the rock units on Peters Mountain that supply water being used by the Public Service Districts and the bottling company.
>
> . . . Considering the risks involving crossing the karst, and recharge areas of the Peters Mountain springs, as well as the Saint Clair Fault and the Giles County seismic zone, it is my recommendation that such a pipeline corridor should avoid the proposed MVP route through these affected counties.

In sum, ICWA respectfully requests that:

1. The FERC direct Mountain Valley Pipeline to seek an alternative route that avoids the significant water and karst-related issues found in Monroe County along both of MVP's currently proposed routes.

2. The FERC require an independent hydrogeological study of the karst areas of Monroe County before choosing a route or routes to propose in the DEIS.

3. *If* a Certificate is granted, MVP be required to bear the cost of independent hydrogeological studies on *all* sensitive areas along the corridor, including but not limited to the three areas identified in this letter; to report that information to the FERC and all appropriate local, state, and federal agencies for review; and to obtain approval from the FERC before construction be allowed to begin.

ICWA will continue to submit data about water resource issues along the proposed pipeline corridor as that information becomes available.

As in previous correspondence, we invite FERC staff to contact us. We would be happy to share information in more detail with your environmental staff, or to schedule a visit. Many landowners in the area who have not allowed surveying of their property by MVP have indicated that they would consider allowing environmental surveyors under FERC's direction. We would also be willing to help facilitate contact with these landowners.

Thank you for your attention to the significant environmental concerns in Monroe County.

Indian Creek Watershed Association

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CC: Monroe County Commission
Monroe County Board of Health
Red Sulphur Public Service District

*Indian Creek Watershed Association (ICWA) is an active watershed organization established in 1996 with a longstanding focus and mission: "The preservation and protection of Monroe County's abundant, pure water." One of our current projects is to collect and centralize important information about the water resources of Monroe County and to make this information available to the public.

** Because MVP has started to pursue easement agreements with landowners along the original MVP Corridor, and has filed its application with the original corridor specified, we are currently focusing attention on that route. However, both routes share similar factors and features, and our data-gathering will be county-wide.

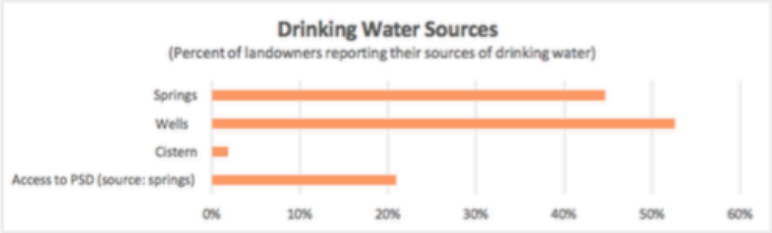
*** Unless otherwise indicated, milepost numbers are based on the MVP Alignment Maps dated October 2015.

ATTACHMENT 2

Excerpted from *Monroe County, WV Landowner Impact Report, PART I: Summary & EIS Recommendations*, page 4.[1]

C. EIS Resource Issues

The following charts, graphs and comments reflect EIS-related resource features reported by 214 landowners in Monroe County from April 23 through June 13, 2015. Most properties are located on or near the two proposed MVP routes (the original Proposed Corridor and the Alternate 110 Route). Resource issues were selected according to categories required to be considered in the Environmental Impact Statement under the NEPA (National Environmental Policy Act).



Landowners report their sources of drinking water (several landowners report more than one source). Note: water for all PSDs originates from springs they own on Peters Mountain. PSD springs and private springs account for 66% of the reported sources of drinking water. These data and other preliminary studies of Peters Mountain springs require a full hydro-geological study of the aquifers on Peters Mountain before a pipeline can be sited. The Border Conservancy, Save Monroe and Indian Creek Watershed Association will continue to gather information from landowners about their water sources and springs.

Landowners report a high incidence of water features on properties, and reliance on both public and private water sources. One of the most widely expressed concerns is that project impacts could affect domestic drinking water, agricultural uses and businesses.

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[1] *Save Monroe Information and Updated Reports from Landowners On and Near the Proposed Route in Monroe County, WV, regarding important features of their property*. Accession #20151013-5158 on Docket PF15-3. Submitted to the FERC on Docket PF15-3, 10/11/15 (originally submitted 6/15/15 and updated 8/5/15).