

**From:** (b) (6)  
**To:** [comment-mvp@deq.virginia.gov](mailto:comment-mvp@deq.virginia.gov)  
**Cc:** [cindy\\_schulz@fws.gov](mailto:cindy_schulz@fws.gov); [jennifer\\_stanhope@fws.gov](mailto:jennifer_stanhope@fws.gov)  
**Subject:** Draft 401 Certification  
**Date:** Tuesday, August 22, 2017 5:40:54 AM  
**Attachments:** [Comment to DEQ CZ.pdf](#)

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Please find attached my comments on the Draft 401 Certification for Mountain Valley Pipeline.

With regards,

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(b) (6)

22 August 2017

TO: Virginia Department of Environmental Quality  
Office of Wetlands & Stream Protection  
[comment-mvp@deq.virginia.gov](mailto:comment-mvp@deq.virginia.gov)

RE: Mountain Valley Pipeline  
Clean Water Act  
Draft 401 Certification 17-001

Dear Virginia DEQ personnel,

My name is (b) (6). I reside at (b) (6) in Montgomery County, Virginia. I am making this comment because I value clean water, and I value the aquatic life that is supported by Virginia's waters. As a resident of western Virginia, it is my privilege to live in an area of exceptional environmental quality. I am submitting these comments with hope of aiding Virginia DEQ's efforts to maintain that environmental quality. I am a Ph.D. scientist who works with surface-water quality issues in a professional capacity (See Exhibit A).

I presented comments verbally at Radford public hearing. Because of the three-minute time limit, I was unable to state fully my comments on the Draft 401 Certification. My purpose here is to state my comments more fully.

### **“Reasonable Assurances” Statement and Supporting Information Should Be Revised**

#### Suggested Language Change:

The “reasonable assurances” statement in Virginia DEQ's Draft 401 Certification 17-001 falls short of what is needed to protect the Commonwealth's waters in accord with Virginia DEQ's responsibility under the Clean Water Act. The Draft 401 Certification states:

*“... there is reasonable assurance that the Mountain Valley Pipeline, LLC activities **covered by this Certification** will be conducted in a manner that will not violate applicable Water Quality Standards.” (Emphasis added).*

The statement's limitation to “*activities covered by this Certification*” is not adequate. The Draft 401 Certification does not address the full range or proposed pipeline construction activities. The Clean Water Act enables Virginia DEQ to consider the full range of such activities in a 401 Certification.

The Commonwealth's citizens would be better served by a 401 Certification providing “*reasonable assurances*” that Mountain Valley Pipeline LLC activities would not cause Virginia Water Quality Standards violations – period, with no qualifications. I request that the above draft Certification phrasing be changed to:

*“... there is reasonable assurance that the Mountain Valley Pipeline, LLC activities will be conducted in a manner that will not violate applicable Water Quality Standards.”*

I also request that such language revision be accompanied by other Draft 401 Certification revisions that would, in fact, provide a “reasonable assurance” that Virginia Water Quality Standards would not be violated.

Legal Background:

Virginia DEQ has the authority to provide “reasonable assurance” that Virginia Water Quality Standards would not be violated. Clean Water Act Section 401(b) states:

*“Nothing in this section shall be construed to limit the authority of any department or agency pursuant to any other provision of law to require compliance with any applicable water quality requirements.”*

Since “applicable water quality requirements” include Virginia Water Quality Standards, that language authorizes Virginia DEQ to develop and issue a 401 Certification that would protect Virginia waters against violations of Virginia Water Quality Standards.<sup>1</sup>

**The Draft 401 Certification Should Be Revised to Protect the Commonwealth’s Waters from Excessive Sedimentation**

Legal Background:

Virginia Water Quality Standards include general criteria that would prohibit Mountain Valley Pipeline LLC from introducing sedimentation sufficient to impair aquatic life (“excessive sedimentation” as stated below) into the Commonwealth’s waters:

*“State waters ... shall be free from substances ... [which] interfere directly or indirectly with designated uses of such water or which are inimical or harmful to human, animal, plant, or aquatic life ... Specific substances to*

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<sup>1</sup> My interpretation of this matter is supported by the US Environmental Protection Agency guidance document, Clean Water Act Section 401 Water Quality Certification: A Water Quality Protection Tool For States and Tribes, available from <https://www.nrc.gov/docs/ML1121/ML112160635.pdf>. Throughout, the text makes clear that 401 Certification process enables the state agency to ensure that the facility requesting certification will not cause water quality standards violations, and that Section 401 authority for that purpose is not limited to the point-source discharge.

For example, see box entitled “U.S. Supreme Court in *S. D. Warren Co. v. Maine Board of Environmental Protection*” on p. 1. As another example, see p. 14, last paragraph.

Also, see p. 15-16: “It is important to note that, while EPA-approved state and tribal water quality standards may be a major consideration driving §401 decision ... Thus, it is important for the §401 certification authority to consider all potential water quality impacts of the project, both direct and indirect, over the life of the project.” The above statement is supported by a footnote citing a court decision.

Also see p. 23: “The U.S. Supreme Court has stated that, once the threshold of a discharge is reached (necessary for §401 certification to be applicable), the conditions and limitations included in the certification may address the permitted activity as a whole.”

*be controlled include, but are not limited to ... substances that produce ... turbidity”*

Virginia Water Quality Standards are intended to protect designated uses of the Commonwealth’s waters that include support for aquatic life. Those standards state:

*“All state waters, including wetlands, are designated for the following uses: recreational uses, e.g., swimming and boating; the propagation and growth of a balanced, indigenous population of aquatic life, including game fish, which might reasonably be expected to inhabit them; wildlife; and the production of edible and marketable natural resources, e.g., fish and shellfish.”*

As noted above, Clean Water Act Section 401(d) states:

*“Nothing in this section shall be construed to limit the authority of any department or agency pursuant to any other provision of law to require compliance with any applicable water quality requirements”.*

Hence, it is within DEQ’s authority under section 401 to impose requirements intended to protect *“the propagation and growth of a balanced, indigenous population of aquatic life”* in potentially affected waters from impairment by excessive sedimentation.

*Excessive Sedimentation from Pipeline Construction Has Potential to Cause Violation of Virginia Water Quality Standards:*

It is clear that sedimentation in excess of natural background has potential to cause impairments of aquatic life.<sup>2</sup>

The Mountain Valley Pipeline proposal embodies considerable threats of excessive sedimentation due to denudation of soils in 125-foot wide linear corridors extending up and down hillside and mountain slopes and leading directly to multiple waterbodies. Proposed revegetation for denuded areas would apply seed of native plant species.<sup>3</sup> As far as I can tell, neither the proposed seeding strategy nor anything similar has been tried elsewhere;<sup>4</sup> Hence, I describe the proposed seeding strategy as “experimental”.

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<sup>2</sup> Hundreds, if not thousands, of peer-reviewed scientific articles could be cited to demonstrate that the excessive sedimentation in surface-water streams can have negative effects on aquatic life. For example, see:

Kjelland ME et al., 2015. A review of the potential effects of suspended sediment on fishes: potential dredging-related physiological, behavioral, and transgenerational implications. *Environment Systems and Decisions*, 35(3), pp.334-350.

Sutherland, A.B. and Meyer, J.L., 2007. Effects of increased suspended sediment on growth rate and gill condition of two southern Appalachian minnows. *Environmental Biology of Fishes*, 80(4), pp.389-403.

Kemp, P., Sear, D., Collins, A., Naden, P. and Jones, I., 2011. The impacts of fine sediment on riverine fish. *Hydrological Processes*, 25(11), pp.1800-1821.

