

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

General Project Description

3. In response to a FS comment, file typical drawings for construction on steep slopes within the Jefferson National Forest.

Response:

A typical drawing for construction on steep slopes within the Jefferson National Forest is included as Attachment DR3 General-3.

Respondent: Ricky Myers
Position: Engineering Manager
Phone Number: 724-873-3640
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
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Dated June 28, 2016**

Request:

General Project Description

4. Address the FS comments that construction best practices in the Jefferson National Forest call for a 45 to 60 degree downslope angle for water diversion devices, and the proposed 18-inch height of water bars is below FS standards.

Response:

Mountain Valley has requested clarification from the Forest Service on this question. Mountain Valley will provide a response shortly after receiving clarification.

Respondent: Ricky Myers
Position: Engineering Manager
Phone Number: 724-873-3640
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Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

General Project Description

5. File revised alignment sheets that provide the locations and dimensions of all cathodic protection beds.

Response:

The revised alignment sheets showing the locations and dimensions of all cathodic protection beds are included as Attachment DR3 General-5a. A revised Table 1.3-3 (Potential Rectifier and Groundbed Locations) is included as Attachment DR3 General-5b.

Respondent: Ricky Myers
Position: Engineering Manager
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**Mountain Valley Pipeline, LLC
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**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Water Resources

1. File a plan that provides for both pre- and post-construction testing of water yields and water quality for all domestic water supply wells within 150 feet of construction workspaces or within 500 feet in karst terrain.

Response:

Mountain Valley filed a Water Resources Identification and Testing Plan as part of Resource Report 2. The Plan details outreach to be completed by Mountain Valley to private and public water supply owners located within 150 feet of the alignment and Project components (500 feet in karst), and pre-construction water quality testing.

Mountain Valley has updated the Water Resources Identification and Testing Plan to include private water well yield testing and quality testing as requested in Water Resources, Request #2. The updated plan is included as Attachment DR3 Water Resources-1. For public water suppliers, existing documentation of well production will be used to establish baseline yield, and a tailored target analyte list that meets the requirements of the public supplier permit, will be incorporated into the pre-construction testing program.

Mountain Valley does not plan to conduct post-construction well testing for all previously-tested wells. If a water supply owner claims impact from pipeline construction, Mountain Valley will evaluate the claim appropriately, which would likely include post-construction sampling. Under this scenario, Mountain Valley will coordinate with the water supply owner to evaluate sources of potential impact. If this investigation confirms that pipeline construction was the source of impact, Mountain Valley will take all necessary actions to provide the owner with a temporary water supply until a permanent supply is developed, at Mountain Valley's expense. Mountain Valley is committed to ensure that pipeline construction does not harm a private or public water supply.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

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**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Water Resources

2. Mountain Valley's April 21, 2016 response to our March 31, 2016 Environmental Information Request (EIR) RR2 No. 13 was incomplete. In order to establish baseline individual well production capacity and background (pre-construction) water quality characteristics for organic compounds, revise the Project Water Resource Identification and Testing Plan to include:
 - a. short-term yield tests (specific capacity) for private and public wells. These data should be collected and reported for each season prior to construction; and
 - b. volatile organic compounds, semi-volatile organic compounds, and total petroleum hydrocarbon analysis (one set of analysis is required, only).

Note: for public utility sources, monitoring records of yield and organic water quality can be used in place of testing.

Response:

See the response to Water Resources, Request #1.

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Docket No. CP16-10-000**

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Dated June 28, 2016**

Request:

Water Resources

5. File the distance (feet) and direction from the pipeline to surface water protection areas located within 0.25-mile. In response to an agency comment, discuss whether Mountain Valley would agree to conduct pre- and post-construction water quality sampling of source water protection areas within 0.25-mile and public water supply intakes within 3 miles downstream of the pipeline to insure that construction does not impair surface water drinking supplies.

Response:

A table listing the distance and direction from the pipeline to surface or source water protection areas located within 0.25-mile is included below:

Source or Surface Water Protection Zones Within 0.25 mile of the Proposed Pipeline <u>a/</u>				
Public Supply Name	Type	Approximate Distance to Intake or Well (feet)	Direction	State
Big Bend	Surface water intake	19,800	North-Northeast	WV
Burnsville	Surface water intake	49,000	East-Southeast	WV
Craigsville	Surface water intake	3,600	Northwest	WV
Red Sulphur	Surface water intake	41,000	Northeast	WV
Summersville	Surface water intake	46,000	East	WV
Rainelle Water Dept, Well #3, #6	Well	2,640	Northeast	WV
Nettie-Leivasy PSD	Panther Mine Source	10,560	West	WV

a/ The proposed route does not traverse within 0.25-mile of any defined surface water protection zone in Virginia.

