

Mountain Valley Pipeline Project

Docket No. CP16-10-000

Attachment DR4 General 3c



February 23, 2017

Commonwealth of Virginia
Department of Environmental Quality
ATTN: Bettina Sullivan, Manager
629 East Main Street
Richmond, Virginia 23218

Re: Federal Energy Regulatory Commission Draft Environmental Impact Statement for the Mountain Valley Project (FERC/DEIS-D0272; FERC Docket Number CP16-10-000; DEQ 16-194F).

Dear Ms. Sullivan:

Please see the following response by Mountain Valley Pipeline, LLC (Mountain Valley or MVP) in regards to the Commonwealth of Virginia, Department of Environmental Quality's (DEQ) December 22, 2016 comments on the Federal Energy Regulatory Commission (FERC) Draft Environmental Impact Statement (DEIS) for the Proposed Mountain Valley Pipeline Project (Project):

DEQ Comment No. 1: A comprehensive forest mitigation plan addressing direct and indirect forest loss is needed. ...The Commonwealth agrees with FERC that implementation of the MVP will create adverse and significant impacts on forests and supports the recommendation for MVP, LLC to develop a mitigation plan in coordination with federal and state agencies for upland forest impacts (DEIS, Section 4.4.3). However, the Commonwealth's natural resource agencies indicate that indirect impacts and associated mitigation were not adequately addressed in the DEIS (see Attachment B). The regulations implementing NEPA (40 CFR 1500 et seq.) clearly state that federal agencies must discuss means to mitigate adverse environmental impacts, including indirect effects and their significance. The Commonwealth is recommending that FERC include a recommendation in Section 5.2 of the Final Environmental Impact Statement (EIS) that requires coordination with the Commonwealth's natural resource agencies and applicable federal agencies to mitigate direct and indirect impacts to upland forests in Virginia, specifically forested cores, and that if the Commission approves the construction and operation of the MVP, it condition the order on adherence to this recommendation.

Mountain Valley Response No. 1: The DEIS describes a variety of direct and indirect impacts to forest resources in Section 4.4.2. To complement this discussion, MVP is evaluating the service losses associated with these direct and indirect impacts, which it will address through a suite of mitigation measures developed in consultation with relevant federal and state resource agencies. These measures will be the result of ongoing consultation with U.S. Fish and Wildlife Service (USFWS), Commonwealth of Virginia (Virginia Department of Conservation and Recreation (VDCR) and Virginia Department of Game and Inland Fisheries (VDGIF)), and West Virginia Department of Natural Resources (WVDNR).

DEQ Comment No. 2: (a) Recommendation: Given the adverse impact to forestland that has been documented and recognized by FERC as significant in its analysis, the Commonwealth of Virginia recommends that FERC include in Section 5.2 a recommendation that directs MVP, LLC to coordinate with Virginia's natural resource agencies and applicable federal agencies on an acceptable mitigation plan to offset and compensate for the significant forestland impacts in Virginia, including direct and indirect losses and fragmentation effects.

Findings to support recommendation: The DEIS directs MVP, LLC to develop a mitigation plan in coordination with federal and state agencies for upland forest impacts in Section 4.4.3. Failing to include a robust account for direct and indirect impacts of the MVP to forests would gravely underestimate the extent to which Virginia's forest would be affected by the project. For additional evidence to support the recommendation, see comments from the Commonwealth's natural resource agencies in Attachment B.

Mountain Valley Response No. 2: Please see Response No. 1.

DEQ Comment No. 3: (b) Recommendation: Include a requirement directing MVP, LLC to develop an Acid Soil Mitigation Plan to be approved by Virginia Department of Environmental Quality (DEQ) and implement horizontal directional drilling (HDD) to the maximum extent practicable in areas containing acid soils. DEQ cautions that exposing these soils to the atmosphere through open trenching operations could result in acidic runoff, potentially resulting in environmental impacts. The plan should address how these areas will be managed, the disposition of acid soils, and details regarding proper storage and disposal practices.

Findings to support recommendation: DEQ considers stormwater management and erosion and sediment control (ESC) measures to be critically important to minimizing potential water quality impacts from the MVP. The MVP crosses or is within 100 meters of more than 21 miles of Virginia streams. Additionally, there are areas of special interest such as karst, steep slopes, slide prone areas, and acid sulfate soils. Proper stormwater management and ESC design, implementation, and monitoring will be paramount in protecting these resources. The ESC procedures contained in the DEIS are not representative of the full scope of Virginia's requirements for stormwater and ESC. DEQ has required MVP, LLC to submit site-specific ESC plans to be reviewed and approved prior to land-disturbing activity. These ESC plans will be expected to meet and exceed Virginia's requirements, particularly in areas of special interest. See the DEQ comments in Attachment B.

Mountain Valley Response No. 3: Acid-producing rock and soils may be encountered during land clearing and excavation in the construction right-of-way if these areas are underlain by acid-forming materials (AFM) that contain sulfide minerals susceptible to producing acidic run-off during weathering. AFM may be found in certain types of bedrock, coal seams, and the bedrock or spoils found at active and abandoned mined areas. For example, in Virginia, Mountain Valley identified the Millboro and Needmore shales in Montgomery County, and the Ashe Formation in Franklin County, as potential AFM. In West Virginia and parts of southwestern Virginia, black shales and coal seams are potential AFM. Mountain Valley is preparing an Acid Forming Materials Identification and Mitigation Plan (Plan) for the entire proposed alignment through West Virginia and Virginia, which will be included as part of MVP's Annual Standards and Specifications for Virginia (AS&S) that is currently under development.

The Plan will direct activities to identify and confirm the presence of AFM in work spaces and prescribe planned mitigation measures to be implemented during construction and restoration. The Plan will ensure that inspectors, in areas where AFM is encountered, will employ best management practices (BMPs) to prevent acid run-off conditions from forming in the work spaces, both during construction and after restoration is completed.

The Plan will also identify construction BMPs and mitigation measures to be implemented, where appropriate, to prevent storm water run-on and infiltration to the excavation and final backfilled trench in AFM areas, which will prevent run-off and discharge of low-pH water. Mountain Valley will complete construction expeditiously in areas where acid-forming soils and rock are found, limiting the amount of time the resulting excavation and excavated materials are exposed to surface conditions. Mountain Valley will coat the pipe in fusion-bonded epoxy to prevent any damage or deterioration to the pipeline in contact with AFM. Mountain Valley will deploy inspectors during all phases of construction who are trained in

the identification and mitigation of AFM, who will document the implementation of BMPs prescribed in the Plan. Mountain Valley will also conduct periodic inspections of the construction right-of-way after reclamation to ensure that acid drainage conditions are not forming as a result of construction and reclamation.

The HDD method allows for trenchless construction across an area by pre-drilling a hole well below the depth of a conventional pipeline lay and then pulling the pipeline through the pre-drilled borehole. A benefit of the HDD method is that there is minimal planned disturbance of the surface between the entry and exit points of the HDD (limited to the temporary deployment of telemetry cable and water pipe), provided there is reasonable access to the entry and exit points for the drilling rig and fluids handling equipment.

However, the HDD method has a number of disadvantages, which make it infeasible in many areas. These disadvantages include the amount of workspace required and the potential for inadvertent return. For a HDD, it is necessary to prefabricate a section of pipe aboveground that is equal to the length of the HDD. Existing surface features, such as roads and railroads, could restrict the length of the prefabricated section to less than that of the HDD length. Therefore, the HDD method can be used only under specific site conditions.

Furthermore, under the commonly accepted industry practice of a bending radius of 100 times the pipe outer diameter, the allowable bending radius for 42-inch steel pipe is 4,200 feet. This is a typical conservative industry rule of thumb and is not based on any actual stress analysis. Based on the stress analysis for the pipe grade and wall thickness used for the Project, the minimum bend radius without overstressing the pipe is 1,510 feet. For assessment purposes, an allowable minimum pipe bend radius of 2,500 feet was used for HDD crossings, with some exceptions made on a case-by-case basis. An HDD with an entry angle of 12 degrees, exit angle of 6 degrees, and a bend radius of 2,500 would require a minimum length of at least 1,287 feet if the terrain were flat. Changes in site elevation from entry to exit may cause the minimum required length to change. A bend radius of 2,500 feet is the max radius for a 42-inch-diameter pipe, but was necessary to traverse the crossings within the MVP alignment. Use of a 2,500-foot radius will increase the risk associated with successfully completing the crossings by HDD, based on an analysis using pipeline depths of at least 25 feet below rivers for HDD construction. The pipeline depth for HDD was based on minimizing the potential for inadvertent returns.

Another disadvantage of the HDD method is the possibility of an inadvertent return, which is when the pressurized drilling mud in the borehole finds a fracture or weak area and the drilling fluids discharge into the waterbody and other areas. Once an inadvertent return occurs, the control of the release is extremely difficult to manage to complete the drilling process and the area to clean up around the release may be difficult to access or manage as the area most likely will occur outside the Limits of Disturbance pre-established in the project design. Due to this potential risk, the HDD method has been ruled out as a feasible option in certain environmentally sensitive areas, such as areas with the potential for karst features.

Due to environmental risks associated with an inadvertent return and the design limitations inherent with the size of the pipe and the difficult terrain, often not allowing adequate pullback space, it was determined that the HDD method is not a reasonable alternative given the much higher risk of both technical and environmentally damaging failure at any location along the Project route as compared to the open trench installation method. Therefore, Mountain Valley does not intend to utilize the HDD at any location along the proposed route, including in areas of acid-forming materials.

Mountain Valley is currently preparing its AS&S for Project activities in Virginia. The AS&S will identify appropriate BMPs to control sediment from leaving the construction right-of-way, stabilize Project areas, and address areas of special concern including waterbodies and wetlands, steep slopes, and soils of concern.

Following approval of the AS&S by DEQ, Mountain Valley will prepare and submit site-specific erosion and sediment control plans for the Project in Virginia to the DEQ for review and approval. These plans will be developed in accordance with DEQ regulations and will cover all phases of construction including installation of the pipeline facilities, restoration, and stormwater management activities. Implementation of the site-specific ESC Plans will minimize potential for sediment discharge to occur from the right-of-way during construction and implementation of the Project. Mountain Valley will have dedicated environmental inspection staff as well as multiple third-party inspectors (FERC and DEQ) monitoring the Project for ESC compliance and implementing corrective measures as needed. Following installation of the pipeline, Mountain Valley will restore disturbed areas to pre-existing contours.

DEQ Comment No. 4: c) Recommendation: Add a recommendation to direct MVP, LLC to conduct pre-impact characterizations of proposed stream and wetland crossings to include sufficient evidence that the system will be able to maintain its original functions indefinitely after restoration. DEQ is concerned that the proposed temporary impacts could result in a permanent alteration of the impacted systems post construction. Pre-impact characterizations should include subsurface investigations at temporary stream and wetland impact areas to establish the feasibility of restoring the systems post construction and hydrologic assessments, including piezometers, to establish pre-impact hydrologic conditions at temporary wetland impact areas. See the DEQ comments in Attachment B.

Mountain Valley Response No. 4: Mountain Valley will restore stream channels disturbed during construction to preconstruction contours and conditions as required by existing state and federal requirements, including, where applicable, a Clean Water Act (CWA) § 404 permit from the U.S. Army Corps of Engineers (USACE), CWA § 401 certification from DEQ and WVDEP, and stream crossing authorization from the Virginia Marine Resources Commission. Mountain Valley conducted field visits with WVDEP and DEQ regulatory staff over several days during the summer/fall of 2016 to review site conditions at recently constructed EQT pipeline projects in West Virginia. Mountain Valley has had several office reviews with the WVDEP to discuss and identify enhanced stream restoration practices. Mountain Valley will continue to work with the WVDEP, DEQ, and other agencies during permit review to implement their proposed stream and wetland monitoring and enhanced restoration practices.

Impacts to these resources have been avoided and minimized to the extent practicable by reducing the temporary construction right-of-way (ROW) in waters, shifting the alignment to avoid and/or minimize impacts, and spanning resources where available. Measures to minimize impacts to sensitive waterbodies are discussed in detail in Resource Report 3. The temporary impacts will be restored to preconstruction conditions and monitored for stabilization until the state and federal agencies close the applicable permit. Permanent impacts to aquatic resources will be mitigated through either existing mitigation banks or state approved In-Lieu Fee programs. State and federal permits have been submitted to the appropriate agencies to document the permanent and temporary impacts to aquatic resources. Permit applications are currently under review.

DEQ Comment No. 5: (d) Recommendation: Add a new recommendation, or amend Recommendation 28, to include a requirement that MVP, LLC file feasibility and geotechnical studies for all HDD stream crossings. See the DEQ comments in Attachment B for location information.

Mountain Valley Response No. 5: As discussed in Response No. 3 above, MVP does not intend to utilize HDD at any location along the proposed route.

DEQ Comment No. 6: (e) Recommendation: Include a requirement that directs MVP, LLC to develop a comprehensive Water Quality Monitoring Plan that describes how water quality monitoring will be conducted before, during and up to five years after project construction. The plan should focus on identifying an appropriate number of monitoring locations above and below where open trench crossing or

HDD are used in critical areas such as wild/stocked trout streams, endangered/threatened species waters, public water supplies, total maximum daily load (TMDL) watersheds, Tier 3 streams, areas near acidic soils and streams with high Virginia Stream Condition Index (VSCI) scores. The plan should consider real-time temperature, dissolved oxygen and turbidity monitoring (such as that done in Virginia by the U.S. Geological Survey), which could allow the public and all agencies involved to access the data real-time. Additionally, the plan should include a collection of macroinvertebrates, fish, and habitat data, using DEQ approved methods, above and below identified crossings during the project, and yearly for 5 years after completion of the project.