<sup>3</sup> as described by FERC’s Final EIS, Habitat Mitigation Plan, Appendix B, Table 1 on p. 32 of 67; Mountain Valley Pipeline submittal 20170511-5018 to FERC, which is incorporated into the Final EIS by reference from FEIS Table 2.4-2

<sup>4</sup> I base this statement on Federal Energy Regulatory Commission (FERC) Docket CP16-10 (Mountain Valley Pipeline). I have reviewed documents submitted to this FERC docket by Mountain Valley Pipeline LLC and by FERC (including the Draft Environmental Impact Statement, DEIS, and the Final Environmental Impact

Mountain Valley Pipeline LLC and the Federal Energy Regulatory Commission (FERC) state expectations that the experimental seed mix would provide adequate erosion and sedimentation control<sup>5</sup> despite the slowness of many native plant species' seeds to germinate and grow, the seasonal sensitivity of such species' germination, and the proposal to apply identical seed mixes on all landscapes and during multiple times of year. I have seen no documentation anywhere that supports the adequacy of the proposed experimental seeding strategy to control erosion and consequent sedimentation.<sup>6</sup>

The waterbodies themselves would be ditched and re-filled at pipeline crossings. Such ditching would likely require frequent blasting to fracture the bedrock that supports many stream channels in western Virginia's mountainous terrain and refilling of those channels with loose geologic materials including fine particles that will be subject to mobilization by the streams' flowing waters. Ditching of stream channels would be accompanied by disturbances to stream banks adjacent to channel excavations as required to conduct those excavations, to install the stream-water diversions, to install the pipe, to cover the pipe, and to conduct associated operations. Such stream-bank disturbances would act as additional sediment sources.

Other landscape disturbances such as construction and use of unpaved roads, material and equipment storage yards, aboveground pipeline facilities, and the like are proposed by Mountain Valley Pipeline LLC; all have potential to release sediments that would be mobilized by rainfall runoff and/or other flowing waters.

Multiple stream channels within stream basins that harbor sediment-sensitive aquatic species would be affected by multiple sources of sedimentation. If a cumulative analysis of the proposed sedimentation controls' effectiveness has been conducted, I am not aware of it.

As an example of the potential for proposed Mountain Valley Pipeline LLC activities to cause excessive sedimentation, let us consider the upper Roanoke River basin as it extends upstream from Glenvar, which is a few miles downstream from proposed crossing of the Roanoke River at Lafayette. The proposed pipeline would extend through this basin for a linear distance of approximately 25 miles,<sup>7</sup> creating a cumulative

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Statement, FEIS) thoroughly, and have yet to find any information supporting the potential for experimental seed mix application to establish vegetation quickly or adequately to control erosion during any season. While making this statement, I have also considered my own professional experience in dealing with revegetation of disturbed lands in the Appalachian Mountains (as documented in submittal 20170725-5023(32295953) to FERC Docket CP16-10, Mountain Valley Pipeline).

<sup>5</sup> For example, FERC's Final Environmental Impact Statement (FEIS) (Federal Energy Regulatory Commission, FERC/FEIS-0272F, Mountain Valley Project and Equitrans Expansion Project, June 2017 ) states: "Applicants have developed construction methods for rugged terrain, to allow for the safe operation of equipment, and prevention of severe erosion" (p. 2-49). FERC's FEIS also states "To prevent soil erosion, Mountain Valley and Equitrans would follow BMPs based on the FERC Plan, Equitrans' Plan, and Mountain Valley and Equitrans' Procedures" (p. 4-81). By virtue of its failure to find pipeline construction effects on water resources as "adverse effects", FERC's FEIS can be interpreted as finding proposed revegetation strategies as adequate and effective; Mountain Valley Pipeline LLC's proposals for such can be interpreted similarly.

<sup>6</sup> As per citation above.

<sup>7</sup> From milepost ~220.7 – ~246.

area of denudation for construction of approximately 400 acres<sup>8</sup> in addition to other construction-related disturbances. Construction activities within this area would directly affect 101 “waterbodies”, including 51 that would be ditched and filled. These 51 crossed streams include the Roanoke River itself and 23 additional streams that are classified by FERC as “permanent.”<sup>9</sup> Roanoke River segments (including mainstem, North Fork, South Fork, and tributaries) are inhabited by the federally protected Roanoke logperch, *Percina rex*.<sup>10</sup> The Roanoke logperch is known to be sensitive to sedimentation.<sup>11</sup> I use Roanoke logperch as an example, expecting that other species inhabiting the upper Roanoke River basin are also sensitive to sedimentation; and that citizens of this Commonwealth have a right to expect all indigenous species to be protected from excessive sedimentation effects by Virginia DEQ as per Virginia Water Quality Standards.

As noted by FERC’s Final Environmental Impact Statement (FEIS), Section 4.6.2.1 Sedimentation and Turbidity,

*“Increased sedimentation and turbidity resulting from in-stream and adjacent construction activities could displace and impact fisheries and aquatic resources. Sedimentation could smother fish eggs and other benthic biota and alter stream bottom characteristics, such as converting sand, gravel, or rock substrate to silt or mud. These habitat alterations could reduce juvenile fish survival, spawning habitat, and benthic community diversity and health. Increased turbidity could also temporarily reduce dissolved oxygen levels in the water column and reduce respiratory functions in-stream biota. Turbid conditions could also reduce the ability for biota to find food sources or avoid prey. The extent of impacts from sedimentation and turbidity would depend on sediment loads, stream flows, stream bank and stream bed composition, sediment particle size, and the duration of the disturbances.”*

It is clear that Virginia DEQ should be considering potentials for excessive sedimentation as a priority concern. Yet, Virginia DEQ has segmented erosion and sedimentation controls into multiple regulatory structures while conducting no analyses

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<sup>8</sup> Estimated based on a 125-foot width of denuded construction corridor.

<sup>9</sup> Federal Energy Regulatory Commission, Mountain Valley Project and Equitrans Expansion Project Final Environmental Impact Statement. These data are extracted from that document’s Appendix F, Waterbodies Crossed.

<sup>10</sup> See <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=E01G> and <http://explorer.natureserve.org/servlet/NatureServe?searchName=Percina+rex>

<sup>11</sup> As stated by <http://explorer.natureserve.org/servlet/NatureServe?searchName=Percina+rex>,

See also statement by Dr. Paul Angermeier at Virginia DEQ Public Hearing, 8/8/2017, Radford VA, “Roanoke logperch (RLP) is a federal- and state-endangered fish found primarily in the Roanoke River basin of Virginia and North Carolina. Its reliance on unembedded substrate for feeding and reproduction makes RLP vulnerable to excess fine-sediment deposition. Recovery strategies for the species emphasize reducing chemical pollution and spills, and particularly reducing sediment loading into its streams.”

“Except in winter, all age classes are intolerant of moderately to heavily silted substrates.” A petition by Center for Biological Diversity designate critical habitat for the Roanoke logperch stated that the species occupies “medium to large warm-water streams and rivers of moderate gradient with relatively silt-free substrata.” (Petitions for Rulemakings Designating Critical Habitat for [9 species]”, <https://ecos.fws.gov/docs/petitions/92000/533.pdf>

to ensure their collective effectiveness in preventing violations of Virginia Water Quality Standards.

*Successful Sedimentation Control Is Not Assured by Proposed Measures:*

As just one example to support the above statement, Mountain Valley Pipeline LLC's proposals for erosion and sediment control include extensive reliance of devices such as silt fences to limit eroded soils from entering streams.<sup>12</sup> As I expect Virginia DEQ personnel are well aware, such devices are subject to failure. Two conditions that increase the likelihood of failure are (i) installations by personnel who are inattentive to the detail required for a secure installation, and (ii) extreme precipitation events. The effectiveness of silt-fence installations in field settings is not well supported by scientific study.<sup>13</sup> Virginia Tech researchers working in Virginia forests to evaluate effectiveness of best management practices for sediment reduction at operational forest stream crossings found that:

*"Silt fences should not be used in close proximity to streambanks if alternative options exist because the disturbance required during their installation is greater than the benefits."*<sup>14</sup>

When installed in a structurally sound manner, silt fences are generally effective in retaining large particles but they do not fully retain small-diameter particles,<sup>15</sup> large

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<sup>12</sup> Mountain Valley Pipeline, Project Specific Standards and Specifications for Virginia, p. 20 & 21. (Available from <https://www.mountainvalleypipeline.info/current-news>, VA DEQ Documents, as of this writing.

<sup>13</sup> Cooke SJ et al. 2015. On the apparent failure of silt fences to protect freshwater ecosystems from sedimentation: A call for improvements in science, technology, training and compliance monitoring. *Journal of Environmental Management* 164: 67-73.

<sup>14</sup> Wear LR et al. 2013. Effectiveness of best management practices for sediment reduction at operational forest stream crossings. *Forest Ecology and Management* 289:551-561.