As discussed in the revised Water Resources Identification and Testing Plan included as Attachment DR3 Water Resources-1, Mountain Valley will conduct pre-construction water quality sampling of source water protection areas within 0.25-mile and public water supply intakes within three miles downstream of the pipeline to insure that construction does not impair surface water drinking supplies and will conduct post-construction sampling in the same areas as requested.

Respondent: Ricky Myers
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Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Water Resources

6. File site-specific plans and justification for the use of permanent culverts and fill in waterbodies and wetlands crossed by access roads. Document consultations with appropriate resource agencies (such as the COE) regarding the plans.

Response:

All permanent culverts for access roads have been deemed necessary during engineering layout of the Project due to Mountain Valley's need to provide safe passage of employees and contractors during construction, operation, and maintenance of the pipeline and associated facilities. In addition, the installation of culverts on these permanent roads will minimize potential environmental degradation resulting from the long term/permanent use of the roads. The impacts associated with the installation of these culverts have been included in permit documents submitted to the Army Corps of Engineers and West Virginia Department of Environmental Protection. A table for all permanent culverts with this justification as well as justification for all fill in waterbodies and wetlands for permanent access roads is included as Attachment DR3 Water Resources-6a. A typical drawing for culverts is provided as Attachment DR3 Water Resources-6b.

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Mountain Valley Pipeline, LLC
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Docket No. CP16-10-000

Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016

Request:

Water Resources

11. File quantitative modeling results for turbidity and sedimentation associated with the proposed wet open-cut crossings of the Elk River (MP 87.4), Gauley River (MP 118.6), and Greenbrier River (MP 170.6).

Response:

The proposed method of crossing the Elk, Gauley, and Greenbrier rivers in West Virginia is the open-cut method. In this method, a pipeline trench is excavated across the waterbody, followed by installation of a prefabricated segment of pipeline and backfilling of the trench with native material. Because stream flow is not isolated from the construction activities, this method has the potential to introduce excess sediment into the waterbody. In order to quantify the amount of sediment expected within waterways downstream of the proposed Elk, Gauley, and Greenbrier river crossings, quantitative modeling was conducted at each of the three stream crossings using the analytical models developed by Reid et al. (2004).

The following approach was taken to estimate sediment entrainment during pipeline water crossing construction at each respective waterbody. Baseline sediment loads and hydrologic conditions were estimated for each stream crossing using the Modified Universal Soil Loss Equation (MUSLE; Williams 1975) and the Soil and Water Assessment Tool (SWAT) via the ArcGIS (ESRI, Redlands, CA) extension ArcSWAT (Winchell et al. 2013). Baseline conditions were defined using (1) 1/3 arc-second elevation data from the U.S. Geological Survey's 3D Elevation Program, (2) the 1:24,000 National Hydrography Dataset, (3) land uses from the 2011 National Land Cover Database (NLCD; Homer et al. 2015), (4) soil classes from the Natural Resources Conservation Service (NRCS) SSURGO (Soil Survey Staff 2015a) and STATSGO2 (Soil Survey Staff 2015b) soil databases, and (5) weather data from 1980 to 2010 (available within ArcSWAT). Using these attributes, baseline sediment loads were estimated on a monthly basis for stream segments downstream of each respective crossing until either the sub-basin outlet or the first major dam (as defined in the National Hydrography Dataset). All upstream areas were incorporated into the estimate of sediment load.

In order to simulate construction impacts from stream crossings, models developed by Reid et al. (2004) were used to predict the expected mean and peak total suspended solids (TSS; mg L⁻¹) introduced. These models utilize several site specific attributes to estimate sediment entrainment from pipeline crossings, including mean flow velocity at the crossing, median sediment size of the material to be excavated, the percent of the excavated material expected to be fines (i.e., silt or clay), stream discharge, and the watercourse width.

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Hydrologic parameters involved in the Reid et al. (2004) model (i.e., discharge and stream velocity) were derived using the estimates from the Enhanced Runoff Method available within the NHDPlus Dataset. Given that velocities and discharges vary among different times of the year, estimates were made for the minimum, median, and maximum month average discharge, not including times limited by time of year restrictions, for each crossing. Because estimates of median sediment size and percentages of fines were not readily available in the SSURGO dataset for the three stream crossings, mean values from Reid et al. (2004) were used.

Given these parameters, mean increases in downstream TSS concentrations (C_{av} ; mg L⁻¹) were modeled as:

$$C_{av} = 1.5 \times 10^6 U^{1.09} d_{50}^{0.95} Pf^{2.35} q^{-1} \quad \text{Eq. 1}$$

where U is the mean flow velocity at the crossing (m/s), d_{50} is the median sediment size of excavated material (m), Pf is the percent of fines within the excavated material, and q is the width adjusted stream flow rate (i.e., the discharge [m³ s⁻¹] divided by stream width [m]). Note that peak TSS and TSS for different construction activities were also modeled (see Table 1) similarly using different coefficients available in Reid et al. (2004). Given C_{av} , sediment entrainment (kg m⁻¹ s⁻⁵) was estimated as:

$$G_s = (C_{av}/10^3) \times q. \quad \text{Eq. 2}$$

To determine the impact and transport of introduced sediments, sediment entrainment estimates were incorporated into the sediment routing models available in ArcSWAT (Winchell et al. 2013). To determine areas of potential impacts, increases in sediment were assessed by comparing sediment loads derived from the baseline estimates described above.