Mountain Valley Response No. 6: Mountain Valley will conduct monitoring of all waterbody and wetland crossings in accordance with federal and state permit terms and conditions. Monitoring will be conducted at the pipeline crossing location and at areas at the edge of the limits of disturbance. The collected information will be used to compare post-construction conditions with pre-construction conditions to ensure that the resource has been properly restored. All waterbody crossings in Virginia are proposed as dry-ditch methods. Each crossing will be completed as a single and complete project using dedicated construction crews experienced with the specialized construction methods to be implemented at these sensitive resources. Each crossing will be completed in the shortest time feasible from start to finish in accordance with FERC's Plans and Procedures. Proper installation and maintenance of ESC BMPs will continue throughout the duration of the Project until the areas are permanently stabilized with vegetation (or other) as required by federal and state permit conditions. Mountain Valley does not anticipate any notable impacts to stream water quality from construction and crossings.

DEQ Comment No. 7: (f) Recommendation: Add a requirement directing MVP, LLC to conduct additional hydrostatic testing protections beyond the Virginia Pollutant Discharge Elimination System (VPDES) Permit discharge general permit requirements to include restricting volumes of intake and discharge not to exceed 10% of stream average daily flows and limiting screen sizes to not larger than 1 millimeter for withdrawals associated with hydrostatic testing and dust control. Findings to support recommendation: MVP, LLC will be required to obtain coverage under the General VPDES Permit Regulation for Discharges from Petroleum Contaminated Sites, Groundwater Remediation and Hydrostatic Tests (9VAC25-120). Section 4.6.2.4 suggests that MVP, LLC will minimize impacts from water withdrawals by adhering to the measures in its procedures called Erosion and Sediment Control Plans. However, in those plans in Section 2.6.1 Hydrostatic Testing, there is no evaluation or assurance that aquatic life will be minimally impacted. The focus is on withdrawal with water discharges only being mitigated with an energy dissipating device. A rough analysis indicated discharge volumes ranging from 10% to 445% of the average daily stream flow. See the DEQ comments in Attachment B for additional information.

Mountain Valley Response No. 7: Mountain Valley will obtain hydrostatic test water volumes from municipal sources for all hydrostatic testing activities in Virginia. No surface water withdrawals are proposed for Project use in Virginia. Following completion of hydrostatic testing activities, portions of the hydrostatic test water will be reused for testing additional segments of the pipeline (where feasible).

Hydrostatic test water will be released to upland areas through an energy-dissipating dewatering device in accordance with STD & SPEC 3.26 Dewatering Structure and Typical Construction Detail MVP-ES2 Pumped Water Filter Bag (See the Virginia Erosion and Sediment Control Handbook (1992)). The dewatering structures will be sized to accommodate the rate and volume of discharge. Discharges will be stopped when necessary to perform maintenance of the dewatering structures and ensure they remain in good working order. No hydrostatic test discharge will occur directly to waterbodies, wetlands, or other identified sensitive areas. Although coverage under Virginia General Permit No. VAG83 (Discharges from Petroleum Contaminated Sites, Groundwater Remediation, and Hydrostatic Tests) is unnecessary because there will be no surface water discharge, the released hydrostatic test water is expected to meet the permit's discharge limitations, and MVP's sampling protocol is consistent with the requirements of the general

permit. Since no surface water withdrawals or direct discharge to waterbodies will occur, no impacts to the average daily stream flow or aquatic resources are anticipated.

DEQ Comment No. 8: (g) Recommendation: Add a requirement for MVP, LLC to file stream and wetland mitigation plans prior to construction for permanent operational impacts, including permanent access roads and upgrades of existing roads for temporary access resulting in long-term stream impact. See the DEQ comments in Attachment B for additional information.

Mountain Valley Response No. 8: A stream and wetland mitigation plan will be included in a revised Joint Permit Application that MVP is presently preparing to submit to the USACE to obtain coverage under CWA § 404. MVP will submit the Joint Permit Application (and its attached mitigation plan) to the Commonwealth at that same time. Mountain Valley will continue to work with federal and state agencies regarding Project mitigation for permanent operational impacts to streams and wetlands caused by the Project, including permanent access road installations and temporary upgrades to existing access roads.

DEQ Comment No. 9: (h) Recommendation: Add a requirement that, prior to construction, MVP, LLC conduct dye trace studies, geological analysis and hydrological studies to determine subsurface flow paths in areas where the pipeline, access roads, layout yards, or fueling stations cross or lie upslope along drainages from karst features so that in the event of a spill, recovery and monitoring efforts may begin immediately. Locations of where channels terminate downstream of the project in swallets, especially in cases where swallets are more than 400 feet from the project centerline, should be documented. Incorporate results into the Karst Mitigation Plan. See DCR comment comments in Attachment B for specific locations.

Findings to support recommendation: DCR supports MVP, LLC's efforts in minimizing impacts to karst resources. However, the proposed practices do not completely eliminate the possibility of sediment or other contaminant releases during construction, maintenance, and operation of the pipeline. Primary contaminants of concern are sediment and chemicals, particularly hydrocarbons, associated with construction. Such contaminants could easily travel more than ¼ mile along these channels to downstream, receiving karst features, and in turn contaminate subterranean habitats and karst aquifers that supply water to springs and wells. The well and spring sampling protocol (see recommendation 2(e) of this section) should be revised and be based on the results of a robust and thorough karst hydrology study. See the DCR comments in Attachment B for additional information.

Mountain Valley Response No. 9: The Virginia Cave Board (VCB) previously made a similar request of MVP in its December 20, 2016 comment letter. In response to that letter, MVP tasked its Karst Specialist Team (KST) (scientists with extensive experience in assessing karst hydrology in southern West Virginia and southwestern Virginia) with preparing a technical evaluation and response. The KST has developed a number of recommendations, including case-specific conditions in which more extensive sampling and monitoring is warranted. However, detailed dye trace and other studies of *all* karst areas were determined to be unnecessary. For many of the areas identified by the VCB, there is sufficient existing information to extrapolate subsurface flow patterns and/or the identified features have little catchments other than the sinks themselves. The KST's response to the December 20, 2016 VCB letter will be provided to FERC under separate cover. Because that response also directly addresses this comment, a copy will be provided to VDCR and VCB as well.

DEQ Comment No. 10: (a) Recommendation 5: Require MVP, LLC to provide information on new route realignments or facility relocations, and staging areas, contractor yards, new access roads, and other areas that have not been previously identified in filings to DEQ and other entities responsible for permitting.

Mountain Valley Response No. 10: In December 2016, Mountain Valley made some minor revisions to the October 2016 Proposed Route (October 2016 Proposed Route – Revised December 2016). It

incorporates minor adjustments in the Jefferson National Forest and on National Park Service lands. These updated alignment sheets have been filed with FERC. Mountain Valley will provide the changes to the October 2016 Proposed Route to the DEQ and other entities responsible for permitting as requested in this comment. Moreover, Mountain Valley will use the October 2016 Proposed Route – Revised December 2016 in permit submittals the agencies.

DEQ Comment No. 11: (c) Recommendations 8, 25 and 26: Modify the recommendations to include DEQ as an entity that will receive updated status reports, results, and plans.

Mountain Valley Response No. 11: Mountain Valley believes it is unnecessary to include this recommendation in the final EIS. Mountain Valley will provide copies of any reports filed with FERC or other federal agencies to DEQ at its request, including copies of the documents cited in Recommendations 8, 25, and 26.

DEQ Comment No. 12: (d) Recommendation 26: Amend the recommendation to include the requirement that MVP, LLC file site-specific plans for streams crossed by temporary roads, including crossing methods (bridge or culvert), and for culvert crossings, culvert sizes based on runoff calculations and time in place. Locations of fill sources, temporary crossing restoration plans, and excess fill material disposal sites should be identified.

Mountain Valley Response No. 12: Mountain Valley does not intend to utilize temporary culvert installations or placement of temporary (earthen) fill materials during the Project’s crossing of waterbodies and wetlands on Project access roads. Temporary crossing of waterbodies will be conducted via equipment bridges (i.e., timber mats or bridges) and temporary placement of timber mats for equipment crossings of wetlands. All waterbody and wetland crossings on permanent access roads will be installed in accordance with Mountain Valley’s approved federal and state permit authorizations. The information requested by this comment will be included in the AS&S and associated plans to be submitted to DEQ to comply with Virginia’s stormwater and erosion and sediment control requirements and the applicable CWA § 404 permit.

DEQ Comment No. 13: (e) Recommendations 25 and 39: Amend the recommendations to include a requirement that MVP, LLC implement the following steps for a water monitoring assessment to ensure an accurate understanding of the environmental consequences related to karst resources as discussed in 4.3.1.2:

- Identify resurgence springs and other down gradient, connected groundwater for karst areas crossed by MVP using dye tracing methods
- Perform time-series monitoring of these features by using conductivity, temperature, pressure, and turbidity probes
- Collect spot samples during base flow periods
- Evaluate turbidity response to precipitation events prior to, during, and subsequent to construction

Findings to support recommendation: DCR is concerned that the proposed 500-foot buffer for identifying water sources in karst terrain is not adequate for identifying potential areas of impact as karst groundwater can move miles in a day. The existing water monitoring proposal would make it difficult to correlate impacts to the pipeline. Spot sampling of wells and springs prior to and after construction is important but karst waters can be dynamic. Depending on timing of sampling, results may or may not be characteristic. See the DCR comments in Attachment B for additional information.

Mountain Valley Response No. 13: Mountain Valley has provided information regarding karst hydrology and resource protection in Resource Report 2 (Water Supply Identification and Testing Plan), Resource Report 6 (Karst Hazards Assessment and Karst Mitigation Plan), responses to various agency comments,

and responses to prior and current FERC Data Requests. Also, see Mountain Valley's response to DEQ Comment No. 9 above, which specifically addresses the comment on dye tracing and describes the pending response to VCB comments that addresses the specific areas of concern, including the 500-foot buffer criteria for water sampling. Furthermore, we note that Myer and Hoyer (2009)¹ performed a similar study on turbidity in streams during construction of a natural gas pipeline (see Mountain Valley's response to DEQ Comment No. 6, above). This study indicated only minor to negligible turbidity increase, and no long-term impacts being attributable to pipeline construction. Mountain Valley prepared a Karst Mitigation Plan and a Project-specific Erosion and Sediment Control plan (including a karst-specific set of BMPs) in order to ensure no releases during construction, reclamation and operation will impact the karst aquifer, or surficial karst features.

DEQ Comment No. 14: (f) Recommendation 41: Modify the recommendation to include state-listed species and to require MVP, LLC to perform habitat assessments and/or species surveys, with permits as needed, for those species listed in the Department of Game and Inland Fisheries' (DGIF) detailed comments for which DGIF has not provided specific guidance (Attachment B). Modify the recommendation to require coordination with DGIF and DCR Division of Natural Heritage to ensure avoidance and minimization of impacts upon listed species and their habitats during project construction and long-term operation.

Mountain Valley Response No. 14: Various measures are documented in Section 4 of the DEIS to address state-listed species that may be affected by the Project, including ongoing consultation, habitat assessments, and species surveys. The DEIS already specifically acknowledges that the "Applicants will complete coordination activities with the WVDNR, Virginia Department of Conservation and Recreation, Virginia Department of Game and Inland Fisheries, Pennsylvania Department of Conservation and Natural Resources, Pennsylvania Game Commission, and Pennsylvania Fish and Boat Commission where required prior to construction." Moreover, this comment does not identify any *specific* additional habitat assessments or species surveys that VDGIF and VDCR believe are necessary, and MVP therefore cannot respond as to whether any such assessments or surveys are warranted. It would be inappropriate to incorporate an open-ended requirement into Recommendation 41.

DEQ Comment No. 15: (a) Canoe Cave Conservation Site: (i) Recommendation: Avoid the Canoe Cave Conservation Site as part of continuing efforts to evaluate route adjustments as stated on page 4-35 (paragraph 4). See comments from DCR in Attachment B for additional information. (ii) Recommendation: Institute route variations to avoid the pipeline running parallel along or upslope of belts of significant karst. Crossing these belts perpendicularly to the geologic strike would minimize the effects of land disturbance on the karst areas. See the DCR comments in Attachment B for additional information. (iii) Recommendation: Ensure that MVP, LLC performs dye trace investigations to determine the recharge area of Canoe Cave and associated spring and consider route variations based on results since the proposed route and the associated access road are within the conservation site for the significant cave (see Figure 1 in the DCR comments in Attachment B). See the DCR comments in Attachment B for additional information.

Mountain Valley Response No. 15: The recommendations in this comment were first presented to MVP in the VCB's December 20, 2016 letter. The report prepared by the KST and referenced in Response No. 9 above thoroughly addresses the issues presented in this comment as well. The report includes a thorough evaluation of cave and karst hydrologic setting and documents the conclusion that there would be no impacts to the Canoe Cave site.

DEQ Comment No. 16: (b) Mount Tabor Variation and Slussers Chapel Conservation Site: (i) Recommendation: Reroute the portion of the Mount Tabor alternative to avoid areas of concentrated water

¹ Moyer, D.L., and Hyer, K.E., 2009, Continuous turbidity monitoring in the Indian Creek watershed, Tazewell County, Virginia, 2006–08: U.S. Geological Survey Scientific Investigations Report 2009–5085, 42 p.

flow and associated erosion and sedimentation. See the DCR comments in Attachment B for additional information. (ii) Recommendation: Continue to evaluate alternatives in search of one that minimizes proximity to karst features and drainages associated with the Slussers Chapel Conservation Site. Findings to support recommendation: The Mount Tabor reroute moves the proposed section of the pipeline through the Slussers Chapel Conservation site, off of karst bedrock and the Mount Tabor sinkhole plain, onto noncarbonate rocks just to the north. However, the Mount Tabor alternative crosses five deeply incised stream channels (some intermittent, others perennial) immediately upstream of the contact with the karst of the Slussers Chapel Conservation Site. Based on recent studies, all but one of the sinkpoints downstream of the indicated stream crossing have been traced directly to the stream in Slussers Chapel and Mill Creek Cave and spring (see Figure 2 in the DCR comment letter). The remaining sinkpoint is expected to trace to Slussers Chapel as well, since it is within the watershed boundary as defined by the other traces. The current MVP route as proposed has a high potential to alter the hydrology of the Slussers Chapel-Mill Creek Cave system, and impact downstream surface waters as well. Construction in these streams is likely to produce erosion issues that will persist well beyond the construction period. See the DCR comments in Attachment B for additional information. (iii) Recommendation: Eliminate crossings on alignment sheet 27 by rerouting the pipeline in this area and change the route to avoid disturbance to active stream channels that lead to discrete inputs (swallets) of the Slussers Chapel – Mill Creek system. Obtain updated data on the thundercroft fissure. See the DCR comments in Attachment B for additional information.