<sup>15</sup> As stated by Keener HM et al. 2007. Flow-through rates and evaluation of solids separation of compost filter socks versus silt fence in sediment control applications. *Journal of Environmental Quality* 36, 742-752: "The USEPA (1993) reports as high as 80 to 90% of sand (particle size 0.05-2 mm) can be trapped by silt fence. Meanwhile, silt (0.002-0.05 mm) and clay (<0.002 mm), the fraction of eroded soil that typically remains in suspension, is trapped less than 20% when using silt fence".

Horner et al. (1990) reported a 2.9% reduction in turbidity when using silt fence installed under field conditions. Similarly, Barrett et al. (1998, An evaluation of geotextiles for temporary sediment control. *Water Environment Research* 70: 283-290.) concluded that silt fences are ineffective in reducing turbidity.

While evaluating the sediment trapping efficiency of silt fence, Wishowski et al. (1998) observed that as sediment particle sizes decrease, trapping efficiency declines.

Barrett et al. (1998) adds that most studies reporting sediment removal efficiencies for silt fence are somewhat overstated since many have used a disproportionately large fraction of sand particles with relatively low sediment-laden concentrations in the storm water runoff. They observed that: "Geotextile silt fences proved to be ineffective in reducing turbidity. The particles responsible for creating turbidity were mainly silt- and clay-sized (particle diameter less than 62 µm) and an order of magnitude smaller than the size of the openings in the fabric (approximately 600 µm). The observed data indicated that silt- and clay-sized particles constituted 92% of the TSS. These particles also have very low settling velocities and consequently are not removed by sedimentation. The efficiency of silt fences observed in the field seems to depend mainly on the detention time of the runoff behind the control. The detention time is controlled by the geometry of the upstream pond, hydraulic properties of the fabric, and maintenance of the control."

I am not asserting that silt fences would be ineffective; I am asserting that Virginia DEQ should not rely on their presumed effectiveness as a means of protecting aquatic species that are sensitive to fine sediments – such as Roanoke logperch.

volumes of which may be mobilized by rainfall events within the extensive disturbances proposed by Mountain Valley Pipeline LLC.

*A Recent Natural Gas Pipeline Project Has Experienced Excessive Sedimentation:*

Recent events concerning the Rover Pipeline in West Virginia are instructive and have informed this comment. These events demonstrate that severe and repeated excessive sedimentation events are possible as a direct consequence of current industry-standard pipeline construction techniques, even when relevant permits have been obtained.

As with Mountain Valley Pipeline, the Federal Energy Regulatory Commission (FERC) issued a Final Environmental Impact Statement (FEIS) for the Rover Pipeline which concluded that the pipeline and its construction would cause no adverse effects to water resources.<sup>16</sup> The Federal Energy Regulatory Commission issued an order approving construction of the Rover Pipeline on 2 February 2017.<sup>17</sup> The Rover Pipeline was issued a General Water Pollution Control Permit by West Virginia Department of Environmental Protection (WV DEP) on 15 December 2016.<sup>18</sup> The WV DEP General Water Pollution Control Permit<sup>19</sup> states:

*“The discharge or discharges covered by this permit are to be such quality so as to not cause violations of applicable water quality standards.”*

and that

*“[s]tormwater discharges associated with land disturbing activities that may reasonably be expected to be causing or contributing to a violation of water quality standards as determined by the Director”*

are not allowable under the permit.

Yet, WV DEP found it necessary to issue a cease-and-desist order to Rover Pipeline LLC because of excessive sedimentation.<sup>20</sup> That order required Rover Pipeline LLC to

*“immediately cease and desist any further land development activity until such time when compliance with the terms and conditions of its permit and all pertinent laws and rules is achieved.”*

Unfortunately for the waters of our neighboring state, WV DEP’s order was issued after multiple excessive sedimentation events over multiple months. These events were

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<sup>16</sup> FERC/FEIS-0267F, July 2016, Rover Pipeline, Panhandle Backhaul, and Trunkline Backhaul Projects. Final Environmental Impact Statement. The document states that “We determined that construction and operation of the Projects would result in limited adverse environmental impacts, with the exception of impacts on forested land” (p. ES-12, first sentence under “Major Conclusions”).

<sup>17</sup> Federal Energy Regulatory Commission, Order Issuing Certificates. Docket Nos. CP15-93-000, CP15-93-001, CP15-94-000, CP15-96-000. 2 February 2017.

<sup>18</sup> As stated by the 17 July 2016 Order issued by West Virginia DEP: “Rover Pipeline LLC was issued a Water Pollution Control Permit No. WV0116815, Registration No. WVR310726 on December 15, 2016.”

<sup>19</sup> West Virginia DEP. General Water Pollution Control Permit. Permit No. WV0116815. Subject: Stormwater Associated with Oil and Gas related Construction Activities.

<sup>20</sup> Order No. 8749 issued by West Virginia DEP to Rover Pipeline LLC on 17 July 2017. See Exhibit B for excerpts.



detected by West Virginia DEP personnel during manual inspections, but only after multiple incidents of damage to West Virginia water resources had occurred. Results of manual inspections are described by the cease-and-desist order:

- 26 April 2017: *“Sediment deposits on the bottom of Eibscamp Run and the Unnamed Tributary (UNT) of Buckeye Creek ... Permittee failed to properly implement controls ...”*
- 24 May 2017: *“Rover Pipeline LLC caused conditions not allowable in waters of the State by creating sediment deposits on the bottom of Eibscamp Run and the UNT of Buckeye Creek ... The Permittee failed to properly implement controls.”*
- 2 June and 6 June 2017: *“Rover Pipeline LLC caused conditions not allowable in the waters of the state by creating sediment deposits on the bottom of [multiple water bodies] ... The Permittee failed to properly implement controls ... The Permittee failed to operate and maintain all erosion control devices ... The Permittee failed to prevent sediment-laden water from leaving the site without going through an appropriate device ...”*
- 12 July 2017: *“Rover Pipeline LLC caused conditions not allowable in waters of the state by creating sediment deposits at the following eight (8) locations ... The Permittee failed to properly implement controls ... The Permittee failed to operate and maintain all erosion control devices ... The storm water that is handled by the water bars was not being diverted off the Limits of Disturbance (LODD), resulting in concentrated flow traveling down-slope and overwhelming sheet flow BMPs at the base of the hill” [etc.]*

Excerpts from West Virginia DEP’s cease-and-desist order are attached to this comment as Exhibit B.

#### Virginia DEQ Should Revise the Draft 401 Certification to Protect Against Excessive Sedimentation

Virginia DEQ should revise the Draft 401 Certification in a manner that would protect the Commonwealth’s waters from excessive sedimentation, and in a manner that would provide “*reasonable assurances*” that Mountain Valley Pipeline LLC activities would not cause violation of Virginia Water Quality Standards.

Despite the obvious fact that sedimentation should be a primary concern, DEQ has segmented controls over sedimentation into multiple and separate regulatory structures, including

- Erosion and Sediment Controls, Stormwater Management controls,
- Section 401 controls, and
- Army Corps of Engineers Nationwide Permitting controls that are outside of DEQ’s purview.

While separating sedimentation controls as it has, Virginia DEQ has (to my knowledge) conducted no analyses to ensure the public that Water Quality Standards violations due to excessive sedimentation would be avoided.

Virginia DEQ should revise the Draft 401 Certification to provide reasonable assurances that Virginia Water Quality Standards will not be violated as a result of excessive sedimentation.

### **A Revised Draft 401 Certification Should Require Effective Water Monitoring and Associated Mitigation As One Part of a Strategy to Protect Against Excessive Sedimentation.**

#### Legal Background:

It is clearly within Virginia DEQ's authority to require within a 401 Certification that the applicant conduct water monitoring as a strategy to aid Water Quality Standards compliance. Section 401(d) states that water monitoring is a strategy that can be employed:

*"Any certification provided under this section shall set forth any effluent limitations and other limitations, and **monitoring requirements necessary to assure** that any applicant for a Federal license or permit will comply with any ... appropriate requirement of State law set forth in such certification, and shall become a condition on any Federal license or permit subject to the provisions of this section."*

Since Virginia Water Quality Standards are authorized by State law, Virginia DEQ has the authority under Section 401 to require water monitoring as a means of providing reasonable assurance that Virginia Water Quality Standards would not be violated.<sup>21</sup>

It appears that Virginia DEQ is aware of the potential for 401 Certification to require water monitoring. The current Draft 401 Certification incorporates an Upland Construction Water Quality Monitoring Plan<sup>22</sup> and describes that plan as

*"... expressly incorporated herein and shall be an enforceable condition of this Certification".<sup>23</sup>*

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<sup>21</sup> This interpretation is supported by the US EPA's 401 Certification guidance document, Clean Water Act Section 401 Water Quality Certification: A Water Quality Protection Tool For States and Tribes, available from <https://www.nrc.gov/docs/ML1121/ML112160635.pdf>, see p. 23, "Role of Mitigation and Monitoring".