Results:

Based on time of year restrictions, the Elk River will likely be crossed between April 1 and September 1. Minimum, median, and maximum monthly discharge during this time period is expected to be 14.58 (August), 23.03 (June), and 36.71 (April) m³ s⁻¹ with mean velocities ranging from 0.45 to 0.68 m s⁻¹. Baseline sediment loads at the crossing also vary for these different months with a minimum of 1,380 metric tons month⁻¹ (3.82 metric tons day⁻¹) and a maximum of 1,839 metric tons month⁻¹ (5.09 metric tons day⁻¹). Based on the models developed in Reid et al. (2004), mean increases in TSS and sediment loads will likely be between 176.23 and 285.11 mg L⁻¹ and 359.11 and 558.95 metric tons day⁻¹, depending on the discharge during construction (Table 1). This represents a 49 to 81 percent increase in the monthly sediment load, based on a two-day crossing period. Trenching is expected to have the highest increase in sediment load ranging between 468.55 and 703.12 metric tons day⁻¹, depending on when the stream is crossed. To limit the potential dispersion of sediment introduced, Mountain Valley will follow the Federal Energy Regulatory Commission's (FERC) procedures, and all in-stream work

Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000

Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016

will be conducted during low-flow periods as much as possible. Additionally, work on the stream bank will be subjected to erosion and sedimentation controls. In order to limit the potential dispersion of sediment introduced, in-stream work will be conducted during low-flow periods as much as possible. Turbidity curtains will be installed downstream of the proposed crossing. These curtains contain both a flotation boom and a weighted bottom that increases sediment settlement to the stream bed, thus minimizing the potential for downstream suspension and further deposition.

Time of year restrictions for the Gauley River require that the waterbody be crossed between July 1 and March 31. During this time period, minimum, median, and maximum discharge are 31.89 (February), 32.32 (October), and 52.83 (March) $\text{m}^3 \text{s}^{-1}$, respectively, with velocities ranging from 0.51 to 0.75 m s^{-1} . Baseline sediment loads during this time range from 6,031 to 8,801 metric tons month^{-1} (16.71-24.38 metric tons day^{-1}). Mean sediment increases from all construction activities are expected to be between 276.59 and 338.69 mg L^{-1} or 640.56 and 986.27 metric tons day^{-1} (Table 1), representing a 15 to 26 percent increase over monthly baseline loads, assuming a two day crossing period. To limit the potential dispersion of sediment introduced, Mountain Valley will follow the Federal Energy Regulatory Commission's (FERC) procedures, and in-stream work will be conducted during low-flow periods as much as possible. Additionally, work on the stream bank will be subjected to erosion and sedimentation controls. In order to limit the potential dispersion of sediment introduced, all in-stream work will be conducted during low-flow periods as much as possible. Turbidity curtains will be installed downstream of the proposed crossing. These curtains contain both a flotation boom and a weighted bottom that increases sediment settlement to the stream bed, thus minimizing the potential for downstream suspension and further deposition.

The proposed crossing for the Greenbrier River will be restricted to be between July 1 and March 31 based on the time of year restrictions for the waterbody. Minimum, median, and maximum monthly discharge during this period is 23.39 (August), 58 (January), and 110.58 $\text{m}^3 \text{s}^{-1}$, respectively, with velocities ranging from 0.36 to 0.71 m s^{-1} . Baseline sediment loads in these three representative months ranges from 5,015 to 9,922 metric tons per month (13.89 to 15.56 metric tons day^{-1}). Mean sediment increases in total suspended solids and sediment loads are expected to be between 137.28 and 313.24 mg L^{-1} and 632.91 and 1,311.58 metric tons per day (Table 1), representing a 19 to 52 percent increase over monthly baseline loads, assuming a two day crossing period. To limit the potential dispersion of sediment introduced, Mountain Valley will follow the Federal Energy Regulatory Commission's (FERC) procedures, and all in-stream work will be conducted during low-flow periods as much as possible. Additionally, all work on the stream bank will be subjected to erosion and sedimentation controls. In order to limit the potential dispersion of sediment introduced, all in-stream work will be conducted during low-

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

flow periods as much as possible. Turbidity curtains will be installed downstream of the proposed crossing. These curtains contain both a flotation boom and a weighted bottom that increases sediment settlement to the stream bed, thus minimizing the potential for downstream suspension and further deposition.