Mountain Valley Response No. 16: The recommendations in this comment were first presented to Mountain Valley in the VCB's December 20, 2016 letter. The report prepared by the KST and referenced in Response No. 9 above thoroughly addresses the issues presented in this comment as well. This includes a detailed discussion on avoidance of the Slussers Chapel Conservation site and statement of no impact that will address this particular comment. The currently proposed alignment also avoids Mill Creek Cave and Mill Creek Springs Natural Area Preserve (aka, Blake Preserve).

DEQ Comment No. 17: (c) Mill Creek Springs Natural Area Preserve: (i) Recommendation: Change the proposed route to include a variation that avoids the Mill Creek Springs Natural Area Preserve also known as the Blake Preserve since proposed activities would violate the terms of the deed of dedication and open space easement. When modifying the route to avoid the preserve, consider all alternatives in determining the least environmentally impactful pipeline route including impacts to karst. See the DCR comments in Attachment B for additional information.

Mountain Valley Response No. 17: The currently proposed alignment avoids the Mill Creek Springs Natural Area Preserve (aka, Blake Preserve).

DEQ Comment No. 18: (d) DCR Conservation Areas: (i) Recommendation: Change the proposed route to include variations that avoid the following conservation areas (see the DCR comments in Attachment B for additional information):

- Roanoke River-North and South Forks Stream Conservation Unit
- Stony Creek Stream Conservation Unit
- Clover Hollow Conservation Site
- Craig Creek Stream Conservation Unit
- Canoe Cave Conservation Site
- Old Mill Conservation Site
- Kimballton Quarry (access roads)

Mountain Valley Response No. 18: Mountain Valley has taken all reasonable measures to avoid and minimize impacts to the identified Conservation Areas.

Roanoke River-North Fork Stream Conservation Unit – Mountain Valley’s October 2016 Proposed Route – Revised December 2016 avoids this stream conservation unit based on available mapping.

Roanoke River-South Fork Stream Conservation Unit – Mountain Valley has taken reasonable measures to avoid any potential impacts to this conversation area, but additional route revisions are not feasible. The October 2016 Proposed Route crosses the Roanoke River near MP 235.6 through a reduced workspace that is 75 feet wide. Erosion and sedimentation controls required by the DEQ will be installed and monitored throughout construction, and all time-of-year restrictions and wildlife relocations will be adhered to as specified by the VDCR and USFWS. Relocation of the pipeline to the west or east is not feasible due to existing residential development. The current alignment passes largely through open field owned by Norfolk Southern. Further relocation to the east would also put the Project near Spring Hollow Reservoir.

Kimballton Quarry – Further route changes to avoid this site are not feasible. Mountain Valley’s construction activities along access road MVP-GI-238 will not create additional impacts to the Kimballton Quarry Conservation Area. This access road is routed along an existing industrial road used to access the limestone quarry. The pipeline alignment near the Kimballton Quarry crosses an existing public road, Norcross Road, that experiences heavy traffic from industrial mining activity. This includes loading of railroad cars and continuous entrance and exit by tractor trailers. There are also electric transmission lines and substations in the vicinity of the quarry that will require access from the power companies at all times. Norcross road has steep road banks that currently prohibit accessibility to Mountain Valley’s proposed right-of-way. Therefore, Mountain Valley identified the access road through the Kimballton Quarry site to accommodate construction in this area, especially the Stony Creek and railroad crossings near MP 200.3; avoid re-contouring the road banks on Norcross Road; and alleviate traffic congestion.

Stony Creek Stream Conservation Unit – Mountain Valley’s October 2016 Proposed Route crosses Stony Creek once near MP 200.3. The workspace in this area narrows to 75 feet for a longer stretch than the route proposed in October 2015 to account for two additional tributaries to Stony Creek identified in subsequent environmental surveys. Mountain Valley proposes to cross Stony Creek perpendicularly to minimize the length of the crossing and thereby minimize the environmental impacts. The Project also crosses Stony Creek within a pre-existing utility corridor that houses a transmission power line to further reduce new impacts. Mountain Valley will implement required measures to protect critical aquatic life that have been found in Stony Creek, including time-of-year restrictions and erosion and sedimentation control measures. Avoidance of this crossing would necessitate either rerouting to the northwest or southeast. Moving the alignment northeast would create new impacts on the Jefferson National Forest and the Kimballton Quarry Conservation Area, which the October 2016 Proposed Route only impacts in areas previously disturbed for industrial activity. Adjusting to the southwest would increase the impacts on the Jefferson National Forest and create at least one crossing of the New River, which the Project currently does not impact.

Clover Hollow Conservation Site – The pipeline alignment is routed to avoid the Clover Hollow Conservation Site except for approximately 75 feet (1,100 sq. ft.) where it crosses stream S-NN17, based on available mapping. Construction in this area will be completed in a narrowed workspace to minimize environmental impacts.

Craig Creek Stream Conservation Unit – The October 2016 Proposed Route eliminates two of the four crossings of Craig Creek included in the route proposed in October 2015. The route also includes narrowed workspaces for the crossings of Craig Creek and associated unnamed tributaries between MP 219.5 and MP 219.9 and maintains a buffer of more than 100 feet between Craig Creek and Mountain Valley’s temporary workspace within Jefferson National Forest lands. Moving the route further to the west would bring the pipeline closer to the Preston Forest housing development on the south side of Brush Mountain, while adjusting further to the east would impact greater areas of the Jefferson National Forest and would cross into the Brush Mountain Wilderness. Additionally, Mountain Valley is finalizing its evaluation of

two alternative routing alignments between (mileposts) MPs 219.5 and 220.0 of the Proposed Route for the Project in the area of Craig Creek. Mountain Valley is consulting with the U.S. Forest Service (USFS) on the alternatives analysis and expects to submit the final alternatives analysis in February 2017.

Canoe Cave Conservation Site – Mountain Valley has shifted its alignment to the northwest beginning at October 2016 Proposed Route MP 214.8 (approximately 600 feet from previous alignment). The shift provides a buffer of more than 800 feet from the Project centerline to the known location of Canoe Cave and avoids all other mapped karst locations in the area through which the Project previously passed. The proposed route passes through previously cleared agricultural land, minimizing the overall environmental impact on forested land.

Old Mill Conservation Site – In the October 2016 Proposed Route – Revised December 2016 route, Mountain Valley incorporated an alternative route that avoids the areas of the Mount Tabor Sinkhole Plain with a higher density of identified karst features to the west. This route also avoids the Roanoke River-North Fork Stream Conservation Unit and the Mill Creek Springs Natural Area Preserve to the west. The pipeline route follows the boundary of the conservation lands on the north side as much as possible, before heading southeast through previously timbered land to make the shortest constructible crossing. Passing through this section of the Old Mill Conservation Site allowed Mountain Valley to co-locate with existing clear-cut area to lessen additional impacts.

The route through the Old Mill Conservation Site avoids all mapped caves and sinkhole features identified within the site boundaries. Mountain Valley will utilize existing logging roads for access through the Old Mill Conservation Site. Locating the alignment further to the east would increase the overall footprint of construction impact required to tie into the alignment to the southeast and would also traverse known karst terrain and features.

DEQ Comment No. 19: (e) Surface Waters: (i) Recommendation: Incorporate recommendations from DEQ to evaluate rerouting and, where not practicable, utilize enhanced ESC practices and increased inspections during construction activities. See the DEQ comments in Attachment B for detailed information.

Mountain Valley Response No. 19: Impacts to surface water resources have been reduced to the extent possible by reducing the temporary construction ROW, shifting the alignment to avoid and/or minimize impacts, and spanning resources where available. Measures to minimize impacts to sensitive waterbodies are discussed in detail in Resource Report 3. Implementation of the site-specific ESC Plans will minimize potential for sediment discharge to occur from the right-of-way during construction and implementation of the Project. Mountain Valley will have dedicated environmental inspection staff as well as multiple third-party inspectors (FERC and DEQ) monitoring the Project for ESC compliance and implementing corrective measures as needed.

DEQ Comment No. 20: (f) Wildlife Resources: (i) Recommendation: Consider the long-term impacts of forest fragmentation and to minimize them to the greatest extent possible by co-locating the pipeline within already-disturbed utility corridors and early successional habitats. See the DGIF comments in Attachment B."

Mountain Valley Response No. 20: To reduce forested habitat fragmentation to the maximum extent practical, the pipeline is aligned parallel to existing ROWs, including roads and utility corridors, along approximately 89.30 miles (143.71 kilometers) of the proposed route.

Service losses from direct and indirect impacts to forests are currently being evaluated and will be addressed through a suite of mitigation measures developed in consultation with relevant federal and state resource

agencies. These measures will be the result of ongoing consultation with USFWS, VDCR, VDGIF, and WVDNR.

DEQ Comment No. 21: (g) Aviation: (i) Recommendation: Consider impacts to the Roanoke-Blacksburg Regional Airport and the Smith Mountain Lake Airport if variations or route changes are proposed for areas north of the current alignment. See the Virginia Department of Aviation (DOAV) comments in Attachment B.

Mountain Valley Response No. 21: The Project will not present any potential hazard to air navigation. As the Virginia Department of Aviation comment states, the nearest public-use airport to the Project route in Virginia is the Virginia Tech-Montgomery Executive Airport. At its closest point, the Project route is approximately 26,000 feet (approximately 4.9 miles) from the airport and approximately 30 feet lower in elevation. None of the above-ground structures cited in the Virginia Department of Aviation's comment (i.e., compressor stations, meter stations, valve stations) are planned to be constructed at or near that location. The Project does not meet the Federal Aviation Administration's criteria for requiring the submission of a Form 7460-1 notice because no construction or alteration (including access roads) near the airport will (1) be greater than 200 feet above ground level or (2) exceed any of the imaginary surfaces specified in 14 C.F.R. § 77.9(b). For similar reasons, because no construction activity will occur at or in the immediate vicinity of an airport, FAA Advisory Circular 150/5370-2F Operational Safety on Airports During Construction is not applicable.

DEQ Comment No. 22: (a) Surface Water and Groundwater Resources: (i) Recommendation: Include an inventory of locations of private ponds relative to the pipe and road network. Locate road and pipe crossings down gradient of private ponds to the maximum extent possible and develop enhanced ESC measures to protect ponds from secondary impacts of construction where route alignments are not possible. See the DEQ comments in Attachment B.

Mountain Valley Response No. 22: Ponds located within the Project study corridor (i.e., a 300-foot-wide corridor centered on proposed pipeline centerline) were collected during field surveys. Mountain Valley will conduct further desktop reviews to identify private ponds located within 0.25-mile downslope of the limit of disturbance. Prior to construction, Mountain Valley will conduct field work to identify private ponds in proximity to the Project area that have not previously been identified, if any. Measures to avoid and minimize impacts to private ponds will be the same as for other waterbodies along the Project route. If necessary, enhanced erosion and sediment control devices, including but not limited to triple-stacked filter sock, super silt fence, and/or belted silt fence, will be installed upstream of these ponds. All BMPs utilized and implemented will be in accordance with the Project's AS&S and site-specific ESC Plans.

DEQ Comment No. 23: (ii) Recommendation: Provide details regarding material to be used and installation methods for all temporary culverts and temporary fill in waterbodies and wetlands for permanent and temporary access roads, including methods proposed to stabilize fill material. Include a detailed analysis of all alternatives relative to the use of culverts and temporary fill, such as relocations and bridges, to reduce both permanent and temporary waterbody impacts. See the DEQ comments in Attachment B.

Mountain Valley Response No. 23: During the course of routing of the Project, Mountain Valley made adjustments based on field surveys to avoid and or minimize impacts, to the extent practicable, to waterbodies and wetlands encountered along Project access roads and the pipeline alignment. In addition, Mountain Valley does not intend to utilize temporary culvert installations or placement of temporary (earthen) fill materials during the Project's crossing of waterbodies and wetlands on Project access roads. Temporary crossing of waterbodies will be conducted via equipment bridges (i.e., timber mats or bridges) and temporary placement of timber mats for equipment crossings of wetlands. All waterbody and wetland

crossings on permanent access roads will be installed in accordance with Mountain Valley's approved federal and state permit authorizations. See also Response No. 12.

DEQ Comment No. 24: (b) Infrastructure Conflicts: (i) Recommendation: Consider the Town of Rocky Mount's concerns about the proximity of the MVP to the town's drinking water plant as prevailing winds tend to blow south and the pipeline would be within 2,000 feet of the facility at its closest point. To limit the duration of any nearby emergency that would affect the drinking water facility or State Route 220 corridor, the Town of Rocky Mount recommends that additional mainline block valves be installed in the vicinity. See the comments from the Town of Rocky Mount in Attachment B for additional information.

Mountain Valley Response No. 24: In the area of the Town of Rocky Mount, Mountain Valley plans to install mainline valves at mile posts 259.2, 265.4 and 269.5. The mainline valves are spaced in accordance with U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration's regulations in 49 CFR § 192.179 and as follows:

- Each point on the pipeline in a Class 4 location must be within 2.5 miles (4 kilometers) of a valve.
- Each point on the pipeline in a Class 3 location must be within 4 miles (6.4 kilometers) of a valve.
- Each point on the pipeline in a Class 2 location must be within 7.5 miles (12 kilometers) of a valve.
- Each point on the pipeline in a Class 1 location must be within 10 miles (16 kilometers) of a valve.

DEQ Comment No. 25: (ii) Recommendation: Consider the impact of pipeline construction to planned infrastructure activities in the Town of Rocky Mount and include coordination with the Western Virginia Water Authority (WVWA) as a requirement to mitigate potential conflicts. See the comments from the Town of Rocky Mount in Attachment B for additional information.