<sup>22</sup> Letter from DEQ to Mountain Valley Pipeline, 22 June 2017, starts on p. 24 of 184.

<sup>23</sup> Virginia DEQ, DRAFT Certification No. 17-001, 401 Water Quality Certification Issued To Mountain Valley Pipeline, LLC (DRFT Condition 5, p. 6 of 7).

*A 401 Certification, if issued, should require **EFFECTIVE** water monitoring and associated mitigation:*

In the comments that follow, I use the term “effective” to describe water monitoring procedures that would detect excessive sedimentation promptly, if such were to occur; and would enable prompt remedial action to prevent additional problems of the type responsible for the detected excessive-sedimentation event.

The following would be components of an effective plan for water monitoring and associated mitigation that would contribute to a reasonable assurance that water-quality standards violations would not occur or would occur only minimally:

- High-frequency monitoring for suspended sediments that would occur via in-situ, automated devices over extended periods.
- Timely reporting of monitoring data to Virginia DEQ, or real-time access by Virginia DEQ to such data;
- Timely evaluation of monitoring data by Virginia DEQ to determine if those data reveal excessive sedimentation;
- Timely response by Virginia DEQ to excessive sedimentation events, if occurring, to notify the company of the event and that prompt remedial action is required;
- Prompt and timely response by the company to conduct remedial action intended to prevent future problems, prompt reporting of that response to Virginia DEQ, and prompt evaluation of that response by Virginia DEQ;
- A requirement that the company evaluate the monitoring data and mitigate excessive sedimentation problems promptly and in a manner that is independent of Virginia DEQ’s evaluation (i.e., the company would be required to detect and remediate excessive sedimentation if such were to occur in the absence of notification by Virginia DEQ).
- A requirement to cease further disturbances as needed to take project-wide remedial actions if multiple or repeated excessive-sedimentation events were to occur.

The water monitoring and associated procedures would remain in place following any remedial action. Hence, that remedial action’s effectiveness in preventing additional problems would be known to the company and to Virginia DEQ.

As Virginia DEQ personnel are well aware, sedimentation impacts to surface waters are highly episodic. Streams that run clear during baseflow conditions can be inundated by sediments mobilized by soil erosion events cause by intensive storms. For example, the Virginia Erosion and Sediment Control Handbook states:

*“A study of sedimentation due to highway construction and land development in Virginia, for instance, indicated that 99 percent of*

*sediment discharge occurred during periods of high flow which took place during only three percent of the period of measurement*<sup>24</sup>

Implementation of effective water monitoring and associated mitigation should be but one piece of a larger strategy to address sedimentation issues within the 401 Certification process.

*The Current Proposed Upland Construction Water Quality Monitoring Plan Would Not Be Effective.*

Mountain Valley Pipeline LLC has proposed an Upland Construction Water Quality Monitoring Plan to Virginia DEQ.<sup>25</sup> The proposed plan states that it

*“is intended to generate representative monitoring data that will provide assurance that the approved erosion and sediment controls and other similar water quality control measures are effective.”*

First, please note that the proposed plan’s goals do not include assurance of Virginia Water Quality Standards compliance. This fact alone is a serious deficiency.

Also, the proposed plan includes no criteria for determining if water quality controls are “effective” (as the plan defines the term). Furthermore, the proposed Upland Construction Water Quality Monitoring Plan is inadequate to achieve even its limited stated goals.

Although turbidity, an indicator of water’s sediment content, is among the parameters identified for monitoring by Mountain Valley, the timing of turbidity monitoring is described only in general terms.<sup>26</sup> As noted above, concentrations of sediments carried by surface waters vary dramatically in time – sediment transport is episodic. Hence, the proposed plan’s requirement for Mountain Valley Pipeline personnel to insert a turbidity monitor into the water from time to time would be not be an effective means for identifying excessive sedimentation.<sup>27</sup> A turbidity measurement during baseflow cannot indicate turbidity during stormflow; and turbidity can be expected to vary over the course

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<sup>24</sup> Virginia Erosion and Sediment Control Handbook, Chapter 2, p. II-5.

<http://www.deq.virginia.gov/Programs/Water/StormwaterManagement/Publications/ESCHandbook.aspx>

<sup>25</sup> The Plan is documented the June 22, 2017, letter from Mountain Valley Pipeline LLC to DEQ’s Melanie Davenport, [http://www.deq.virginia.gov/Portals/0/DEQ/Water/Pipelines/MVP\\_second\\_%20Response62217.pdf](http://www.deq.virginia.gov/Portals/0/DEQ/Water/Pipelines/MVP_second_%20Response62217.pdf), starts on p. 24 of 184.

<sup>26</sup> The Plan states: “Mountain Valley will conduct monitoring of chemical and physical parameters at each identified location three times prior to construction, three times during active construction, and three times after stabilization (i.e., seeding and mulching of the construction right-of-way).” No other guidance on sample timing is provided.

<sup>27</sup> I caution against the minor modification of the current proposed monitoring plan by adding a statement such as “Water would be monitored for turbidity using Upland Construction Water Quality Monitoring Plan during or following storm events”. Efforts to characterize peak sediment discharges associated with storm events using manual methods (i.e. “storm chasing”) are typically ineffective as a result of the highly variable nature of sediment discharge during and following storm events. I make this statement based on personal experience (C.E. Zipper et al. 2002. Identifying Critical Sediment-Source Areas in the Clinch-Powell Basin: Little River Feasibility Study. Final Report Submitted to The Nature Conservancy and Virginia Water Resources Research Center ) as well as review of scientific literature.

of a storm event, rendering a single manual measurement even during a storm as essentially meaningless.

The proposed plan also requires biological monitoring, but monitoring schedules are such that results would be provided to DEQ months subsequent to excessive sedimentation events; and, hence, would not provide information on such events in a timely manner.<sup>28</sup> Furthermore, biological monitoring data alone would not enable identification of excessive sedimentation events directly, as biological impairments can result from numerous causes. Therefore, if excessive sedimentation were to occur, the proposed plan would not enable timely remedial actions to prevent additional excessive sedimentation events. If a monitored site were to produce excessive sedimentation sufficient to cause biological impairment, the proposed plan would not enable DEQ to become aware of the biological impairment until months later; and would not provide information to link that biological impairment directly to excessive sedimentation. Hence, the biological monitoring described by the proposed plan would not be effective as a means of identifying excessive sedimentation in a manner that is sufficiently timely to enable remedial actions that would prevent future problems.

The proposed plan also states that “Photo documentation, general observations” will be conducted. Supporting text (“Sampling Methodology”) describes this procedure as

*“GPS-enabled camera. Photos will have unique ID, date, and GPS coordinates. Photo stations will be staked in the field. General observations will also be recorded (i.e., weather, stream conditions)”.*

This procedure is unclear and unlikely to be effective. What would the applicant take photos of? Water or sediment control structures such as silt fences? If water, the proposed procedure is very unorthodox. I have been working professionally with water quality issues for decades but have never come across a water monitoring procedure of this type, either in my own experience or in scientific literature. What is the evidence that this procedure would be adequate to detect excessive sedimentation? If the photos would be of something other than water, why are they not planning to monitor the water? Virginia Water Quality Standards seek to maintain the quality of the Commonwealth’s waters, not the operation of silt fences.

Another inadequacy of the Upland Construction Water Quality Monitoring Plan is that it would be implemented only at nine locations throughout the Commonwealth. These locations were selected based on criteria described by the proposed plan. Just a cursory review of intended locations indicates that they leave vital aquatic resources lacking even the minimal monitoring as proposed. Bottom Creek in Roanoke and Montgomery Counties, for example, is a Tier III stream that harbors federally protected species. Bottom Creek itself is proposed for several pipeline crossings, and dozens of

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<sup>28</sup> “Biological sampling will occur once at pre-, during, and post-construction, provided that the sampling can occur within the spring or fall index period (March 1 through May 31 and September 1 through November 30). The post-construction benthic sampling will occur at least a month after construction completion and ground stabilization, provided that sampling can occur within the spring or fall index period, otherwise sampling will take place in the first available index period.”