Respondent: Megan Neylon
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Phone Number: 724-873-3645
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**Mountain Valley Pipeline, LLC
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Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Water Resources

12. Respond to Thomas Bouldin's statements filed on May 2, 2016 (Accession Number 20160502-5052) regarding errors, data gaps, and inconsistencies in Mountain Valley's scour analysis provided to the FERC on April 21, 2016. File a revised scour analysis that includes:
 - a. maximum historic discharges (i.e., 100-year-flow) based on USGS data for all perennial waterbodies crossed;
 - b. drainage area estimates (and source of data) for all perennial streams;
 - c. a discussion (including drawings of cross-sections or other useful figures where appropriate) regarding the rationale used to determine the horizontal (lateral) distance the pipeline would be buried below the scour depth of each perennial stream (i.e., define and explain how far out laterally from the stream that the pipeline would be buried at this maximum depth); and
 - d. site-specific proposed mitigation for all waterbodies with a projected scour rate within 25 percent of the standard listed in 49 CFR Part 192.327.

Response:

Mountain Valley has collected background data to obtain site-specific information related to the proposed pipeline crossings of major and intermediate perennial waterbodies. The background data search includes the following sources:

- Digital Elevation Maps
- USGS Gage Data
- Floodway mapping
- USGS Digital Raster Graphics (DRG)
- General Land Office Records
- Aerial Photos
- USDA Soil Surveys
- Surficial Geology
- Precipitation Data
- Hydrology Data
- Land Cover Maps

Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000

Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016

The background data is being used to determine the stream scour depth for the major and intermediate perennial streams crossed by the Project. The data collected (or, if unavailable, assumed) for the scour calculations include the following:

- Water Body Identification number
- Crossing location; latitude and longitude
- Drainage Area
- Channel gradient/slope
- Peak Discharge – Greater of Historical Maximum Discharge or 100 year flood event calculation
- Channel Cross Section
- Top of Bank Width
- Channel Width
- Water Depth
- Sinuosity – Bend Radius of Curvature
- Channel Width – Bend Radius of Curvature
- Channel Bed Material
- Hydraulic Radius
- Water Velocity
- Water Discharge

The following are responses to Mr. Bouldin’s specific comments in Sections 2.1 – 3.4.

Section 2.1

The pipeline depth values are cited from 49 CFR 192.327 (entitled “Cover”), which provides the guidelines to pipeline minimum depth for waterbody crossings.

The field data collected for the channel bed type will be incorporated into the scour analysis. The calculated scour depth will be used to determine the minimum pipeline installation depth and any necessary mitigation measures.

Section 2.2

The channel bed particle size will be obtained from background data, field observations, or assumed based on the field data observed on the channel bank for the major perennial rivers. The sediment type or bedrock will be incorporated in the scour calculation to determine the minimum pipeline installation depth and any necessary mitigation measures.

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Section 2.3

The scour depth calculations for the major and intermediate perennial streams will provide the data needed to determine the minimum pipeline installation depth and any necessary mitigation measures.

Section 3.1

As noted above, background data and field measurements are being used to populate a table that will provide specific crossing data for the scour calculations. The stream depth and channel bed composition are provided from the field measurements. The drainage area is being calculated for the major and intermediate perennial streams.

Sections 3.2-3.4

The 100-year discharge data from the USGS gage data (where applicable) or calculated discharge using the channel cross-section and velocity will be applied in the scour calculations.

A revised scour analysis for the major and intermediate perennial crossings will be submitted by September 30, 2016.

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Phone Number: 724-873-3640
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**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Water Resources

13. Regarding Mountain Valley's April 21, 2016 response to FERC's March 31, 2016 EIR RR2 No 7, file a justification that a burial depth of 48 inches under navigable streams, leaving 1.5 inches from the maximum scour depth and the top of the pipeline, is deep enough to avoid exposure of the pipeline.

Response:

Mountain Valley is revising the scour analysis for the major and intermediate perennial waterbody crossings which will be submitted by September 30, 2016.

Respondent: Ricky Myers
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**Mountain Valley Pipeline, LLC
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**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Wetlands

1. Mountain Valley requested a right-of-way width greater than the 75 feet required by the FERC's *Wetland & Waterbody Construction and Mitigation Procedures* (Procedures) at 256 wetlands. File site-specific justifications for the extra right-of-way width for each wetland crossed. Each justification should include site-specific characteristics of the affected wetland.

Response:

A revised table with justification for a right-of-way greater than 75 feet in wetlands is provided as Attachment DR3 Wetlands-1a. In reviewing the previously filed table it was discovered that two wetlands (W-C11 and W-C12) were repeated. Mountain Valley has removed the repeated rows and the table now only contains 254 entries.