Mountain Valley Response No. 25: Mountain Valley has consulted with Western Virginia Water Authority and does not anticipate construction conflicts in terms of timing or location regarding the water authority's planned infrastructure expansion in the vicinity of the Project's crossing of State Route 220. During construction, MVP will actively participate in the Virginia 811 system. This one-call system allows MVP to alert other operators and utilities of its construction activities and identify existing facilities and concurrent construction in the areas that MVP plans to work.

DEQ Comment No. 26: (c) Karst Resources: (i) Recommendation: Incorporate location-specific recommendations from DCR to protect karst resources. See the DCR comments in Attachment B for locations and associated recommendations and hydrological studies.

Mountain Valley Response No. 26: Mountain Valley has provided information regarding karst hydrology and resource protection in Resource Report 2 (Water Supply Identification and Testing Plan), Resource Report 6 (Karst Hazards Assessment and Karst Mitigation Plan), responses to various agency comments, and responses to prior and current FERC Data Requests. As noted in Response No. 9 above, Mountain Valley is addressing the VCB December 20, 2016 comments under separate cover.

DEQ Comment No. 27: (d) Wildlife Resources: (i) Recommendation: Update preconstruction requirements to include recommendations for mussel surveys (see the DGIF comments in Attachment B):

- If any work is proposed in streams known to support listed mussels, or in their perennial tributaries, perform a mussel survey and relocation from 100 meters upstream through 400 meters downstream of impact areas. This survey should be performed by a qualified, permitted biologist, preferably no more than six months prior to the start of construction.

- Ensure that all survey and relocation activities should adhere to draft guidance (attached to DGIF's detailed comments in Attachment B).
- Coordinate any relocations should be coordinated with [sic] DGIF.
- Coordinate with the U.S. Fish and Wildlife Service prior to relocating federally listed species.
- Submit survey results to DGIF. Upon review of the results, DGIF will make final recommendations regarding the protection of listed species known from the area.
- Coordinate with the U.S. Fish and Wildlife Service.

Mountain Valley Response No. 27: Coordination with USFWS and VDGIF is ongoing. Mussel relocation efforts are proposed to occur where presence of live mussels or evidence of mussels (i.e., collected dead shell) was confirmed at crossings of Sinking Creek, North Fork Roanoke River, Roanoke River, Little Creek, Blackwater River, and Pigg River. Project construction is scheduled to commence in 2017; therefore, mussel relocation efforts will occur in accordance with instream construction schedules anticipated in 2018. Well in advance of proposed construction (greater than six months), Mountain Valley will submit a list of streams to USFWS and VDGIF to determine if negative results are valid beyond the designated two-year expiration.

Relocation efforts will follow USFWS and VDGIF Draft Freshwater Mussel Guidelines for Virginia (dated September 4, 2013). The location of all relocated mussels will be documented with GPS coordinates, and all state-listed species will be tagged in the event future monitoring activities are warranted. Per USFWS's recommendation, aquatic snails will also be relocated during mussel relocation efforts.

DEQ Comment No. 28: (ii) Recommendation: Include all habitat survey results for the bog turtle. Due to access restrictions, habitat assessments are not complete and surveying continues. See the DGIF comments in Attachment B.

Mountain Valley Response No. 28: Mountain Valley submitted a final report titled "Bog Turtle (*Glyptemys muhlenbergii*) Phase I Habitat Assessments along Portions of the Mountain Valley Pipeline Project in Roanoke County, Virginia" to USFWS and VDGIF on November 15, 2016. Suitable habitat for the species was not documented.

DEQ Comment No. 29: (iii) Recommendation: Adhere to time-of-year restrictions for all instream work as described in Part II items 3(c)(iii) and 3(e)(ii). See the DGIF comments in Attachment B for additional information.

Mountain Valley Response No. 29: Mountain Valley will adhere to all state and federal designated time-of-year restrictions for all instream work in Virginia.

DEQ Comment No. 30: (e) Contaminated Soil, Sediment and Groundwater: (i) Recommendation: Add clarification that soil or sediment that is suspected of contamination should be addressed by the six-stage response plan as referenced in Section 4.2.2.2 in addition to the Unanticipated Discovery of Contamination Plan and in accordance with all applicable federal, state, and local laws and regulations. See the DEQ comments in Attachment B.

Mountain Valley Response No. 30: Soil or sediment that is suspected of contamination will be addressed by the seven-stage response plan outlined in Appendix A of the Spill Prevention, Control, and

Countermeasure (SPCC) Plan and Unanticipated Discovery of Contamination Plan. Section 4.2.2.2 of the DEIS incorrectly references it as a six-stage plan.

DEQ Comment No. 31: (ii) Recommendation: Incorporate more specific measures, including coordination with appropriate regulatory agencies, to manage groundwater suspected of contamination or discovery of any brine pit as referenced in section 4.3.1.2. Ensure that the Environmental Inspectors (EIs) complete more specific training and use proper field equipment for contamination analyses. See the DEQ comments in Attachment B.

Mountain Valley Response No. 31: Mountain Valley has not identified and does not anticipate crossing any brine pits within or near USFS or USACE property or the ROW. However, if one is encountered, Mountain Valley will implement the same procedures identified in the Mine Pool Mitigation Plan.

Mountain Valley has prepared and submitted to FERC an Unanticipated Discovery of Contamination Plan (which is attached to the SPCC Plan), which would be used in the event that unknown areas of contaminated soils are encountered during construction of the Project. This plan details how such discoveries will be handled during construction. In accordance with the plan, if contamination is suspected, those materials will be segregated and isolated from other materials excavated and representative samples will be collected and submitted to an environmental laboratory for analysis and/or waste classification. If the testing reveals that the material is impacted, it will then be properly managed and disposed of at the appropriately permitted facility.

DEQ Comment No. 32: (f) Recreational and Scenic Resources: (i) Recommendation: Include coordination with the DCR Division of Planning and Recreational Resources since the route easement could offer connection to regional and local trail systems. See the DCR comments in Attachment B for additional information.

Mountain Valley Response No. 32: While providing greater public access to regional and local trail systems is a worthwhile objective, it generally is beyond Mountain Valley's power to accommodate public use on a private easement. Mountain Valley's easement agreement with landowners grants Mountain Valley the right to access the right-of-way for the limited purpose of construction and maintenance of the pipeline and right-of-way, but Mountain Valley does not have the right to grant the public access to land owned by third parties.

DEQ Comment No. 33: (g) Virginia Outdoor Foundation Easements: (i) Recommendation: Incorporate accurate impacts to easements owned by the Virginia Outdoors Foundation (VOF) and identify future coordination with the VOF Board of Trustees as a requirement pursuant to the Code of Virginia §10.1-1704 as applicable.

Mountain Valley Response No. 33: The October 2016 Proposed Route - December 2016 does not cross any VOF property easements. Instead, only the proposed permanent access road MVP-RO-279.01 will cross VOF Parcel #102-00-01-02-0000. Mountain Valley currently proposes to utilize an existing private road off of Honeysuckle Road for permanent access; therefore, impacts would be limited to disturbance for improvement and subsequent use of the access road. The existing road on the VOF parcel is currently approximately 10 feet wide and 675 feet long, which equates to 0.15 acre of existing road. Mountain Valley proposes up to a 40-foot-wide workspace to allow for equipment access, which would include the width of the existing road. Thus, the incremental impact of the workspace on the VOF parcel will be 30 feet wide and 675 feet long, which equates to 0.47 acre.

The existing private road would require upgrades such as grading, moderate widening, trimming of vegetation, and stabilization with stone. Access would generally be with light- to medium-duty vehicles

and equipment during operations; however, larger equipment will be used during construction. Frequency of use will vary and will be based on what is required to maintain compliance along with the safety and integrity of the pipeline. At a minimum, annual access should be assumed. Examples of maintenance activities would include One-Call response as required by law, monitoring of infrastructure related to cathodic protection as required, mowing of the right-of-way (three-year cycle anticipated), and road maintenance as required to ensure compliance with the easement agreement. Mountain Valley will install a gate upon request.

Mountain Valley continues to coordinate with the VOF regarding the proposed access road and plans to pursue a permanent easement option through the Conversion of Open Space application process pursuant to Virginia Code Section 10.1-1704.

DEQ Comment No. 34: (h) Geologic and Mineral Resources: (i) Recommendation: Incorporate information to address analytical deficiencies identified by the Department of Mines, Minerals and Energy (DMME) in Attachment B by including impacts to undeveloped mineral resources with potential economic value and addressing the potential for acid drainage from the coal-bearing strata of the Price Formation and potential debris flows at slopes as low as approximately 5%.

Mountain Valley Response No. 34: Please refer to Mountain Valley Response No. 3 for a discussion on assessing and mitigation potential for acid drainage from coal-bearing strata and other potential sources (Acid Forming Materials Identification and Testing Plan).

Mountain Valley is aware of the potential for debris flows along the proposed route, especially in gently sloping areas subjacent to steep slopes. During construction, Mountain Valley's landslide mitigation specialists will identify existing areas along the proposed route that are prone to debris flow. Minor route adjustments will be made to avoid the area, and if avoidance is not possible, Mountain Valley will mitigate the risk of activating a debris flow with the following measures:

- minimizing the height of stockpiled material near debris flows to avoid surcharging and reactivating the debris flow;
- properly compacting material replaced on the right of way;
- controlling surface runoff from the limit of disturbance and the reclaimed construction area to prevent direct flow into exposed debris flow or colluvial deposit;
- intercepting and controlling subsurface drainage from the excavation during construction and post-construction to prevent subsurface infiltration into the underlying debris flow or colluvial deposit; and
- constructing in a timely fashion to reduce the amount of time when the limit of disturbance is exposed to the elements and not under final grade.

Debris flows are also discussed in Mountain Valley's *Landslide Mitigation Plan* and *Site-Specific Design of Stabilization Measures in Selected High-Hazard Portions of the Route of the Proposed Mountain Valley Pipeline Project in the Jefferson National Forest*.

DEQ Comment No. 35: (i) Pollution Prevention: (i) Recommendation: Include additional information on reuse, recycling and pollution prevention as identified below by the DEQ Office of Pollution Prevention (see comments in Attachment B).

- Consider the development of an effective Environmental Management System (EMS). An effective EMS will ensure that the proposed project is committed to complying with environmental regulations, reducing risk, minimizing environmental impacts, setting environmental goals, and achieving improvements in its environmental performance. DEQ offers EMS development

assistance and recognizes facilities with effective Environmental Management Systems through its Virginia Environmental Excellence Program (VEEP). VEEP provides recognition, annual permit fee discounts, and the possibility for alternative compliance methods.

- Consider reuse and recycling opportunities when evaluating waste handling, including asphalt recycling (Section 2.4.2.12, p. 2-47), mulching of brush and timber (Section 2.4.2.2, p. 2-38) and water reuse opportunities (p. 4-101).
- Consider contractors' commitment to the environment when choosing contractors. Specifications regarding raw materials and construction practices can be included in contract documents and requests for proposals.
- Choose sustainable materials and practices for construction and design, including the use of native species and pollinators when re-establishing vegetation (Section 2.3.4, p. 2-28).
- Integrate pollution prevention techniques into maintenance and operation.
- Encourage supply chain partners to implement pollution prevention, sustainability, and environmental management systems.
- Coordinate with the DEQ Office of Pollution Prevention for additional information and technical assistance relating to pollution prevention techniques and EMS.

Mountain Valley Response No. 35: Mountain Valley will implement recycling of Project waste streams (where feasible) to minimize impacts related to disposal. This will include (at minimum):

- (1) Mulching or reuse of brush following ROW clearing in accordance with DEQ STD & SPEC 3.06 Brush Barrier to help control sediment from leaving the Project limits. This BMP is included in the Project's AS&S and will be incorporated to the extent practicable in accordance with landowner conditions/agreements; and
- (2) Reuse of hydrostatic test water from pipeline hydrostatic testing activities to the extent practicable. This will include reuse of test water from one test segment to the next test segment where feasible.

Mountain Valley will require all contractor employees, subcontractors, and agency representatives to attend the Project specific Worker Environmental Awareness Program (WEAP) training prior to conducting any activities on the Project. The WEAP training emphasizes the importance that Mountain Valley places on environmental compliance, identifies permit conditions and restrictions applicable to the Project, and identifies spill reporting procedures and emergency notification requirements.

Mountain Valley has developed specific seed mixes to be used throughout the Project in both Virginia and West Virginia. Recommended seed mixes were developed in coordination with Wildlife Habitat Council, USFS, USFWS, and Mountain Valley's threatened and endangered species consultant. Seed mixes are designed to provide habitat for threatened and endangered species as well as to stabilize and revegetate the Project limits with pollinator-friendly species.

Mountain Valley will integrate pollution prevention techniques into maintenance and operation activities in accordance with the SPCC Plan included in the Project AS&S.

Mountain Valley will also encourage supply-chain partners to implement pollution prevention. Mountain Valley will coordinate with DEQ regarding additional guidance on pollution prevention techniques.

DEQ Comment No. 36: (j) Aviation: (i) Recommendation: Ensure that the design of above-ground facilities does not interfere with pilots' safe ingress and egress at nearby airports at their existing configuration and with planned improvements and runway expansion. See the DOAV comments in Attachment B for additional information.

Mountain Valley Response No. 36: Please refer to Response No. 21.

DEQ Comment No. 37: (k) Drinking Water Resources: (i) Recommendation: Follow recommendations from the Virginia Department of Health (VDH) to protect drinking water sources (private wells, springs, cisterns and public water supplies), conduct a survey of onsite sewage systems and private wells in relation to the pipeline route to determine potential impacts, and coordinate with VDH Office of Environmental Health Services (see the VDH comments in Attachment B).

Mountain Valley Response No. 37: Mountain Valley consulted with the Virginia Department of Health during preparation of the Water Supply Identification and Testing Plan (Resource Report 2, updated February 2017). Mountain Valley is conducting direct outreach to all property owners (including public water suppliers) along the route to gather information on the location and characteristics of water supplies and to request permission to conduct pre-construction testing at these supplies. To date, Mountain Valley has contacted private property owners along the northern approximately 130 miles of the proposed alignment and the southern approximately 40 miles, as well as all public water suppliers. Mountain Valley plans to contact property owners regarding water supplies along the remaining portion of the alignment in mid-2017. Mountain Valley has specifically contacted public water suppliers directly to address their concerns and is working directly with those suppliers that requested additional information. Mountain Valley will conduct pre-construction testing of the public water supplies and has communicated directly to the water suppliers Mountain Valley's commitment to protecting their water supplies.