“Within 4 weeks of completing the sampling event the data (chemical results, bench sheets, metrics, and VSCI scores) will be provided by email to the address identified by DEQ.”

waterbodies within the Bottom Creek watershed upstream of its Tier III segment would be directly affected by construction. Yet, Mountain Valley proposes only one monitoring point in the Bottom Creek watershed, and that is on a Bottom Creek tributary (Mill Creek) and not on Bottom Creek itself.

Even if the Upland Construction Water Quality Monitoring Plan were to have identified water-monitoring locations in an optimal manner, it would remain highly inadequate on the basis of having selected only nine monitoring locations, including seven where waterbodies are crossed by the pipeline and the construction corridor and two where waterbodies are affected by access roads. According to FERC's FEIS, Mountain Valley Pipeline LLC has proposed 397 Virginia waterbody crossings by pipeline construction, 170 of which are perennial streams.<sup>29</sup> Hence, the Upland Construction Water Quality Monitoring Plan proposes to conduct water monitoring at <2% of the proposed waterbody crossings and at ~4% of the perennial stream crossings. As a further inadequacy, it proposes no monitoring intended to detect cumulative effects of pipeline construction activities within watersheds subjected to multiple potential impacts upstream from sensitive water bodies.

#### *Suggested Plan for Effective Water Quality Monitoring:*

As stated above, I use the term “effective” to describe water monitoring procedures that would detect excessive sedimentation promptly, if such were to occur; and would enable prompt remedial action to prevent additional excessive sedimentation events of that same type.

Such monitoring could include placement of *in-situ*, high-frequency turbidity monitors in perennial streams that would be affected by pipeline construction disturbances. Turbidity measured at high-frequency time intervals over an extended period can characterize a stream's suspended-sediment response to storm events.<sup>30</sup> Placement of turbidity monitors upstream and downstream of a pipeline disturbance can enable characterization of the stream's content of sediments mobilized from the disturbance. Such turbidity data would also characterize the duration of excessive sedimentation, should such occur in response to a given storm event.

A problem with deployment of turbidity monitors would be determination of turbidity levels indicative of excessive sedimentation problems. It is common to calibrate turbidity measurements for any given site by constructing a “rating curve” that defines relationships between in-stream turbidity and suspended sediment concentrations. For the pipeline-disturbance monitoring, conventional sediment rating curves of this type would not be essential as assessments could be based on differences between a given site's upstream and downstream turbidity measurements as assessed by expert judgement. If the downstream monitor were to show significantly higher readings than

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<sup>29</sup> FERC, Final EIS, Table 4.3.2-2.

<sup>30</sup> The capability of turbidity measurements to enable estimation of suspended-sediment concentrations is well supported by scientific literature. For example, see: Rasmussen, P.P., J.R. Gray, G.D. Glysson, A.C. Ziegler. 2009. Guidelines and procedures for computing time-series suspended-sediment concentrations and loads from in-stream turbidity-sensor and streamflow data. U.S. Geological Survey, Techniques and Methods, Book 3, chap. C4, 53 p.

the upstream monitor, that difference would indicate significant sedimentation originating from the disturbance. Virginia-based personnel have extensive experience in the use of in-situ turbidity measurements and perhaps could be engaged by Virginia DEQ to provide expert opinion on how best to deploy and interpret data from in-situ turbidity monitors to identify excessive sedimentation.<sup>31</sup>

Given the highly valued aquatic resources that occur within the project area, it would be desirable to establish in-situ suspended sediment and/or sediment deposition monitoring both upstream and downstream of pipeline disturbances in streams harboring such resources. However, it would also be desirable to establish such monitoring more widely. Stream crossings at the base of steep slopes disturbed by pipeline construction, for example, would be more vulnerable to excessive sedimentation than stream crossings in relatively flat terrains, and Virginia Water Quality Standards protect indigenous populations of aquatic life in all waters of the Commonwealth.

It would also be desirable to establish before-during-and-after turbidity monitoring in some streams, in addition to the upstream-downstream monitoring protocol suggested above. Such monitoring would be conducted before construction for a period adequate to assess pre-construction baseline conditions; during construction; and following construction until in-situ turbidity has achieved pre-construction baseline conditions and all pipeline disturbance areas have been fully revegetated. Stream segments harboring valued resources and subject to multiple upstream pipeline-construction impacts would be candidates for such monitoring.

For example, a segment of Bottom Creek in Roanoke and Montgomery Counties is defined by Virginia DEQ as Exceptional State Waters (Tier III).<sup>32</sup> Bottom Creek is proposed for crossing by the proposed pipeline upstream from the Tier III segment three times, at mileposts 241.5, 241.7 and 242.4; and an additional 32 impacts to Bottom Creek tributaries are proposed.<sup>33</sup> The 35 total impacts to Bottom Creek and its tributaries include direct (ditching and filling) and indirect (access road crossings, etc.)

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<sup>31</sup> J.D. Jastram and K. Hyer are US Geological Survey personnel stationed at the USGS Virginia Water Science Center in Richmond VA. See the following publications by these personnel:

Jastram J.D., 2007. Improving Turbidity-Based Estimates of Suspended Sediment Concentrations and Loads. M.S. Thesis, Virginia Tech.

Jastram J.D., D. Moyer, K. Hyer. 2009. A comparison of turbidity-based and streamflow-based estimates of suspended-sediment concentrations in three Chesapeake Bay tributaries US Geological Survey Scientific Investigations Report 2009-5165.

Jastram J.D., C.E. Zipper, K. Hyer, L.W. Zelazny. 2010. Increasing precision of turbidity-based suspended sediment concentration and load estimates. *Journal of Environmental Quality* 39: 1306-1316.

Jastram J.D., J.L. Krstolic, D. Moyer, K. Hyer. 2015. Fluvial geomorphology and suspended-sediment transport during construction of the Roanoke River Flood Reduction Project in Roanoke, Virginia, 2005–2012. US Geological Survey Scientific Investigations Report 2015-5111.

Hyer K., J.D. Jastram, D. Moyer, J.S. Webber, J.G. Chanat, 2015. Evaluation and application of regional turbidity-sediment regression models in Virginia. In 10th Federal Interagency Sedimentation Conference.

<sup>32</sup>

[http://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/WaterQualityStandards/ExceptionalStateWaters\(TierIII\).aspx](http://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/WaterQualityStandards/ExceptionalStateWaters(TierIII).aspx)

<sup>33</sup> Data from Final EIS, Appendix K.

impacts to streams. In addition, approximately 6 miles of corridor (equivalent to ~100 acres denuded of vegetation during pipeline construction) are proposed for the upper Bottom Creek watershed. Hence, cumulative effects of pipeline construction on Bottom Creek including its Tier III segment would be a concern. Hence, a monitoring protocol that would assess Bottom Creek turbidity at a point downstream from those cumulative impacts but upstream from the Tier III segment would be advisable.

The Roanoke River near the Spring Hollow Reservoir intake would be another candidate for before-during-and-after turbidity monitoring. That location would be downstream from approximately 101 direct and indirect stream-channel impacts and 400 acres denuded of vegetation during construction; and is within the habitat of the federally protected and sedimentation-sensitive Roanoke logperch. FERC's FEIS has determined that Mountain Valley Pipeline, if constructed, is "*likely to adversely affect*" the Roanoke logperch.<sup>34</sup> Hence, cumulative impacts of pipeline construction on continuously measured water turbidity, an indicator of suspended sediment concentration, would be of particular interest at this location.