A large majority of these state, "temporary impacts will be necessary for safe access to pipeline for construction operations." However, in many of these cases Mountain Valley is not requesting a construction right-of-way more than 75-feet. These are small wetland impacts that are in the middle of the right-of-way or are within the right-of-way edge and a 75-foot right-of-way reduction would not reduce the impacts. Of the 254 wetlands listed in the table, Mountain Valley is only requesting a right-of-way of more than 75-feet for eight wetland impacts. For justifications that reference an updated alignment sheet dated 7/15/2016 or 7/16/16, those are contained in Attachment DR3 Wetlands-1b.

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**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Wetlands

3. Access road detail maps filed on April 21, 2016 indicate that access road MVP-SU-200 would impact wetlands TTWV-W-56-PFO and TTWV-W-56-PEM. File a revised table 2-B-1 Wetlands Crossed by the MVP Project to include impacts on these wetlands from the access road.

Response:

The revised table is included as Attachment DR3 Wetlands-3. MVP-SU-200 is a temporary access road, thus no permanent impacts are expected.

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**Mountain Valley Pipeline, LLC
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Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Wetlands

4. Based on Mountain Valley's April 21, 2016 filing, inconsistencies were identified between table 2-B-1 and the alignment sheets regarding wetland impacts at aboveground facilities. The operational emergent wetland impacts at the Stallworth Compressor Station are not depicted on the alignment sheets, and the operational wetland impacts for the Transco Interconnect are not consistent with the alignment sheet for this facility. File a revised wetland table that accurately lists wetland impacts at all aboveground facilities, as well as revised alignment sheets, as necessary, that are consistent with the revised table.

Response:

The revised table is included as Attachment DR3 Wetlands-3. Wetland W-EE7 for the Stallworth Compressor Station at MP 154.2 and the two wetlands at the Transco Interconnect (TTVA-W-MM11 and TTVA-W-MM13) at MP 300.9 were removed from the table as impacts are not anticipated to these resources. Operational impacts for aboveground facilities for wetland W-EE6 for the Stallworth Compressor Station at MP 154.2 were removed from the table as operational impacts are not anticipated to this resource.

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**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Vegetation

2. Clarify discrepancies noted in the reporting of interior forest impacts for Virginia on RR3 table 3.3-5 (filed with application), the *Migratory Bird Habitat Conservation Plan* (filed January 22, 2016), and Attachment RR3-11 Impacts to Interior Forest Tracts (filed January 15, 2016). RR3 table 3.3-5 lists Virginia interior forest impacts as construction = 947.37 acres and operational = 359.32 acres; the *Migratory Bird Habitat Conservation Plan* lists impacts on interior forest in Virginia as construction = 937.39 acres and operational = 358.86 acres; while Attachment RR3-11 indicates impacts as construction = 500.16 acres and operational = 195.24. File revised tables and final data for construction and operation (in acres) that report impacts on interior forests in a consistent manner.

Response:

After filing the application with FERC in October 2015, Mountain Valley identified errors within the 2007 Virginia Natural Landscape Assessment dataset used to calculate forest interior acreage in Virginia. The boundaries of several core areas overlapped which lead to the “double-counting” and overestimation of area impacted. Elimination of the overlapping areas resulted in a slight decrease in estimated forest interior impacted during construction and operation of the Project (9.98 and 0.46 acres, respectively), and explains the discrepancies in forest interior impacts between Table 3.3-5 from RR3 filed in October 2015 and the Migratory Bird Habitat Conservation Plan filed in January 2016.

For Attachment RR3-11 filed January 15, 2016, ecological core areas less than 25 acres within the 2007 Virginia Natural Landscape Assessment dataset were eliminated from the analysis and not considered as forest interior based on current literature that suggests many forest interior bird species require a minimum of 25 acres of interior habitat. See General Management Plan / EIS (Chapter 2) for Manassas National Battlefield Park (2008). This resulted in the elimination of the C4-Moderate and C5-General categories, thus reducing construction and operation impacts to 500.16 and 195.24 acres (± 0.5 due to rounding errors), respectively. No size threshold for ecological core areas was considered during the submittal of the Migratory Bird Habitat Conservation Plan because some bird species can still exist within interior forests less than 25 acres, thus bringing the total estimated interior forest impacted during construction to 937.79 acres and during operation to 358.86 acres (see below for Table 3 from the Migratory Bird Habitat Conservation Plan).

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Ecological Integrity Category	Acres within Construction footprint	Acres within Operation footprint
C1 – Outstanding	134.02	56.36
C2 – Very High	198.42	80.77
C3 – High	167.76	58.11
C4 – Moderate	54.57	22.44
C5 – General	383.02	141.18
Total	937.79	358.86

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Request:

Vegetation

5. File a revised *Exotic and Invasive Species Control Plan* that includes the limitation that mowing and maintenance equipment would not be moved from an area where invasive species have been encountered during operation of the project unless the equipment would be cleaned prior to moving. The revised plan should also identify the planned locations of equipment cleaning stations intended to prevent the spread of invasive species.