Where requested by property owners, the Project has been re-routed to avoid impacts to onsite sewage systems. *See, e.g.*, DEIS 3-75. Because the route generally avoids close proximity to occupied dwellings, impacts to septic systems are expected to be very rare. Any such systems that are encountered during construction will be addressed appropriately.

DEQ Comment No. 38: (l) Rare Plants: (i) Recommendation: Conduct surveys for the following non-listed state and globally rare plants that are tracked by DCR and that were not included in the previous rare plant surveys for the project (see the DCR comments in Attachment B):

- Chestnut lip fern (*Cheilanthes castanea*, G5/S2/NL/NL) – Ellison Quad
- Piedmont fameflower (*Phemeranthus piedmontanus*, G1/S1/NL/NL) – Boone's Mill Quad
- Weak bluegrass (*Poa saltuensis*, G5/S2/NL/NL) – Penhook Quad
- Prairie dropseed (*Sporobolus heterolepis*, G5/S1/NL/NL) – Penhook Quad

Mountain Valley Response No. 38: Surveys were not conducted for these species because the Project no longer crosses the conservation sites where the plants are documented.

DEQ Comment No. 39: (a) Wetlands and Surface Waters: (i) Recommendation: Include temporary wetland impact soil handling requirements as detailed in the DEQ comments in attachment B. During trench excavation in all wetlands, saturated or unsaturated, segregate the upper 12-inches of the soil profile as

“wetland topsoil” from the underlying subsoil, store the wetland topsoil in a soil stockpile separate from other soil materials, and upon closing the trench, use the wetland topsoil to fill the upper 12-inches of the trench to reconstruct the wetland soil profile. Restore temporarily disturbed wetland areas to pre-existing conditions within 30 days of completing work at each respective temporary impact area, including reestablishing preconstruction elevations and contours with topsoil from the impact area and planting or seeding with appropriate wetland vegetation according to pre-disturbance cover type.

Mountain Valley Response No. 39: Per FERC requirements, Mountain Valley will segregate, at a minimum, the top 12 inches of topsoil within wetlands, unless standing water is present or the wetland is saturated. In saturated wetlands, topsoil will be segregated to the extent possible but due to incompetent soil structure of saturated soils, this may not be feasible. Wetland topsoil will be stockpiled separately from the remaining trench soil and will be restored after all other soils have been backfilled within the trench. Wetlands will be restored to pre-existing contours immediately after construction is complete. Temporary equipment crossings will be removed following completion of the Project, and the wetlands will be restored to pre-existing contours and revegetated. Final wetland mitigation measures will be determined by USACE in its CWA § 404 authorization.

DEQ Comment No. 40: (ii) Recommendation: Incorporate recommendations for additional information and clarification to enable sufficient analysis of surface water resources (see the DEQ comments in Attachment B for a list).

Mountain Valley Response No. 40: Mountain Valley will ensure that the locations are accurate and provided in the updated CWA Section 401 and 404 applications.

DEQ Comment No. 41: (b) Hydrostatic Testing: (i) Recommendation: Identify a more suitable location for the discharge that is currently proposed to Craig Creek at Milepost 219.5 since the discharge contradicts a requirement of the FERC Wetland and Waterbody Construction and Mitigation Procedures not to discharge into waterbodies which provide habitat for federally listed threatened or endangered species without appropriate permissions. Provide clarification and correction to Table 4.3.2-10 and associated portions of the EIS as identified by DEQ in its comments in Attachment B.

Mountain Valley Response No. 41: Mountain Valley has removed the discharge location at Craig Creek from its hydrostatic test plan and updated the plan in Attachment DR4 Water Resources 22 (which was included in Mountain Valley’s February 9, 2017 filing). The discharge point previously located at Craig Creek has been moved to near MP 227.3 and will discharge to uplands. Mountain Valley has also removed all surface water sources from its hydrostatic test plan in Virginia.

Hydrostatic test water will be discharged to upland areas through an energy-dissipating dewatering device in accordance with DEQ STD & SPEC 3.26 Dewatering Structure and Typical Construction Detail MVP-ES2 Pumped Water Filter Bag (see the draft Erosion and Sediment Control Plan that MVP filed in June 2016). The dewatering structures will be sized to accommodate the rate and volume of discharge. Discharges will be stopped when necessary to perform maintenance of the dewatering structures and ensure they remain in good working order. No hydrostatic test discharges will occur directly to waterbodies, wetlands, or other identified sensitive areas.

DEQ Comment No. 42: (c) Stream Crossings: (i) Recommendation: Incorporate the following Virginia Marine Resources Commission (VMRC) recommendations, which are standard instream permit conditions, for jurisdictional stream crossings since the project will require a Subaqueous Lands Permit pursuant to the Code of Virginia § 28.2-1204 (see the VMRC comments in Attachment B):

- A "frac-out" contingency plan must be provided for any crossings utilizing the directional drill method to address potential frac-outs or related spills associated with any directional drilling activities.
- In an effort to minimize adverse impacts to threatened and endangered fish and mussel species, instream surveys and species relocations may be required. No instream construction shall be conducted during any recommended time-of-year restrictions of any year unless waived by DGIF in writing.
- The instream construction activities shall be accomplished during low flow periods utilizing darn [sic] and pump, flume around or within cofferdams constructed of nonerrodible materials in such a manner that no more than half the width of the waterway is obstructed at any point in time. All areas of state-owned bottom and adjacent lands disturbed by this activity shall be restored to their original contours and natural conditions within thirty (30) days from the date of completion of the authorized work. All excess materials shall be removed to an upland site and contained in such a manner to prevent its reentry into state waters.
- Erosion and sediment control measures shall be in conformance with the 1992 Third Edition of the Virginia Erosion and Sediment Control Handbook and shall be employed throughout construction.
- If it is determined that blasting is necessary at any of the crossings, DGIF shall be notified a minimum of 48 hours in advance of the blasting.
- The DCR shall be contacted for any stream crossings where karst landscape features are encountered during installation.
- DGIF shall be contacted for any work in trout waters to avoid conflicts with trout stocking activities.

Mountain Valley Response No. 42: MVP will comply with VMRC's standard instream permit conditions for stream crossings subject to VMRC jurisdiction.

DEQ Comment No. 43: (ii) Recommendation: Include a table citing recommendations identified by the DEIS or by state agency correspondence to protect freshwater aquatic resources at each of the VMRC jurisdictional stream crossings and the applicant's intention of following those recommendations. See the VMRC comments in Attachment B for additional information.

Mountain Valley Response No. 43: Table 1 (Attachment 1) identifies the 18 streams under VMRC jurisdiction and the associated instream restrictions. If Mountain Valley cannot adhere to these instream restrictions, coordination with VDGIF will be completed for the appropriate stream waivers. Final erosion and sediment control plans are under development in conjunction with DEQ. Following review, MVP will consult with DEQ on comments provided and where appropriate will implement agreed upon changes to BMPs related to stream crossings, including VMRC-regulated crossings. In addition, the USFS requested additional protections be implemented at the Craig Creek crossing in the Jefferson National Forest. In response, Mountain Valley proposes to install additional BMPs adjacent to the Craig Creek crossing to provide additional protection from sediment discharge near this waterbody. This includes installation of STD & SPEC 3.09 (Temporary Diversion Dike) (see the draft Erosion and Sediment Control Plan that MVP filed in June 2016) and compost filter sock as well as a reduced window for temporary stabilization of disturbed soils within the Craig Creek Watershed.

DEQ Comment No. 44: (iii) Recommendation: Adhere to the following time-of-year restrictions for all instream work (see the DGIF comments in Attachment B for additional information):

- From May 15 through July 31 of any year in waters known to or anticipated to support Atlantic pigtoes
- From March 15 through May 31 and August 15 through October 15 of any year in waters known to or anticipated to support dwarf wedgemussels
- From April 15 through June 15 and August 15 through September 30 of any year for waters known to or anticipated to support green floaters
- From March 15 through June 30 of any year in waters known to support Roanoke logperch or their tributaries

Mountain Valley Response No. 44: Mountain Valley will adhere to all state and federal designated time-of-year restrictions for all instream work in Virginia, including the restrictions listed in this recommendation.

DEQ Comment No. 45: (iv) Recommendation: Include a directive that when MVP, LLC coordinates with DGIF, the applicant must provide a stream/wetland crossing table that includes information in the list below, so that agencies may make clear recommendations, as appropriate, about any given stream or wetland crossing:

- Latitude/longitude coordinates for each crossing site
- Name of stream being crossed
- Type of stream being crossed (perennial, intermittent)
- Description of the substrate in the stream at each crossing
- Depth and width of stream at crossing
- Photographs of each crossing site (including up and downstream photographs)
- A map depicting each crossing site and that is referenced to the stream crossing table

Mountain Valley Response No. 45: During coordination with the VDGIF regarding Project activities, Mountain Valley will provide the information requested regarding stream and wetland crossings.

DEQ Comment No. 46: (d) Forest Resources: (i) Recommendation: Incorporate the following recommendations to mitigate the impacts of forest fragmentation on biodiversity (see the Department of Forestry (DOF) comments in Attachment B):

- Keep right-of-way clearing to the minimum width necessary to prevent interference from trees and other vegetation.
- Establish herbaceous species and shrubs or some low-growing trees that are considered desirable ground cover and valuable wildlife habitat along the right-of-way in the project's vegetation management and revegetation plan.

- Maintain a scrub habitat, dominated by low growing, bushy vegetation and young trees, which is preferable to mowing in forest habitats. It can provide quality habitat for wildlife species that are dependent on early successional habitat (birds, reptiles, and amphibians).

Mountain Valley Response No. 46: To reduce forested habitat fragmentation to the maximum extent practical, the pipeline is aligned parallel to existing ROWs, including roads and utility corridors, along approximately 89.30 mi (143.71 kilometers) of the proposed route.

The 125-foot-wide construction right-of-way will be reduced to 75 feet at wetland and stream crossings where possible. Mountain Valley will avoid removal of riparian canopy or stabilizing vegetation, if possible. Crushing or shearing streamside woody vegetation will be preferable to complete removal.

The permanent right-of-way will be restored using native seed mixes and maintained in an herbaceous state. A woody seed mix in addition to an appropriately prescribed perennial herbaceous mix will be applied in temporary workspaces within forested areas to encourage revegetation of trees and shrubs.

DEQ Comment No. 47: (ii) Recommendation: Incorporate the following best management activities to protect forest resources (see the DOF comments in Attachment B):

- Restore contours to pre-construction conditions and controlling erosion until re-vegetation stabilizes the disturbed areas.
- Restore vegetation to native species and protecting the natural functions of the pre-construction ecosystem.
- Use machinery where feasible, that when combined (example: earth mover and cart) weigh less than 10 tons per axle. Research has shown that this will help alleviate compaction to the top 6-8 inches of soil where it can be more easily addressed. Combination vehicles weighing more than 10 tons can create compaction as deep as 3 feet which is very difficult to mitigate.
- Minimize traffic lanes for transporting cleared timber from the site.
- Follow Forestry Best Management Practices (BMPs) for water quality as outlined by the Virginia Department of Forestry's Voluntary BMP Guidelines publication for all harvesting operations.
- Stock pile soil away from trees that are to remain standing. Piling soil at a tree stem can kill the root system of the tree. Soil stockpiles should be covered, as well, to prevent soil erosion and fugitive dust.
- Retain existing groupings and/or clusters of trees and natural vegetation on the sites of the support facilities, where feasible, to provide aesthetic and environmental benefits, as well as reducing future open space maintenance costs.

Mountain Valley Response No. 47: Mountain Valley is preparing a Project-Specific AS&S in accordance with the 1992 Third Edition of the Virginia Erosion and Sediment Control Handbook. The AS&S will be submitted to DEQ for review and approval in March 2017. Following approval, Mountain Valley will prepare and submit to DEQ for review/approval site-specific ESC Plans for the Project. All Project activities, including timber clearing, will be conducted in accordance with the approved AS&S and ESC Plans. Following construction, Mountain Valley will restore disturbed areas to pre-existing contours and permanently stabilize the areas in accordance with DEQ and FERC requirements. This will include

inspection and maintenance of ESC BMPs as required by federal and state permit requirements. These activities will continue until disturbed areas contributing are permanently stabilized (i.e., permanent vegetative cover or gravel as depicted in the ESC Plans). Following permanent stabilization, ESC BMPs will be removed and the applicable federal and state permits will be closed.

Mountain Valley has developed specific seed mixes to be used throughout the Project in both Virginia and West Virginia. Recommended seed mixes were developed in coordination with Wildlife Habitat Council, USFS, USFWS, and Mountain Valley's threatened and endangered species consultant. Seed mixes are designed to provide habitat for threatened and endangered species as well as to stabilize and revegetate the Project limits with pollinator-friendly species. A total of 14 different seed mixes have been developed for implementation on Project areas in Virginia.

Topsoil and subsoil will be tested for compaction throughout the Project as necessary in areas disturbed by construction activities. Topsoil will be segregated during ROW clearing and will be used during restoration to re-establish permanent vegetative cover. Mountain Valley will limit compaction of disturbed areas to the extent possible. Due to the size of equipment necessary to install the 42-inch-diameter pipeline and ancillary facilities, decompaction mitigation protocols will be implemented. Compaction testing locations will be determined by the Mountain Valley environmental inspection staff during restoration activities. Tests will be conducted on the same soil type under similar moisture conditions in undisturbed areas to identify approximate pre-construction conditions. A cone penetrometer or other appropriate devices will be used to conduct tests as necessary.

Mountain Valley intends to disc areas disturbed during construction activities to facilitate revegetation of the ROW. This will include discing subsoil prior to returning topsoil to the ROW. Topsoil will be discing prior to seed and mulch application. Severely compacted areas may require additional decompaction activities to be employed on an as-needed basis using a plow or other deep tillage implement. Alternatively, in agricultural areas, arrangements can be made with the landowner to plant and plow under a "green manure" crop, such as alfalfa, to decrease soil bulk density and improve soil structure. If subsequent construction and cleanup activities result in further compaction, additional tilling may be required.