The North Fork Roanoke River downstream from its Mill Branch confluence in Montgomery County would also be a logical candidate for before-during-and-after turbidity monitoring. This river segment is also within or slightly upstream from critical habitat for the sediment-sensitive and likely-to-be-adversely-affected Roanoke logperch. The North Fork itself, upstream from this location, would be both ditched-and-filled for pipeline construction and crossed by a temporary roadway; while multiple stream segments in the Mill Creek headwaters at the base of steep Brush Mountain slopes would also be ditched-and-filled for pipeline construction and crossed by the 125-foot-width denuded construction corridor. The construction corridor would run laterally along the base of a steep mountain slope and through these multiple headwater segments. Certain of these stream segments contribute waters to Mill Creek and to North Fork Roanoke River indirectly, as those segments' waters pass through underground channels which harbor species of conservation significance.<sup>35</sup> FERC's EIS lists 11 stream segments in the North Fork Roanoke River watershed, including Mill Creek headwater streams, that would be crossed by the construction corridor and ditched-and-filled for pipeline installation; while another nine impacts by access roads, work spaces, and the like are proposed to streams within that same watershed.<sup>36</sup> Approximately 7 miles of pipeline corridor, equivalent to ~100 acres of denuded construction area, would occur in the North Fork Roanoke River watershed either within or directly upstream from habitat for the federally protected Roanoke logperch.

Craig Creek, proposed for pipeline crossing in Montgomery County, would be another candidate for before-during-and-after turbidity monitoring. Craig Creek is habitat for the orangefin madtom (*Noturus gilberti*) which is under review for potential federal listing under the Endangered Species Act (ESA).<sup>37</sup> Orangefin madtom is sensitive to

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<sup>34</sup> FERC, FEIS, p. 4-233.

<sup>35</sup> See submittal 20170302-5043 to FERC Docket CP16-10 (Mountain Valley Pipeline).

<sup>36</sup> FERC, Final EIS, Appendix K.

<sup>37</sup> FERC, Final EIS, p. 4-233&234; and US Fish and Wildlife Service, <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=E01J>



sedimentation effects;<sup>38</sup> and the proposed Craig Creek crossing occurs at the base of long steep slopes that would be disturbed by pipeline construction on both sides of the creek. In addition to the Craig Creek mainstem, two tributaries would be crossed by the construction corridor; both tributary crossings occur near the bottom of long, steep slopes that would be directly affected by pipeline construction.

In addition to Bottom Creek, Roanoke River, North Fork Roanoke River, and Craig Creek, other Virginia streams would be logical candidates for turbidity monitoring. For example, Sinking Creek and Little Stoney Creek in Giles County are exceptional fisheries. Big Stony Creek in Giles County would be another candidate, as it serves as for Candy Darter (*Etheostoma osburni*), also a fish species proposed for ESA listing<sup>39</sup> that is sensitive to fine sediments,<sup>40</sup> and is also an exceptional fishery.

I cite the above as examples because they are streams I am familiar with. I encourage Virginia DEQ to study the streams proposed for direct and indirect impact by pipeline construction; and to identify those streams harboring aquatic species and communities of exceptional value that would be subject to significant cumulative impacts due to pipeline construction. I encourage Virginia DEQ, when conducting this exercise, to take special note of sediment-sensitive species such as *Percina rex* and *Etheostoma osburni*. I also encourage Virginia DEQ to require via 401 Certification that Mountain Valley Pipeline LLC implement both upstream-downstream monitoring of pipeline stream crossings, and before-during-and-after water monitoring in cumulative impact stream segments. As I recommend, that monitoring should be of a form that would detect excessive sedimentation effects in those streams, should such occur, as they occur so as to enable prompt remedial action. I have suggested in-situ, high-frequency turbidity measurements over extended time periods as a form of monitoring that would be adequate to that purpose.

I also encourage Virginia DEQ to ensure that effective water monitoring and associated mitigation be employed at a number of locations that is adequate to prevent significant damage to Virginia water resources. Mountain Valley Pipeline LLC has proposed crossings of 397 streams by pipeline construction, 170 of which are perennial. Many of these streams are of exceptional value due to the diversity of the aquatic life that they support, the presence of federally protected or ESA-listing candidate species within their waters, and/or their status as high-value fisheries. Virginia Water Quality Standards, however, seek to protect the

*“the propagation and growth of a balanced, indigenous population of aquatic life”*

in all of the Commonwealth’s waters.

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<sup>38</sup> FERC’s FEIS (p. 4-234) states that the orangefin madtom “habitat is comprised of fast riffles over small cobble without much sand or silt. The orangefin madtom inhabits the interstitial space between the cobbles.”

<sup>39</sup> FERC, Final EIS, p. 4-233; and US Fish and Wildlife Service, <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=E03K>

<sup>40</sup> Dunn, C.G. and Angermeier, P.L., 2016. Development of Habitat Suitability Indices for the Candy Darter, with Cross-Scale Validation across Representative Populations. Transactions of the American Fisheries Society, 145(6), pp.1266-1281.

The current plan to conduct water monitoring at only nine locations is clearly inadequate; the number of water monitoring locations should be expanded considerably. Mountain Valley Pipeline LLC proposes to spend >\$3.5 billion on its pipeline project. Virginia DEQ should not hesitate to require that Mountain Valley Pipeline LLC invest funds for water protection, monitoring, and mitigation that is adequate to provide “reasonable assurance” that Virginia Water Quality Standards will not be violated.

***The Draft 401 Certification Should Define Penalties for Excessive Sedimentation Caused by Pipeline Construction.***

A problem with reliance on water monitoring as a sedimentation-control strategy is that it can identify problems only after they have occurred. While prompt detection and remedial mitigation of sedimentation problems would be preferable to an absence of such, avoidance of excessive sedimentation problems would be the best outcome.

The applicant proposes to impact waters of high environmental value. These waters include the Tier III Bottom Creek, rivers and streams that harbor federally protected species and species that are candidates for such, high-quality fisheries, and many other water resources of that are of exceptional value.

Effective sedimentation controls would require competent design, installation and continuing maintenance. A 401 Certification that defines penalties for excessive sedimentation events would provide the applicant with incentive to ensure that sedimentation controls are designed, installed, and maintained properly and competently.

**The Revised Draft 401 Certification Should Enable Direct Public Access to Incorporated Documents**

The “V. Conditions” section of the Draft 401 Certification references multiple documents that are essential to Draft 401 Certification conditions. These include:

- “measures detailed in [the applicant’s] June 1, 2017 and June 22, 2017 responses to the Department’s May 19, 2017 and June 15, 2017 Requests for Information.”
- Karst Hazard Assessment
- Karst Mitigation Plan
- Karst Dye Tracing Plan
- Attachment B of the Department’s June 15, 2017 request letter
- Upland Construction Water Quality Monitoring Plan
- Spill Prevention, Control, and Countermeasure (SPCC) Plan
- General Blasting Plan
- Landslide Mitigation Plan Revision 4

- Acid Forming Materials Mitigation Plan

These documents are described Draft 401 Certification using language such as “expressly incorporated herein and shall be an enforceable condition of this Certification”. Hence, all of these documents are essential to the Draft 401 Certification. Yet:

- None of these documents have been provided to the public by Virginia DEQ in association with the Draft 401 Certification.
- The Draft 401 Certification provides no citations, internet URLs, or other references for these documents, as would be needed by the public to enable public review of these documents.
- Most or all of these documents are difficult to locate and access.

The public’s ability to provide informed comment on the Draft 401 Certification has been hindered by lack of access to these “expressly incorporated” documents. Should Virginia DEQ choose to issue a 401 Certification to Mountain Valley Pipeline LLC, its enforcement of such would be hindered if DEQ personnel are unable to access these documents.

Virginia DEQ should issue a revised Draft 401 Certification that either incorporates these documents directly (perhaps as Appendices) or directs the public to durable internet posting hosted by Virginia DEQ where they can access these essential documents.

### **Virginia DEQ Should Revise and Re-Issue the Draft 401 Certification, and Should Suspend or Delay the Certification Process as Needed to Enable Public Comment on the Revised Draft Certification.**

The current Draft 401 Certification is deficient in numerous areas:

- It fails to provide “reasonable assurances” against Virginia Water Quality Standards violations.
- It fails to recognize excessive sedimentation as a water quality threat with potential to cause violations of Virginian Water Quality Standards.
- It proposes water-monitoring procedures that are clearly inadequate given the excessive sedimentation threats; and fails to propose water-monitoring procedures that are available and far better suited to detection of excessive sedimentation events than what it has proposed.
- It fails to provide the public with access to documents that are “expressly incorporated” within the Draft 401 Certification.

These are significant deficiencies. Virginia DEQ should revise and re-issue the Draft 401 Certification that remedies these deficiencies; and should suspend or delay the certification process as needed to enable public comment on a revised Draft 401 Certification that remedies these deficiencies.