Response:

A revised Exotic and Invasive Species Control Plan is included as Attachment DR3 Vegetation-5.

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**Responses to FERC Post-Application Environmental Information Request #3
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Request:

Wildlife

1. In response to comments from the FS, file a revised *Migratory Bird Habitat Conservation Plan* that includes a mitigation plan for both long-term and permanent upland forest impacts on migratory bird habitat with an emphasis on high quality and/or larger intact core interior forest areas. Include documentation of communications with the FS, U.S. Fish and Wildlife Service (FWS), West Virginia Division of Natural Resources (WVDNR), and Virginia Department of Game and Inland Fisheries (VDGIF) in the development of this plan.

Response:

Mountain Valley's draft *Migratory Bird Habitat Conservation Plan* (MBHCP) includes a delineation of high quality bird habitat and interior core forest areas. During a meeting with the U.S. Fish and Wildlife Service (USFWS) West Virginia and Virginia Field Offices, on April 7, 2016, Mountain Valley requested additional coordination with USFWS regarding compliance with the Migratory Bird Treaty Act (MBTA) and potential revisions to the MBHCP that may be required to account for habitat impacts. To date no specific recommendations have been received from the USFWS. Mountain Valley will continue to coordinate with the USFWS, as well as the West Virginia Department of Natural Resources, and Virginia Division of Game and Inland Fisheries, regarding potential measures to avoid or minimize impacts on species covered under the MBTA.

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Request:

Wildlife

5. File reports detailing the results of the wildlife surveys conducted in 2016 (or a schedule for the completion of field work and filing of survey data), including those for:
 - a. bats and bat hibernacula;
 - b. Roanoke logperch;
 - c. orangefin madtom;
 - d. freshwater mussels; and
 - e. bog turtles

Document that the wildlife survey reports were submitted to the FWS, WVDNR, and VDGIF, and file the agencies comments.

Response:

- a. A summary of surveys conducted for state and federally listed bat species is provided in Attachment DR3 Wildlife-5a-1. All mist-net and harp-trap efforts for listed bats are complete. A progress report (dated November 13, 2015) detailing mist-netting efforts conducted during May through August 2015 was submitted to USFWS, WVDNR, and VDFGIF for review. The USFWS Elkins Field Office provided comments on the mist-netting report on December 30, 2015, and the USFWS Gloucester Field Office provided comments on March 8, 2016. The WVDNR and VDGIF did not provide comments on the mist-netting report. The VDCR provided comments on January 4, 2016. Additional mist net surveys were completed in the Jefferson National Forest in May 2016. Reports summarizing the surveys were submitted to the Forest Service, VDGIF, and VDCR on June 13, 2016.

A progress report detailing results of cave/mine searches in West Virginia was submitted to USFWS and WVDNR on January 11, 2016. Similarly, a progress report of cave/mine searches in Virginia was submitted to USFWS, VDGIF, and VDCR on January 13, 2016, but the agencies have not yet provided formal comments. Further details on suitable cave and mine features located along the proposed route are provided in the Biological Assessment submitted to FERC on June 24, 2016.

Approximately 50 miles remain to be surveyed for caves and mines, and a final report will be submitted to state and federal agencies after permission to survey

Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000

Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016

these areas has been obtained and the surveys have been completed. Agency correspondence is provided as Attachment DR3 Wildlife-5a-2.

- b. A summary of the results of the 2016 habitat assessments for Roanoke logperch (*Percina rex*) in Virginia are provided in Attachment DR3 Wildlife-5b-1. All Roanoke logperch habitat assessment efforts have been completed. A progress report dated November 13, 2015 describing the results of the Roanoke logperch habitat assessments completed in 2015 was submitted to USFWS and VDGIF for review. USFWS and VDGIF provided formal responses to the 2015 Progress Report on March 8, 2016 and January 27, 2016, respectively (Attachment DR3 Wildlife-5b-2). The report documenting the results of the 2016 Roanoke logperch habitat assessments are being generated and will be submitted to VDGIF and USFWS – Virginia Field Office in July 2016.
- c. Based on correspondence with VDGIF on March 11, 2016 (see Attachment DR3-Wildlife-5b-2), surveys aiming to document presence or absence of the species was not advisable because of the species' behaviors. Therefore, surveys were not completed. VDGIF indicated that independent assessments were not necessary as long as time of year restrictions (TOYR) were adhered to within their native range, including perennial streams in the Roanoke and Pigg river basins.
- d. A summary of the results of the 2016 mussel surveys and assessments for freshwater mussels in West Virginia and Virginia are provided in Attachment DR3 Wildlife-5d-1. Freshwater mussel survey and assessment efforts for the proposed route have been completed. A progress report dated November 13, 2015 describing the results of the mussel site assessments and surveys completed in 2015 was submitted to USFWS and VDGIF for review. USFWS and VDGIF provided formal responses to the 2015 Progress Report on March 8, 2016 and March 11, 2016, respectively (Attachment DR3 Wildlife-5b-2). Mussel survey reports documenting the results of the 2016 mussel surveys and assessments are being generated and will be submitted to WVDNR, USFWS – West Virginia Field Office, VDGIF, and USFWS – Virginia Field Office in July 2016.