The Project will utilize existing roadways, both public and private, during implementation of the Project, including removal of cleared timber for the Project ROW areas. Minor widening in areas of tight turns and other upgrades may be necessary to facilitate Project use. Following construction, widened areas will be permanently stabilized in accordance with the DEQ-approved ESC Plan.

The Project will result in earth-disturbing activities during construction and implementation of the pipeline and ancillary facilities. Mountain Valley will implement ESC measures in accordance with the (approved) Project-Specific AS&S and ESC Plans to protect water quality during Project construction and restoration. The AS&S and ESC Plans are designed to meet the all applicable requirements of the following:

- Virginia Erosion and Sediment Control Program (VESCP) Regulations (9VAC25-840);
- Virginia ESC and Stormwater Management (SWM) Certification Regulations (9VAC25-850);
- Virginia Stormwater Management Act (SWMA) (Va. Code § 62.1-44.15:24 et seq.);
- Virginia Stormwater Management Program (VSMP) Regulation (9VAC25-870);
- Federal Energy Regulatory Commission (FERC) Upland Erosion Revegetation and Maintenance Plan; and
- FERC Wetland and Waterbody Construction and Mitigation Procedures.

Mountain Valley, to the extent possible, will not stockpile spoil materials overtop tree root structure to minimize potential for compaction. Soil stockpiles will be temporarily stabilized with mulch to minimize erosion of wind and rain.

Mountain Valley will minimize disturbance during Project implementation, where feasible. This includes reduced limits of disturbance within waterbody, wetlands, and other sensitive areas as shown on the Project's ESC Plan drawings.

DEQ Comment No. 48: (e) Wildlife Resources: (i) Recommendation: Incorporate the following construction mitigation recommendations to protect wildlife resources (see the DGIF comments in Attachment B for additional information):

- Review the Virginia Wildlife Action Plan (available through www.bewildvirginia.org) to determine what threats are known to these species, what suitable habitat for these species consists of and how to best protect them and their habitats from harm.
- Conduct any in-stream activities, whether resulting in permanent or temporary impacts, during low or no-flow conditions, using non-erodible cofferdams or turbidity curtains to isolate the construction area, blocking no more than 50% of the streamflow at any given time, stockpiling excavated material in a manner that prevents reentry into the stream, restoring original streambed and streambank contours, revegetating barren areas with native vegetation, and implementing strict erosion and sediment control measures.
- To minimize harm to the aquatic environment and its residents resulting from use of the Tremie method to install concrete, installation of grout bags, and traditional pouring of concrete, ensure that such activities occur only in the dry, allowing all concrete to harden and cure prior to contact with open water.
- Due to future maintenance costs associated with culverts, and the loss of riparian and aquatic habitat, construct stream crossings via clear-span bridges. However, if this is not possible, countersink any culverts below the streambed at least 6 inches, or use of bottomless culverts, to allow passage of aquatic organisms.
- Install floodplain culverts to carry bankfull discharges.
- The use of directional drill, aerial crossing, or other methods that avoid impacts upon streams, wetlands, and other unique natural resources is preferable when practicable.
- Due to recent examples of frac-outs leading to bentonite mud spills resulting from the directional drill method, perform geotechnical analysis of all proposed sites for directional drills and closely review it to ensure that the sites are suited for such a crossing method. Depending on the sensitivity of any given stream, it may be preferable to trench crossings that adhere to DGIF's instream work recommendations or any recommendations made for the protection of listed species and/or designated wildlife resources.
- If a directional drill is the chosen method, develop a contingency/clean-up plan to address frac-outs and/or spills.
- To minimize the adverse impacts of linear utility project development on wildlife resources, avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent practicable;

maintain naturally vegetated buffers of at least 100 feet in width around wetlands and on both sides of perennial and intermittent streams, where practicable; conduct significant tree removal and ground clearing activities outside of the primary songbird nesting season of March 15 through August 15; and, implement and maintain appropriate erosion and sediment controls throughout project construction and site restoration.

Mountain Valley Response No. 48: Mountain Valley will conduct stream crossings during low-flow or no-flow conditions to the fullest extent possible. In situations where this is not possible, Mountain Valley will incorporate cofferdams, pump and dams, or flume pipes, which will isolate the work space, reduce the potential for downstream impacts, and maintain downstream flows. On streams that require cofferdams, approximately 60% of the stream will need to be blocked for construction. It is necessary to have an overlap of construction area so the pipe can be successfully joined/welded. Spoils from trench excavation will be kept a minimum of 10 feet from the stream's edge and will be protected with the appropriate erosion control devices. All stream crossings will be restored to preconstruction conditions and contours as required by state and federal permits; the stream banks will be restored and seeded using native seed mixes as soon as the stream crossing is complete.

Concrete trench breakers will be used outside of the stream channels to prevent stream migration into the trench. Trench breakers will be constructed using Sakrete ready-mix type concrete bags and placed dry in the trench. The breakers will have no impact on the stream or its residents.

All culverts will be sized to carry flows associated with a 10-year, 24-hour storm using SCS/TR-55 methodology in accordance with DEQ standards. These culverts will be countersunk at least six inches below the stream bed to maintain upstream and downstream connectivity.

Direction drilling (HDD) is not being recommended for any stream crossings along the Project area. MVP believes that, in most instances, the open-cut dry ditch methodology provides the least environmentally damaging crossing. The open-cut method:

- Allows the operator to work in an open, controlled environment, minimizing the duration of the crossing and reducing the potential for uncontrolled discharge (i.e., inadvertent return, pipe breaks, etc.);
- Enables that all equipment can be monitored and any unforeseen events can be properly and immediately addressed;
- Decreases the potential for downstream impacts by isolating the work area and maintaining downstream flows;
- Is a much faster method of crossing when compared to a conventional bore or HDD, which decreases the potential for resource impacts due to extended construction times;
- Limits temporary impacts to the work area and avoids the risk for impacts occurring outside of the limits of disturbance due to an inadvertent return; and
- Avoids the need for specialized equipment, such as boring or drilling machinery.

In the event it becomes necessary to utilize HDD methods for any areas of the Project, Mountain Valley will prepare an HDD Contingency Plan that identifies notification requirements; containment, cleanup, and restoration measures, and a process for moving forward. Spills of non-HDD materials are covered in the Project's existing SPCC Plan.

Impacts to aquatic resources have been reduced to the extent possible by reducing the temporary construction ROW, shifting the alignment to avoid and/or minimize impacts, and spanning resources where available. Measures to minimize impacts to sensitive waterbodies are discussed in detail in Resource Report 3. The temporary impacts will be restored to preconstruction conditions and monitored for

stabilization until the state and federal agencies close the permit.

Mountain Valley is working on updating the Migratory Bird Conservation Plan. Mountain Valley is also working to devise a tree-clearing schedule that minimizes impacts to numerous sensitive species and habitats, which includes consideration of multiple time-of-year restrictions. Specific consideration is being given to loggerhead shrike and other ground-nesting birds in hay fields and scrub-shrub areas, forest-dwelling migratory birds, nine different time-of-year restrictions for aquatic species, and bat winter and summer habitat.

These species and habitats are located throughout the Project area, and while some time-of-year restrictions are complementary, others are in conflict. At this time, Mountain Valley is proposing to use multiple clearing and construction crews in order to consolidate these activities into as short of a period of time as possible. However, collectively, when all of the time-of-year restrictions are overlapped for all of the species and habitats considered, and given the topography of the Project, it is unlikely that Mountain Valley will be able to clear the entire Project between November 16 and March 31. Mountain Valley is continuing to refine the clearing and construction schedule to minimize impacts to special-status species and their habitats during their most vulnerable timeframes. Impacts that may occur during the migratory bird nesting season will be discussed in the updated Migratory Bird Conservation Plan, which will also include avoidance, minimization, and restoration measures. The updated plan will also address comments from EPA, DEQ, and other consulting agencies. Mountain Valley plans to submit the updated Migratory Bird Conservation Plan in March.

DEQ Comment No. 49: (ii) Recommendation: Incorporate the following recommendations to protect designated trout streams, which are ecologically and economically significant resources in Virginia (see the DGIF comments in Attachment B):

Adhere to the following time-of-year restrictions for all instream work:

- From October 1 through March 31 of any year within Bottom Creek and all tributaries in Roanoke and Montgomery Counties (brook trout), Little Stony Creek in Giles County (brook trout), Green Creek in Franklin County (brown trout) Mill Creek (brown trout) and
- From March 15 through May 15 of any year within Little Stony Creek in Giles County (rainbow trout).

Coordinate with DGIF to ensure avoidance of stocking and/or angling activities in Little Stony Creek in Giles County during project construction and long-term operation.

Mountain Valley Response No. 49: Mountain Valley will adhere to all state and federal designated time-of-year restrictions for all instream work in Virginia, including the restrictions listed in this comment, and will coordinate with VDGIF to ensure avoidance of stocking and/or angling activities in Little Stony Creek in Giles County during Project construction and long-term operation.

DEQ Comment No. 50: (iii) Recommendation: Incorporate the consideration of impacts upon state listed endangered bat (tri-colored bat and little brown bats) that may result from construction activities and coordinate with DGIF if the surveys indicate that the species are roosting along the proposed pipeline corridor. See the DGIF comments in Attachment B for additional information.

Mountain Valley Response No. 50: Mountain Valley will continue to coordinate with VDGIF regarding avoidance and minimization strategies for all state-listed species, including the tri-colored and little brown bats.

According to VDGIF's online Little Brown Bat and Tri-colored Bat Winter Habitat and Roosts Application,² the Project does not cross within 0.5 mile of any known little brown or tri-colored bat hibernaculum. However, the Project does cross within the larger 5-mile protective buffer associated with Tawney's Cave, a cave known to host both federally and state-listed bat species. Mountain Valley will adhere to time-of-year restriction for tree clearing from April 1 – November 15 within 5 miles of Tawney's Cave.

The VDGIF has not informed Mountain Valley of any documented little brown or tri-colored bat roost trees within the vicinity of the proposed Project. In the event that little brown or tri-colored roosts are identified within the Project right-of-way, Mountain Valley will adhere to the following conservation measure recommended by the VDGIF to avoid incidental take of individuals:

- Between June 1 and July 31, implement a 150-foot radius buffer zone with the following restrictions: no tree removal, prescribed fire, or land disturbance within the buffer zone. This will protect the known roost tree(s) and foraging habitat close to the roost tree during the maternity season. Tree removal and prescribed fire are permitted outside these dates.³

DEQ Comment No. 51: (iv) Recommendation: Include an analysis of possible impacts to timber rattlesnakes and directives that construction workers are provided educational training in coordination with DGIF (see Attachment B).

Mountain Valley Response No. 51: Coordination with VDGIF's herpetologist indicated the western population of timber rattlesnakes has some level of protection in the sense that individuals are not permitted to collect the snakes. The VDGIF stated surveys were not warranted for the timber rattlesnakes within the Project corridor but asked that Mountain Valley and contractors avoid rattlesnakes if encountered and not to encourage people to harass/kill the snakes.

Prior to the start of construction and throughout the construction process, as needed, environmental training is provided for MVP and contractor personnel whose activities may impact the environment during pipeline and aboveground facility construction. The training program covers job-specific permit conditions, contaminated sediment and groundwater management, health and safety, company policies, cultural resource procedures, threatened and endangered species restrictions, the Spill Prevention Control Plan, National Pollutant Discharge Elimination System, Stormwater Plan, and any other pertinent information related to the job.

Mountain Valley will instruct all contractors to be mindful of snakes, especially timber rattlesnakes, when conducting day to day activities while on the job site and to thoroughly check any equipment for snakes before operating it. Mountain Valley and its contractors will not intentionally harm or harass any timber rattlesnakes encountered in the Project right-of-way. If timber rattlesnakes are encountered, personnel will be instructed to maintain a safe distance until the snake vacates the area or a professional is called in to relocate it safely outside the workspace. Drift fencing may be applied around the open trench in areas with high occurrences of timber rattlesnakes in order to exclude and prevent individual snakes from falling into and becoming trapped in the trench.

DEQ Comment No. 52: (v) Recommendation: Ensure that construction activities, including but not limited to vegetation clearing, do not take place during the customary time-of-year restrictions within suitable

² Available at <https://www.dgif.virginia.gov/wildlife/bats/little-brown-bat-tri-colored-bat-winter-habitat-roosts-application/> (accessed January 27, 2017).

³ See: www.dgif.virginia.gov/wp-content/uploads/LBBA_TCBA_Guidance.pdf.

loggerhead shrike habitat until outstanding issues related to nest occupancy surveys can be clarified to DGIF's satisfaction (see Attachment B).

Mountain Valley Response No. 52: MVP will continue to coordinate with VDGIF's avian biologist to clarify timing of tree clearing and construction within suitable loggerhead shrike habitat. Mountain Valley has elected to clear all suitable nesting substrate (i.e., trees and shrubs) from suitable habitat outside of the nesting season (April 1 to July 31). Although tree clearing within the limits of disturbance in the loggerhead shrike study area is expected to occur outside of the nesting period, construction activities may occur during this timeframe. Construction activities may affect foraging and other behaviors during the nesting period. Mountain Valley will complete occupancy surveys in areas of suitable habitat where construction activities are planned during the nesting season. Surveys will identify any potential activity of loggerhead shrike (e.g., audio or visual observations; impaled prey; nest(s)) within Survey Areas (99.06 meters [325 feet] wide, no greater than 251.46 meters [825 feet] in length) containing suitable habitat. Occupancy surveys are completed between a half an hour before sunrise and three hours after sunrise. One occupancy survey is initially completed in each Survey Area. If no loggerhead shrike or sign is observed during the initial occupancy survey, a follow-up survey is repeated approximately two weeks later. If no shrike or sign is observed during the second survey, a third survey is completed approximately two weeks later. If no shrikes are detected during the three survey attempts, probable absence is assumed within a Survey Area. In the event a loggerhead shrike is observed, Mountain Valley will notify VDGIF within 48 hours of the observation. If any loggerhead-shrike activity is observed, Mountain Valley will consult the VDGIF on how to proceed. If active nests are located, geographic coordinates will be collected, and each nest will be assigned a unique identification number. Nests will receive a protective buffer (size determined following consultation with VDGIF) and, if the buffer extends into the limits of disturbance, signage will be posted stating the presence of a protected species, protective fencing will be installed, and the environmental inspector on the construction spread will be alerted to the location of any nest. The area within the nest buffer will be cleared only after nestlings have fledged. These actions will ensure that no birds or eggs are destroyed as a result of construction activities.