I have used the term “*should*” throughout to state that Virginia DEQ “*should*” endeavor to provide for public comment a Draft 401 Certification document that satisfies Clean Water Act requirements by providing

*“reasonable assurance that the Mountain Valley Pipeline, LLC activities will be conducted in a manner that will not violate applicable Water Quality Standards.”<sup>41</sup>*

It is clear that the current Draft 401 Certification document fails to meet that standard. Virginia DEQ should revise the Draft 401 Certification and should submit the revised Draft 401 Certification for public comment.

Thank you for the opportunity to submit these comments.

With Regards,

(b) (6)

Cc: Cindy Schulz and Jennifer Stanhope, US Fish and Wildlife Service

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<sup>41</sup> Quoted text is copied from this document above. Virginia DEQ’s Draft 401 Certification does not contain the quoted text.

## ***Exhibit A***

### **Summary of professional experience concerning water quality by the author.**

**Education:** Ph.D., Agronomy, Virginia Tech, 1986.

**Experience:** Professional experience since the late 1980s concerning water quality and water-quality protection.

**Published Work:** Selected peer-reviewed publications that concern eastern USA water resources and water quality (\*s designate lead authors working under CEZ's supervision).

- Clark E.V.\*, C.E. Zipper, W.L. Daniels, Z.W. Orndorff, M.J. Keefe. 2017. Modeling patterns of total dissolved solids release from central Appalachia, USA mine spoils. *Journal of Environmental Quality* 46:55–63.
- Greer B.M., T.J. Burbey, C.E. Zipper, E.T. Hester. 2017. Electrical resistivity imaging of hydrologic flow through surface coal mine valley fills with comparison to other landforms. *Hydrological Processes* (in press) doi: 10.1002/hyp.11180
- Boehme E.A.\*, C.E. Zipper, S.H. Schoenholtz, D.J. Soucek, A.J. Timpano. 2016. Temporal dynamics of benthic macroinvertebrate communities and their response to elevated specific conductance in Appalachian coalfield headwater streams. *Ecological Indicators* 64:171–180.
- Clark E.V.\*, BM Greer; CE Zipper; ET Hester. 2016. Specific conductance-stage relationships in Appalachian valley fill streams. *Environmental Earth Sciences* 75:1222.
- Daniels W.L., C.E. Zipper, Z.W. Orndorff, J. Skousen, C.D. Barton, L.M. McDonald, M.A. Beck. 2016. Predicting TDS release from central Appalachian coal mine spoils. *Environmental Pollution* 216: 371-379.
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- Orndorff Z.W., W.L. Daniels, C.E. Zipper, M. Eick. 2015. A column evaluation of Appalachian coal mine spoils' temporal leaching behavior. *Environmental Pollution* 204: 39-47.
- Timpano A.J.\*, S.H. Schoenholtz, D.J. Soucek, C. E. Zipper. 2015. Salinity as a limiting factor for biological condition in mining-influenced Central Appalachian headwater streams. *Journal of the American Water Resources Association* 51:240-250.
- Daniels W.L., Z. Orndorff, C.E. Zipper. 2014. Predicting release and aquatic effects of total dissolved solids from Appalachian USA coal mines. *International Journal of Coal Science and Technology* 1:152-162.
- Evans D.M.\*, C.E. Zipper, P.F. Donovan, W.L. Daniels. 2014. Long-term trends of specific conductance in waters discharged by coal-mine valley fills in central Appalachia, USA. *Journal of the American Water Resources Association* 50: 1449-1460.
- Price J.E.\*, C.E. Zipper, J.W. Jones, C.T. Franck. 2014. Water and sediment quality in the Clinch River, Virginia and Tennessee, USA, over nearly five decades. *Journal of the American Water Resources Association* 50: 837–858.
- Zipper C.E., B. Beaty, G.C. Johnson, J.W. Jones, J.L. Krstolic, B.K. Ostby, W.J. Wolfe, P.F. Donovan. 2014. Freshwater mussel population status and habitat quality in the Clinch River, Virginia and Tennessee, USA: A featured collection. *Journal of the American Water Resources Association* 50: 807–819.

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- Locke B., D. Cherry, C.E. Zipper, R. Currie. 2006. Land use influences and ecotoxicological ratings for upper Clinch River tributaries, Virginia. *Archives of Environmental Contamination and Toxicology* 51:197-205.
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- Kennedy A.J., D. Cherry, C.E. Zipper. 2005. Evaluation of ionic contribution to the toxicity of a coal mine effluent, using *Ceriodaphnia dubia*. *Archives of Environmental Contamination and Toxicology* 49: 155-162.
- Soucek D., D.S. Cherry, C.E. Zipper. 2003. Impacts of mine drainage and other nonpoint source pollutants on aquatic biota in the upper Powell River System, Virginia. *Human and Ecological Risk Assessment* 9:1059-1073.
- Darken P., C.E. Zipper, G. Holtzman, E. Smith. 2002. Serial correlation in water quality variables: Estimation and implications for trend analysis. *Water Resources Research* 38:22 1-5.
- Soucek D., T. Denison, T. Schmidt, D. Cherry, C.E. Zipper. 2002. Impaired *Acroneuria* sp. (Plecoptera, Perlidae) populations associated with aluminum contamination in neutral pH surface waters. *Archives of Environmental Contamination and Toxicology* 42:416-422.
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***Exhibit B***

**Excerpt from West Virginia DEP Order issued to Rover  
Pipeline LLC on 17 July 2017.**



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west virginia department of environmental protection

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Environmental Enforcement  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304  
Telephone: (304) 926-0470 Fax: (304) 926-0488

Jim Justice, Governor  
Austin Caperton, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

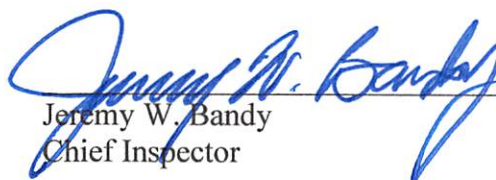
July 17, 2017

Rover Pipeline LLC  
Attn: Buffy Thomason  
1300 Main Street  
Houston, TX 77002

**CERTIFIED RETURN RECEIPT REQUESTED**

91 7199 9991 7037 0933 8497

Enclosed is Order No. 8749 dated July 17, 2017. This Order is issued to Rover Pipeline LLC by the director of the Division of Water and Waste Management under the authority of Chapter 22, Article 11, Section 12 of the Code of West Virginia. This Order contains notification of the right of appeal under the provisions of Chapter 22, Article 11, Section 21.



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Jeremy W. Bandy  
Chief Inspector

cc: Scott G. Mandirola, Director, DWWM (via e-mail)  
Yogesh Patel, Asst. Director, DWWM/Permits (via e-mail)  
Robin C. Dolly, Assistant Chief Inspector, EE/WW (via e-mail)  
David C. Simmons, Assistant Chief Inspector, EE (via e-mail)  
Christopher M. Gatens, Enforcement Hearing Officer, EE (via e-mail)  
Debora J. Peters, Environmental Resources Specialist, EE (via e-mail)  
Laura McGee, Environmental Resources Specialist (via e-mail)  
John Hendley, Environmental Inspector Supervisor, EE/WW (via e-mail)  
Tim Casto, Environmental Inspector, EE/WW (via e-mail)  
Shyrel Moellendick, MSSS, EE (via e-mail)  
Lisa Trakis, US EPA, Region III (via e-mail)





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west virginia department of environmental protection

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Division of Water and Waste Management  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304  
Phone: (304) 926-0470  
Fax: (304) 926-0488

Jim Justice, Governor  
Austin Caperton, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

**ORDER  
ISSUED UNDER THE  
WATER POLLUTION CONTROL ACT  
WEST VIRGINIA CODE, CHAPTER 22, ARTICLE 11**

TO: Rover Pipeline LLC  
Attn: Buffy Thomason  
1300 Main Street  
Houston, TX 77002

DATE: July 17, 2017

ORDER NO.: 8749

**INTRODUCTION**

The following findings are made and Order issued to Rover Pipeline LLC pursuant to the authority vested in the Director of the Division of Water and Waste Management under Chapter 22, Article 11, Section 1 et seq. of the Code of West Virginia.