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

- e. A summary of the results of the 2016 bog turtle habitat assessments in Virginia are provided in Attachment DR3 Wildlife-5e. Habitat assessments for bog turtles were completed at five properties encompassing approximately 2.1 miles in Roanoke County, Virginia and no suitable habitat was found. Habitat assessments are anticipated to continue July 21 through July 24, 2016 in Roanoke County. A report documenting results of the 2016 habitat assessments will be submitted to USFWS – Virginia Field Office and VDGIF in August 2016.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Wildlife

6. File documentation of communications with the FWS and the VDGIF regarding the necessity for non-mussel invertebrate species surveys (e.g., for the Ellett Valley millipede) and identification of any species-specific conservation measures.

Response:

Correspondence with the USFWS, VDGIF, and VDCR regarding the necessity for non-mussel invertebrate species is included as Attachment DR3 Wildlife-6.

Although initially flagged as a species of concern, the USFWS and VDCR determined the Mitchell's satyr butterfly (*Neonympha mitchellii mitchellii*) is not likely to be present within the Project area and thus did not request that surveys be completed for this species. See correspondence on October 2, 2015 between Kimberly Smith and Valerie Clarkson included in Attachment DR3 Wildlife-6.

On June 10, 2015, the VDCR indicated the range of the Ellett Valley millipede (*Pseudotremia cavernanum*) may have extended into the Project area near Mt. Tabor and Catawba roads. On October 19, 2015, VDGIF provided species-specific avoidance and conservation measures. On October 22, 2015, VDCR provided more details regarding the identification of specimens collected near the Project and potential threats to the species due to the development and expansion of nearby residential areas. On July 13, 2016, Mountain Valley met with VDCR to discuss sensitive resources, including the Ellett Valley millipede. Wil Orndorff with the VDCR recommended Mountain Valley contact an additional resource and request assistance in determining whether field surveys for the Ellett Valley millipede are necessary. Mountain Valley has agreed to reach out to this additional resource and will continue consultation with the VDCR.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Wildlife

7. File the results of all botanical and biological field surveys conducted within the Jefferson National Forest (or a schedule for field work and the filing of survey data), including surveys for FS-designated Locally Rare Species and Management Indicator Species. Document that the survey reports were reviewed and approved by the FS, and include species-specific measures for impact avoidance, minimization, or mitigation.

Response:

Multiple surveys have been conducted in the Jefferson National Forest to address potential issues regarding threatened, endangered, and sensitive species and Forest Service-designated Locally Rare Species. The results of these surveys and a schedule for upcoming surveys are provided in Attachments DR3 Wildlife-7a and 7b. Additionally, the presence of Management Indicator Species (MIS) are also documented during each survey effort. The MIS observed to date are provided in the table below.

Survey notifications and results are provided to Forest Service biologists by email and then included in the biological evaluation. Mountain Valley submitted the most recent biological evaluation to the Forest Service on June 24, 2016 and is awaiting Forest Service review and comment. The biological evaluation also includes a list of Project-Wide Mitigation Measures (Appendix F to the biological evaluation). Draft avoidance, minimization, and mitigation measures for forest-sensitive species were proposed in Section 6 of the biological evaluation. Additional measures will be developed in coordination with the Forest Service. Copies of Forest Service coordination are included in Attachment DR3 Wildlife-7c.

Management indicator species observations within Jefferson National Forest for the Mountain Valley Pipeline	
Species Name <u>a/</u>	Common Name
<i>Hylatomus pileatus</i>	Pileated woodpecker
<i>Seiurus aurocapilla</i>	Ovenbird
<i>Setophaga pensylvanica</i>	Chestnut-sided warbler
<i>Empidonax virescens</i>	Acadian flycatcher
<i>Setophaga citrina</i>	Hooded warbler
<i>Piranga olivacea</i>	Scarlet tanager
<i>Setophaga pinus</i>	Pine warbler
<i>Pipilo erythrophthalmus</i>	Eastern towhee
<i>Meleagris gallopavo</i>	Eastern wild turkey
<i>Ursus americanus</i>	Black bear
<i>Odocoileus virginianus</i>	White-tailed deer

a/ Observations of management indicator species documented during all survey efforts on JNF

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Wildlife

8. File the results of surveys for state-listed or special status species conducted in 2016 (or a schedule for field work and the filing of survey data), including for the loggerhead shrike, and for the little brown bat and tri-colored bat in Virginia. The survey reports should also discuss any species-specific conservation measures developed with appropriate state resource agencies.