DEQ Comment No. 53: (f) Erosion and Sediment Control: (i) Recommendation: To the degree that it is consistent with Virginia Erosion and Sediment Control Law and regulations, require the Wildlife Habitat Council, FERC and MVP, LLC's project-specific Erosion and Sediment Control Plans to meet or exceed DOF best management practices (BMPs) where appropriate (see the DOF comments in Attachment B).

Mountain Valley Response No. 53: Mountain Valley is preparing Project-Specific Annual Standards and Specifications (AS&S) in accordance with the 1992 Third Edition of the Virginia Erosion and Sediment Control Handbook. The AS&S will be submitted to DEQ for review and approval in March 2017. Following approval, Mountain Valley will prepare and submit to DEQ for review/approval site-specific ESC Plans for the Project. Project activities will be implemented in accordance with the approved AS&S and ESC Plans.

DEQ Comment No. 54: (ii) Recommendation: To the degree that it is consistent with Virginia Erosion and Sediment Control Law and regulations, incorporate detailed comments from the Department of Conservation and Recreation (DCR) regarding proposed seed mixes and ensure that recommended seed mixtures include seeds of native plants and, to the degree practicable, do not contain any species listed on the Virginia DCR Invasive Plant Species List. See the DCR comments in Attachment B for additional information.

Mountain Valley Response No. 54: Recommendations from the VDCR, USFS, and Wildlife Habitat Council have been considered in the development of seed mixes containing non-invasive, native plant species for use along the Project's entire right-of-way.

DEQ Comment No. 55: (g) Right-of-Way Maintenance: (i) Recommendation: Include a robust monitoring and adaptive management plan as part of right-of-way maintenance to provide guidance if initial revegetation efforts are unsuccessful or if invasive species outbreaks occur. See the DCR comments in Attachment B for additional information.

Mountain Valley Response No. 55: Mountain Valley's revegetation plans will include monitoring and address revegetation if the initially efforts are unsuccessful or if invasive species outbreaks occur.

DEQ Comment No. 56: (ii) Recommendation: Include maintenance of vegetation using annual mowing in the non-growing season between October 15 and April 1 and minimal to no use of chemicals, especially in sensitive areas with documented natural heritage resources. See the DCR comments in Attachment B for additional information.

Mountain Valley Response No. 56: Mountain Valley's revegetation plans will address right-of-way maintenance.

DEQ Comment No. 57: (h) Government-Funded Best Management Practices: (i) Recommendation: Ensure any impacted BMPs along the route (see map attached to the DCR comments in Attachment B) be reinstalled or relocated. Examples of BMPs include livestock fences and stream crossings re-erected, watering systems relocated, cover crops reimbursed to the farmers, and disturbed areas re-vegetated.

Mountain Valley Response No. 57: Mountain Valley will restore all existing BMPs along the route provided that the BMP does not compromise the integrity of safety of the pipeline. Mountain Valley will coordinate with landowners to restore fences, crossing, water systems, and cover crops that will be directly impacted by the Project.

DEQ Comment No. 58: (ii) Recommendation: Add a recommendation for MVP, LLC to coordinate with the DCR Division of Soil and Water Conservation on tree loss associated with impacted BMPs on a case-by-case basis (see the DCR comments in Attachment B for contact information).

Mountain Valley Response No. 58: In order to minimize long-term impacts to disturbed habitat areas, Mountain Valley has developed specific seed mixes to be used throughout the Project in both Virginia and West Virginia. Recommended seed mixes were developed in coordination with Wildlife Habitat Council, USFS, USFWS, VDCR, and Mountain Valley's threatened and endangered species consultant. Seed mixes are designed to provide habitat for threatened and endangered species as well as to stabilize and revegetate the Project limits with pollinator-friendly species. A total of 14 different seed mixes have been developed for implementation on Project areas in Virginia. Mountain Valley will utilize these seed mixes in specific areas along the Pipeline corridor to enhance habitat restoration and offset long-term impacts in disturbed areas. Mountain Valley will also contact the DCR-Division of Soil and Water Conservation regarding specific locations where planted riparian buffers were established by federal and state contributions.

DEQ Comment No. 59: (iii) Recommendation: For segments of the MVP that cross TMDL Implementation Planning (IP) watersheds, where implementation has already occurred, incorporate a requirement that MVP, LLC replace BMPs such as livestock exclusion and riparian buffers if they need to be destroyed or have funds allocated to replace the BMPs nearby (see the DEQ comments in Attachment B). This recommendation affects the following IP watersheds:

- Four watersheds of the Blackwater River (Upper, Middle, North Fork and South Fork) IP
- Two watersheds of the Lower Blackwater River, Maggodee and Gills Creek IP

- One watershed of the Pigg River and Old Womans Creek Watersheds IP and
- Two watersheds of the Upper Banister River and Tributaries IP

Mountain Valley Response No. 59: Mountain Valley will repair or replace livestock exclusionary BMPs in accordance with landowner agreements in all areas of the Project including TMDL watersheds. In addition, impacts to aquatic resources (including TMDL watersheds) have been reduced to the extent possible by reducing the temporary construction ROW, shifting the alignment to avoid and/or minimize impacts, and spanning resources where available. MVP is preparing site-specific ESCP drawings in accordance with the VADEQ that will identify locations for installation of ESC BMPs to minimize potential impacts to sensitive resources including but not limited to waterbodies, TMDL designated watersheds, wetlands, T&E species habitat and cultural resource areas, etc. Following installation, MVP will restore disturbed areas to preexisting contours and conditions in accordance with federal and state permit conditions.

DEQ Comment No. 60: (i) Open Burning and Fugitive Dust: (i) Recommendation: Include requirements that open burning is allowed only in accordance with 9VAC20-81-95 of the Virginia Solid Waste Management Regulations (VSWMR) and localities should be consulted since they may have additional open burning restrictions. See the DEQ comments in Attachment B.

Mountain Valley Response No. 60: The Commonwealth recommends that open burning activities be subject to the Air Pollution Control Regulations in 9 VAC 5-130, Virginia Solid Waste Management Act Regulations in 9 VAC 20-81-95, and any local requirements. This recommendation is already addressed in the DEIS, which states that open burning will be conducted “in accordance with applicable state and local regulations and Mountain Valley’s Fire Prevention and Suppression Plan.” DEIS at 2-38; *see also* DEIS § 4.11.1.3. In addition, Mountain Valley’s Fire Prevention and Suppression Plan (Submittal 20160119-5076) provides that each construction spread will have a Field Safety Officer who is responsible for, among other things, ensuring that site-specific burning and smoke management plans and activities conform to all state and local requirements.

DEQ Comment No. 61: (ii) Recommendation: Include requirements that construction activities associated with the MVP are subject to the Air Pollution Control Regulations regarding open burning (9 VAC 5-130 et seq.) and fugitive dust (9 VAC 5 -50- 60 et seq.) and that the project would be subject to any applicable existing source regulations related to the southern part of Roanoke County, which is a volatile organic compound (VOC) and nitrogen oxide (NOx) emissions control area. See the DEQ comments in Attachment B.

Mountain Valley Response No. 61: Please see Response No. 60 for the response to the comment regarding open burning. The Commonwealth’s comment that the Project conform to state regulations on fugitive dust (9 VAC 5-50-60 et seq.) is addressed in the DEIS. *See* DEIS at 4-407. In addition, Mountain Valley’s Fugitive Dust Control Plan (Submittal 20160119-5076) includes reasonable precautions to limit fugitive dust emissions in conformity with the fugitive dust standards outlined in 9 VAC 5-50-90.

The Commonwealth’s comments also demonstrate that there is an oversight on page 4-402 of the DEIS. The DEIS states that no Virginia air quality regulations are applicable to the Project. However, as the Commonwealth notes, two provisions of its Air Quality Regulations are applicable: 9 VAC 5-130 relating to open burning and 9 VAC 5-50-60 relating to fugitive dust. Mountain Valley respectfully requests that FERC add these two citations to the list of applicable state air quality regulations for clarification.

As stated on page 4-391 of the DEIS, Mountain Valley will not have any facilities in Roanoke County that will trigger stationary source air permitting requirements.

DEQ Comment No. 62: (iii) Recommendation: Include a recommendation that MVP, LLC mitigate construction-related air emissions through the use of construction equipment that releases cleaner emissions. See the DEQ comments in Attachment B.

Mountain Valley Response No. 62: Mountain Valley has taken reasonable measures to mitigate emissions from construction equipment by ensuring that:

- Construction equipment and gasoline and diesel fuel meet all applicable emissions standards;
- Proper equipment and engine maintenance routines are implemented;
- Manufacturers' operating recommendations regarding good combustion practices are followed; and
- Unnecessary construction activity and idling of construction equipment is avoided.

See DEIS 4-511; Resource Report 9, 9-28 (Oct. 2015).

However, it is not feasible for Mountain Valley to replace all of its contractors' construction equipment for the purpose of reducing construction-related emissions. Doing so would represent extraordinary financial (e.g., price of new equipment, disposal of existing equipment, stranding assets) and environmental costs (e.g., carbon and raw material costs of manufacturing new equipment, impacts from disposal of existing equipment).

DEQ Comment No. 63: (j) Aviation: (i) Recommendation: Include potential impacts on aviation facilities and operations as identified by DOAV in Attachment B to ensure airport safety and identify implementation of applicable requirements:

- The design of above-ground facilities must not interfere with pilots' safe ingress and egress at nearby airports at their existing configuration and with planned improvements and runway expansion.
- Activities at the project site should not pose a hazard or impediment to pilots using the airport. Hazards or impediments in design and operations include interference with navigation and communication equipment, interference with existing and planned approach procedures for all aircraft published for or by the airport, glare from building materials and external lights, and generation of dust or like particles.
- Construction activity in the vicinity of an airport, especially involving heavy equipment, must be in compliance with FAA Advisory Circular 150/5370- 2E Operational Safety on Airports During Construction.
- To ensure that the proposed construction would not create a hazard to air navigation, the applicant should confirm with FAA that Part 77 safety areas, especially the horizontal surface, are not penetrated through the filing of Form7460-1. See the DOAV comments in Attachment B.

Mountain Valley Response No. 63: Please refer to Response No. 21.

DEQ Comment No. 64: (a) Spill Prevention Controls and Countermeasures (SPCC) and Emergency Response Plan: (i) Recommendation: Update the emergency response plan (SPCC and Unanticipated Discovery of Contamination Plan for Construction Activities in Virginia) to include the results of dye tracing investigations performed where the pipeline runs across or above karst in the unlikely event that

contaminants enter a karst feature. See the DCR comments in Attachment B for additional information as well as an example of how appropriate studies and planning could have prevented contamination of public water supplies from a fuel spill at a natural gas pipeline construction project.

Mountain Valley Response No. 64: Regarding the DEQ's comment on dye trace studies and hydrogeologic studies, refer to Mountain Valley's responses to DEQ Comment Nos. 9, 13, 15, and 16 presented above. Mountain Valley is addressing the VCB's December 20, 2016 comments under separate cover.

DEQ Comment No. 65: (ii) Recommendation: Update the SPCC with correct information, including replacing existing contact information with the Virginia Department of Emergency Management 24-hour notification number, and clarification as provided by DEQ (comments in Attachment B) that includes, but is not limited to, the following:

- SPCC applicability includes facilities with total oil storage capacity of 1,320 gallons or greater and containers storing 55 gallons or more of oil. The SPCC and Tables 2-5A and 2-5B include inaccurate statements. Ancillary oil storage in other areas of the facility, such as stored fuel, stored lubrication oil, and oil-filled equipment, are also to be included in aggregate storage calculations.
- A professional engineer must certify the SPCC as required by 40 CFR §112.3(d)(1)(iii).
- Spills 25 gallons or greater must be reported immediately.

Mountain Valley Response No. 65: Mountain Valley is updating the SPCC Plan with revised information as requested. A copy of the revised SPCC Plan will be included with Mountain Valley's Project-Specific Annual Standards and Specifications submission to DEQ in March 2017.

DEQ Comment No. 66: (b) Migratory Bird Conservation Plan: (i) Recommendation: Update the Migratory Bird Conservation Plan to include the following (see the DGIF comments in Attachment B):

Conduct an updated analysis, substituting the top two tiers of DGIF Species of Greatest Conservation Need (SGCN) found in DGIF's Wildlife Action Plan for selection of priority species for this project.

- Include the American Woodcock, which was excluded from the SGCN list in the DEIS.
- Ensure that the plan place greater emphasis on the following species:
 - Golden-winged warbler
 - Cerulean warbler
 - Swainson's warbler
 - Black-billed cuckoo
 - Northern saw-whet owl
 - Loggerhead shrike
 - Peregrine falcon
- Clarify the timing and methodology of nest occupancy surveys for the state-listed Loggerhead Shrike when clearing cannot be completed prior to nesting season.
- Coordinate with DGIF prior to all occupancy surveys to ensure surveys will be conducted according to DGIF protocols.

- Continue coordination with DGIF regarding assessments of potentially suitable habitat for the Loggerhead Shrike since the proposed route continues to be refined.
- To help minimize potential impact to nesting falcons, prior to all blasting work, coordinate the proposed location and timing of blasting activities in Virginia with DGIF. Loud blasting during construction could have impacts to nesting falcons, including flushing an incubating falcon from the nest, which could cause egg damage.
- Continue coordination with DGIF and the U.S. Fish and Wildlife Service regarding protection of bald eagle nests and golden eagles during project construction and long-term operation.

Mountain Valley Response No. 66: DGIF's recommendations are being incorporated into the updated Migratory Bird Conservation Plan.