**FINDINGS OF FACT**

In support of this Order, the Director hereby finds the following:

1. Rover Pipeline LLC is conducting land disturbance activity in Doddridge and Tyler Counties, West Virginia. Rover Pipeline LLC was issued Water Pollution Control Permit No. WV0116815, Registration No. WVR310726 on December 15, 2016.
2. On April 26, 2017, West Virginia Department of Environmental Protection (WVDEP) personnel conducted an inspection of the facility. During the inspection, violations of the following sections of WV Legislative Rules and the permit were observed and documented:
  - a. 47CSR2 Section 3.2.b - Rover Pipeline LLC caused conditions not allowable in waters of the State by creating sediment deposits on the bottom of Eibscamp Run and the Unnamed Tributary (UNT) of Buckeye Creek.
  - b. Section G.4.e.2 – The Permittee failed to properly implement controls. Specifically, silt fence and perimeter controls at the compressor site were improperly installed/maintained.
  - c. Section D.1- The Permittee failed to operate and maintain all erosion control devices at the compressor site.

Promoting a healthy environment.

- d. Section G.4.c - The Permittee failed to modify its Storm Water Pollution Prevention Plan (SWPPP) when the SWPPP proved to be ineffective for achieving the general objectives of controlling pollutants in storm water discharges at the compressor site.
- e. Section B - The Permittee failed to comply with the approved SWPPP. Several erosion control devices were not in place on the pipeline right of way as detailed by the SWPPP.
- f. Section G.4.e.2.A.ii.j - The Permittee failed to prevent sediment-laden water from leaving the site without going through an appropriate device. Off site and in stream sediment deposits were noted on the compressor site as well as the pipeline right of way.

As a result of the aforementioned violations, Notice of Violation (NOV) No. W17-09-019-TJC was issued to Rover Pipeline LLC.

3. On May 24, 2017, WVDEP personnel conducted an inspection of the facility. During the inspection, violations of the following sections of WV Legislative Rules and the permit were observed and documented:

- a. 47CSR2 Section 3.2.b- Rover Pipeline LLC caused conditions not allowable in waters of the State by creating sediment deposits on the bottom of Eibscamp Run and the UNT of Buckeye Creek.
- b. Section G.4.e.2 - The Permittee failed to properly implement controls. Specifically, silt fence/controls were improperly installed on the Sherwood Lateral Pipeline, most notably at the pipeline crossing at the UNT of Buckeye Creek.
- c. Section D.1 - The Permittee failed to operate and maintain all erosion control devices at the compressor site.
- d. Section G.4.c - The Permittee failed to modify its SWPPP when the SWPPP proved to be ineffective for achieving the general objectives of controlling pollutants in storm water discharges at the compressor site.
- e. Section B - The Permittee failed to comply with the approved SWPPP. Erosion control devices at the outlets of water bars were not in place on the pipeline right of way as detailed by the SWPPP.
- f. Section G.4.e.2.A.ii.j - The Permittee failed to prevent sediment-laden water from leaving the site without going through an appropriate device. Off site and in stream sediment deposits were noted on the compressor site as well as the pipeline right of way.

As a result of the aforementioned violations, NOV No. W17-09-028-TJC was issued to Rover Pipeline LLC.

4. On June 2 and 6, 2017, WVDEP personnel conducted an inspection of the facility. During the inspection, violations of the following sections of WV Legislative Rules and the permit were observed and documented:
- a. 47CSR2 Section 3.2.b- Rover Pipeline LLC caused conditions not allowable in waters of the State by creating sediment deposits on the bottom of UNT of

Jockeycamp Run, UNT of Morgans Run, UNT of Nutter Fork and ephemeral UNT of Nutter Fork.

- b. Section G.4.e.2 - The Permittee failed to properly implement controls. Specifically, silt fence was improperly installed on the Sherwood Lateral Pipeline from Rock Run to Elija Smith Road and west of Nutter Fork. Water bars were improperly installed throughout the inspected area. Water bar outlets lacked proper treatment throughout the inspected area. Bridges were improperly installed at Rock Run and the UNT of Morgans Run. No perimeter controls were in place from Access 10-B to 470+00.
- c. Section D.1 - The Permittee failed to operate and maintain all erosion control devices. Specifically, areas of silt fence were in need of maintenance throughout the inspected area. Water bars were damaged and/or eroded throughout the inspected area.
- d. Section B - The Permittee failed to comply with the approved SWPPP. Erosion control devices at the outlets of water bars were not in place on the Sherwood Lateral pipeline right of way throughout the inspected area as detailed by the SWPPP. Controls were improperly installed from Rock Run to Elija Smith Road and west of Nutter Fork. No perimeter controls were in place from access 10-B to 470+00.
- e. Section G.4.e.2.A.ii.j - The Permittee failed to prevent sediment-laden water from leaving the site without going through an appropriate device. Off site and in stream sediment deposits were noted at the UNT of Jockeycamp Run, UNT of Morgans Run, UNT of Nutter Fork, ephemeral UNT of Nutter Fork 100+00 and 84+00.

As a result of the aforementioned violations, NOV No. W17-09-030-TJC was issued to Rover Pipeline LLC.

- 5. On July 12, 2017, WVDEP personnel conducted an inspection of the facility. During the inspection, violations of the following sections of WV Legislative Rules and the permit were observed and documented:
  - a. 47CSR2 Section 3.2.b- Rover Pipeline LLC caused conditions not allowable in waters of the State by creating sediment deposits at the following eight (8) locations: England's Run, UNT of Buckeye Creek, UNT of Jockeycamp Run, UNT of Morgan's Run, ephemeral UNT of Morgan's Run, UNT of Rock Run, UNT of Nutter Fork, and Nutter Fork.
  - b. 47CSR2 Section 3.2.a- Rover Pipeline LLC caused conditions not allowable in waters of the State by creating distinctly visible settleable solids in the UNT of Buckeye Creek and the UNT of Rock Run.
  - c. Section G.4.e.2 - The Permittee failed to properly implement controls. Specifically, sheet flow Best Management Practices (BMPs) were being utilized in areas of concentrated flow.
  - d. Section D.1 - The Permittee failed to operate and maintain all erosion control devices. Specifically, areas of silt fence, filter sock, and water bar sumps were in need of maintenance throughout the inspected area.
  - e. Section B - The Permittee failed to comply with the approved SWPPP. Specifically, multiple water bars throughout the inspected area were not installed

as designed in the SWPPP. The storm water that is handled by the water bars was not being diverted off the Limits of Disturbance (LOD), resulting in concentrated flow traveling down-slope and overwhelming sheet flow BMPs at the base of the hill.

- f. Section G.4.e.2.A.ii.j - The Permittee failed to prevent sediment-laden water from leaving the site without going through an appropriate device. Offsite and/or in stream sediment deposits were noted in the following locations: Camp Mistake Run, England's Run, UNT of Buckeye Creek, UNT of Jockeycamp Run, UNT of Morgan's Run, Ephemeral UNT of Morgan's Run, UNT of Rock Run, UNT of Nutter Fork, and Nutter Fork.
- g. Section G.4.e.1.D - The Permittee failed to provide an adequate stone access entrance/exit to reduce the tracking of sediment onto Morgan's Run Road.
- h. Section G.4.e.2.D.i - The Permittee failed to inspect and clean debris from Morgan's Run Road.

As a result of the aforementioned violations, NOV No. W17-09-038-TJC was issued to Rover Pipeline LLC.

### **ORDER FOR COMPLIANCE**

And now, this day of July 17, 2017, Rover Pipeline LLC is hereby ORDERED by the Director as follows:

1. Rover Pipeline LLC shall immediately **cease & desist** any further land development activity until such time when compliance with the terms and conditions of its permit and all pertinent laws and rules is achieved. Rover Pipeline LLC shall contact WVDEP to arrange an inspection prior to restarting development activities. Environmental Enforcement may be contacted at:

**WVDEP Environmental Inspector Supervisor  
Construction Stormwater Environmental Enforcement  
1159 Nick Rahall Greenway  
Fayetteville, WV 25840  
(304) 574-4471**

2. Within twenty (20) days of the effective date of this Order, Rover Pipeline LLC shall submit for approval a proposed plan of corrective action and schedule, outlining action items and completion dates for how and when Rover Pipeline LLC will achieve compliance with the terms and conditions of its permit and all pertinent laws and rules. The plan of corrective action shall make reference to Order No. 8749. The plan of corrective action shall be submitted to:

**Chief Inspector  
Environmental Enforcement - Mail Code #031328  
WVDEP  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304**