DEQ Comment No. 67: (c) Exotic and Invasive Species Control Plan: (i) Recommendation: Update the Exotic and Invasive Species Control Plan with the following mitigation recommendations from state agencies (see comments from DCR, DGIF and DOF in Attachment B for additional information):

- Consider the likely response of invasive species or target species when prescribing activities that result in soil disturbance or increased sunlight.
- During construction and follow-on maintenance activities, take steps to guard against construction vehicles inadvertently bringing into forest interiors invasive and/or non-native plant species from other locations. Weed seed and fungal spores can be transported in the mud or dirt on vehicles. Prior to moving equipment onto and off of an activity area, scrape or brush soil and debris from exterior surfaces, to the extent practical, to minimize the movement of invasive plants, pests and diseases to non-infested areas. Another option is to wash vehicles before they enter a weed-free area or when they leave an infested area. The emphasis of the cleaning should be in the wheels, wheel wells, bumpers, and undercarriage of the vehicle where most mud and dirt collects.
- If seeding or planting is necessary to minimize the threat of highly damaging invasive species from spreading, use native seed or noninvasive cover plants for revegetation.
- Conduct all site restoration for the following scenic and recreational resources with native plant species to restore the scenic value of the affected resources to the greatest extent possible:
 - Stony Creek Road and Route 42 in Giles County
 - Catawba Road in Montgomery County
 - Pigg River in Pittsylvania County
- Verify the locations of the invasive species identified in Table 4.4 1-4 of the DEIS as "unknown" for incorporation in the invasive species management plan.
- Implement the invasive species plan for the lifespan of the project as part of the right-of-way maintenance since invasive species outbreaks can occur any time during and after construction.
- Include a more robust and comprehensive invasive species control plan that fully addresses decontamination of construction machinery used during stream crossings and disinfection of personal gear worn by workers (e.g., boots, waders, etc.) to ensure that aquatic invasive species known from West Virginia are contained (e.g., zebra mussels, didymo, hydrilla, etc.) and are prevented from spreading into Virginia waters.

- Direct MVP, LLC to coordinate with DGIF (see DGIF’s detailed comments) for guidance.

Mountain Valley Response No. 67: Mountain Valley will replant areas disturbed during Project construction with native herbaceous and woody seed mixes. Mountain Valley will conduct non-native invasive species monitoring and management for up to two growing seasons and in accordance with applicable federal and state recommendations. However, it is neither recommended nor reasonable for MVP to continue managing invasive species for the life of the pipeline—especially given that any invasive species occurring in the area of the Project so long after construction would not be attributable to the construction or operation of the Project. The remaining recommendations noted in this comment will be incorporated into the updated Invasive Plant Species Management Plan and the plan for restoring vegetation.

DEQ Comment No. 68: (d) Fire Prevention and Suppression Plan: (i) Recommendation: Update the MVP Fire Prevention and Suppression Plan to meet or exceed DOF fire prevention and suppression guidelines, add adherence to the plan as a condition of the FERC order (if approved) from the Commission, and require MVP, LLC to consult with DOF to ensure that the plan meets DOF’s guidelines. See the DOF comments for details in Attachment B.

Mountain Valley Response No. 68: As stated in Section 4.2 of the Fire Prevention and Suppression Plan, MVP will consult with DOF and relevant agencies to ensure that the proper measures are being followed during construction of the pipeline. Mountain Valley will adhere to the requirements set forth in the Code of Virginia, Title 1.1, Chapter 11.

DEQ Comment No. 69: (e) Plans for the Management of Waste and Contaminated Soil, Sediment and Groundwater: (i) Recommendation: Include a Waste and Debris Management Plan. The plan should address how all excess material and debris will be managed in accordance with all applicable federal, state, and local laws and regulations. See the DEQ comments in Attachment B.

Mountain Valley Response No. 69: All waste, excess material, and debris will be handled, stored, transported, and disposed of according to DEQ and federal requirements. Disposal of Project waste will be at a DEQ-permitted facility.

DEQ Comment No. 70: (ii) Recommendation: Include the Unanticipated Discovery of Contamination Plan only under Appendix A in the SPCC and revise it with corrections and recommendations as identified by DEQ in its comments in Attachment B.

Mountain Valley Response No. 70: Mountain Valley is preparing an update to the SPCC Plan with current Project information and will include a copy of the Unanticipated Discovery of Contamination Plan as Appendix A to the SPCC Plan.

DEQ Comment No. 71: (f) Plan for Discovery of Unanticipated Paleontological Resources: (i) Recommendation: Update the Plan for Discovery of Unanticipated Paleontological Resources to consider the potential for encountering Tertiary or Quaternary vertebrate and plant fossils in unconsolidated (non-bedrock) deposits. See the DMME comments in Attachment B.

Mountain Valley Response No. 71: Mountain Valley has updated the Plan for Discovery of Unanticipated Paleontological Resources accordingly.

DEQ Comment No. 72: (g) Blasting Plan: (i) Recommendation: Update the blasting plan to reflect DGIF's requests for notifications and accurate DMME permitting and notification requirements. See DGIF and DMME comments in Attachment B.

Mountain Valley Response No. 72: Mountain Valley has updated the Blasting Plan to include VDGIF & DMME notifications.

DEQ Comment No. 73: (h) Karst Mitigation Plan: (i) Recommendation: Incorporate existing and new dye trace information into the plan to determine flow direction to support recovery efforts after a spill and correct errors identified in the DCR comments in Attachment B.

Mountain Valley Response No. 73: Regarding the DEQ's comment on dye-trace studies and hydrogeologic studies, refer to Mountain Valley's responses to DEQ Comment Nos. 9, 13, 15, and 16 presented above. Mountain Valley is addressing the VCB's December 20, 2016 comments under separate cover.

DEQ Comment No. 74: (i) Traffic and Transportation Management Plan: (i) Recommendation: Incorporate recommendations from the Virginia Department of Transportation and ensure that the plan identifies the need for appropriate work zone and traffic control plans, permits and coordination (see the VDOT comments in Attachment B).

Mountain Valley Response No. 74: Mountain Valley will incorporate the recommendations from the Virginia Department of Transportation in the Traffic and Transportation Management Plan.

DEQ Comment No. 75: (a) Recommendation: Consider the Town of Blacksburg's comments and associated recommendations detailed in the town's resolutions (attached) that were passed on November 8, 2016, expressing opposition to the proposed amendments to the Jefferson National Forest Revised Land and Resource Management Plan (LRMP). See the comments from the Town of Blacksburg in Attachment B.

Mountain Valley Response No. 75: The Town of Blacksburg, Virginia makes several comments and recommendations that the Commonwealth asks be considered. Mountain Valley responds to Blacksburg's comments as follows.

Blacksburg objects to the proposed amendment to the Jefferson National Forest Land and Resource Management Plan (LRMP) to create a 500-foot-wide "new Rx 5C land allocation" (i.e., Designated Utility Corridor Prescription) and it objects to the granting of a "500-foot [right-of-way]" to MVP within this new utility corridor. Blacksburg suggests that the revised Rx 5C allocation and right-of-way each be limited to 50 feet in width.

Blacksburg's references to a 500-foot-way right-of-way in each of the two resolutions attached to the Commonwealth's comments are in error. The maximum right-of-way width is 125 feet, which consists of a 50-foot permanent right-of-way and a 75-foot temporary right-of-way. Areas within the 500-foot-wide Rx 5C corridor but outside the 125-foot-wide right-of-way grant will not be directly impacted by the Project. *See* DEIS § 4.8.2.6. The justification for the right-of-way width is well documented in the record. *See, e.g.*, DEIS § 2.3.1.1 and cited materials.

Blacksburg's proposal that the Designated Utility Corridor Prescription be reduced from 500 feet to 50 feet is unwarranted. A 50-foot-wide prescription would also limit the right-of-way to a maximum width of 50 feet, which would be inadequate to allow construction of the pipeline. The USFS has explained that the LRMP does not specify a default width for the Rx 5C prescription, but that a 500-foot-wide prescription

“has been the standard size that the Jefferson National Forest has applied to these areas to date” in order to encourage collocation of any future utility projects that may be granted a right-of-way. *See* USFS, FERC’s Release of DEIS and Next Steps for Proposed Mountain Valley Pipeline: Frequently Asked Questions at q. 7 (Nov. 2, 2016).⁴ The USFS’s practice of utilizing 500-foot-wide Rx 5C prescriptions in the Jefferson National Forest is a reasonable application of the agency’s expertise and discretion in managing its forest resources. That practice is entitled to deference.

To the extent Blacksburg (and several other commenters) are concerned about the potential for future utility lines to be collocated within 500-foot Designated Utility Corridor Prescription, that potential effect is clearly identified and considered in the DEIS: “The primary effect of designating a new utility corridor would be the potential for future development within that corridor since the Forest Plan encourages collocation of new special use rights-of-way (i.e., additional linear utility lines or communication sites) in these types of corridors.” DEIS 4-262.

Lastly, Blacksburg recommends that FERC adopt the route modifications proposed by DCR in a September 9, 2016 letter to avoid purported impacts to the Slussers Chapel Conservation Site. MVP’s revised route in the area of the Slussers Chapel Conservation Site, in concert with various mitigation measures, will mitigate adverse impact to the site. See Response No. 9 for additional details.

DEQ Comment No. 76: (a) Recommendation: Update the Supplemental of Final EIS with correct information as identified by DGIF, DCR, DEQ, DMME and DOF in Attachment B.

Mountain Valley Response No. 76: Mountain Valley has received the comments and recommendations provided by VDGIF, VDCR, DEQ, DMME, and VDOF and has incorporated responses to them into its plans for analysis in the Final EIS.

DEQ Comment No. 77: (b) Recommendation: Incorporate corrections and project changes, such as the proposed use of municipal water supply sources instead of surface water withdrawals, identified in a November 17, 2016, letter from MVP, LLC (see Attachment B) that was submitted to DEQ after its commenting deadline request and conduct sufficient analysis on the changes.

Mountain Valley Response No. 77: Mountain Valley has updated its hydrostatic test plan to incorporate changes that have occurred as a result of the adjustments made in the October 2016 Proposed Route. This plan, included as Attachment DR4 Water Resources 22 (which was included in Mountain Valley’s February 9, 2017 filing), contains the proposed use of municipal water supply sources in Virginia instead of surface water withdrawals.

Mountain Valley Pipeline looks forward to continuing to work with DEQ moving forward. Please feel free to contact me if you have questions or need any additional information. Thank you for your time and consideration.

Sincerely,

John Centofanti
Corporate Director Environmental Affairs
(412) 395-3305
JCentofanti@eqt.com

⁴ Available at https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd523416.pdf.

Attachment 1 - Table 1
Waterbodies Crossed in Virginia by Mountain Valley with Drainage Areas >5sq.mi

	Stream Name	County	Drainage Area (sq. mi.)	Mussels present	Mussel Relocations Necessary	Fishery Type	Fish Species h/	Time of Year Restriction
1	N. Fork Blackwater River	Franklin	5.90	No	No	CW, TE, WT	Roanoke logperch	October 1 - June 30
2	Maggodee Creek	Franklin	45.40	No	No	TE	Roanoke Logperch	March 15 - June 30
3	Teels Creek	Franklin	5.06	No	No	-	-	-
4	Teels Creek	Franklin	6.36	No	No	-	-	-
5	Little Creek	Franklin	22.60	No	No	TE	Roanoke Logperch	March 15 - June 30
6	Little Creek	Franklin	25.10	Yes	Yes	TE	Roanoke Logperch	March 15 - June 30
7	Blackwater River	Franklin	165.00	Yes	Yes	TE	Roanoke Logperch	March 15 - June 30
8	Teels Creek	Franklin	6.62	No	No	TE	Roanoke Logperch	March 15 - June 30
9	Stony Creek	Giles	47.50	No	No	CW, WT, ST, TE	Green floater, Candy darter, pistolgrip	August 15 - July 31
10	Little Stony Creek	Giles	20.10	No	No	CW, WT, ST	-	October 1 - June 30
11	Sinking Creek	Giles	66.20	Yes	Yes	CW, WT	-	October 1 - June 30
12	N. Fork Roanoke River	Montgomery	24.10	Yes	Yes	CW, TE, WT	Roanoke logperch, Orangefin madtom	October 1 - June 30
13	Mill Creek	Montgomery	5.20	No	No	CW, TE, WT	Orangefin madtom	October 1 - June 30
14	Craig Creek	Montgomery	5.07	No	No	CW, TE	James spiny mussel, Atlantic pigtoe	March 1 - July 31
15	Roanoke River	Montgomery	256.00	Yes	Yes	WW, TE	Roanoke logperch, Orangefin madtom	March 15 - July 15
16	Bradshaw Creek	Montgomery	17.60	No	No	CW, TE, WT	Roanoke logperch, Orangefin madtom	October 1 - June 30
17	Harpen Creek	Pittsylvania	7.79	No	No	TE	Roanoke logperch, Orangefin madtom	March 1 - June 30
18	Pigg River	Pittsylvania	340.00	Yes	Yes	TE	Roanoke logperch, Yellow lampmussel, Orangefin madtom	March 1 - June 30; August 15 - September 30

Fishery Type: (Sources: WVDNR and VDGIF) Fishery type is assigned to named listed streams and perennial tributaries and should be reviewed by the states on a case by case basis.

CW = Coldwater Stream

TE = Threatened and Endangered Species Stream

WT = Wild Trout Stream (VA only)

ST = Stocked Trout Stream (VA only)

VDGIF in-stream construction restriction by species:

Atlantic pigtoe mussel and James spiny mussel: May 15-July 31

Green floater mussel and Yellow lampmussel: April 15 - June 15 and August 15 - September 30

Orangefin madtom March 15 - May 31

Roanoke logperch March 15 - June 30

TOYR - Time of Year Restriction = Any span of time within time-of-year restrictions set forth by U.S. Army Corps of Engineer's 401 Water Quality Certification for streams crossed in WV and by VDGIF time-of-year restrictions for streams containing rare, threatened, or endangered species in VA. TOYR will be reviewed by the states on a case by case basis.