Response:

Mist net surveys were completed from milepost 218.5 to 219.4 in the Jefferson National Forest between May 15 and 26, 2016 in Virginia. No little brown bats (*Myotis lucifugus*) or tri-colored bats (*Perimyotis subflavus*) were captured.

Results of loggerhead shrike (*Lanius ludovicianus*) habitat assessments conducted in 2015 and 2016 (and schedules for future surveys) are provided in Attachment DR3 Wildlife-8.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Cultural Resources

1. File copies of reviews by the Virginia Department of Historic Resources (VDHR) of the following cultural resources reports produced by Mountain Valley:
 - a. Turco et al. March 2016, *Phase I Reconnaissance Architectural Survey for the Mountain Valley Pipeline, Roanoke County, Virginia* (New South Associates, Stone Mountain, GA);
 - b. Turco et al. March 2016, *Phase I Reconnaissance Architectural Survey for the Mountain Valley Pipeline, Montgomery County, Virginia* (New South Associates, Stone Mountain, GA);
 - c. Reeve et al. March 2016, *Mountain Valley Pipeline Project, Phase 1B Archaeological Survey Report, Roanoke, Montgomery, and Craig Counties, Virginia* (Tetra Tech, Morris Plains, NJ);
 - d. Reeve et al. May 20216, *Mountain Valley Pipeline Project, Phase I Archaeological Investigation in Jefferson National Forest, Monroe County, West Virginia, and Giles and Montgomery Counties, Virginia* (Tetra Tech, Morris Plains, NJ);
 - e. Tetra Tech. November 2015, *Mountain Valley Pipeline Project, Phase II Work Plan, Pittsylvania, Franklin, Roanoke, Montgomery, and Giles Counties, Virginia* (Tetra Tech, Morris Plains, NJ);
 - f. Turco and Jones, June 2016, *Addendum: Phase I Reconnaissance Architectural Survey for the Mountain Valley Pipeline, Pittsylvania and Franklin Counties, Virginia* (New South Associates, Stone Mountain, GA); and
 - g. Turco, June 2016, *Addendum to the Phase I Reconnaissance Architectural Survey for the Mountain Valley Pipeline, Craig and Giles Counties, Virginia* (New South Associates, Stone Mountain, GA).

Response:

A table providing report submission dates to the FERC and SHPO including dates comments were received from each agency is provided as Attachment DR3 Cultural Resources-1.

- a. VDHR's May 25, 2016 review letter is provided as Attachment DR3 Cultural Resources-1a.
- b. VDHR's May 25, 2016 review letter is provided as Attachment DR3 Cultural Resources-1b.

Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000

Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016

- c. VDHR's April 21, 2016 review letter was filed with FERC May 6, 2016.
- d. MVP provided VDHR with a copy of the report May 18, 2016. To date no comments have been received from VDHR.
- e. VDHR's review of the Phase II Work Plan, by teleconference, is provided as Attachment DR3 Cultural Resources-1e.
- f. MVP provided the report to VDHR June 7, 2016. To date no comments have been received from VDHR.
- g. MVP provided the report to VDHR June 24, 2016. To date no comments have been received from VDHR.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Cultural Resources

2. File a copy of the review by the West Virginia Division of Culture and History of Espino, et al. June 2016, *Mountain Valley Pipeline Project, Phase II Archaeological Investigations, Sites 46DO94, 46HS100, 46HS101, 46HS104, 46HS109, 46HS125, and 46LE77, Doddridge, Harrison, and Lewis Counties, West Virginia* (Tetra Tech, Pittsburgh).

Response:

Mountain Valley submitted the report to WVDCH on June 7, 2016. To date no comments from WVDCH have been received.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Cultural Resources

3. Document that copies of the following reports were sent to the National Park Service (NPS):
 - a. Turco et al., March 2016, *Phase I Reconnaissance Architectural Survey for the Mountain Valley Pipeline, Craig and Giles Counties, Virginia* (New South Associates, Stone Mountain, GA);
 - b. Turco, June 2016, *Addendum to the Phase I Reconnaissance Architectural Survey for the Mountain Valley Pipeline, Craig and Giles Counties, Virginia* (New South Associates, Stone Mountain, GA);
 - c. Turco et al., March 2016, *Phase I Reconnaissance Architectural Survey for the Mountain Valley Pipeline, Roanoke County, Virginia* (New South Associates, Stone Mountain, GA);
 - d. Turco et al., September 2015, *Phase I Reconnaissance Architectural Survey for the Mountain Valley Pipeline, Franklin County, Virginia* (New South Associates, Stone Mountain, GA), and
 - e. Reeve et al., May 2016, *Mountain Valley Pipeline Project, Phase I Archaeological Investigation in Jefferson National Forest, Monroe County, West Virginia, and Giles and Montgomery Counties, Virginia* (Tetra Tech, Morris Plains, NJ).

Response:

The noted reports were provided to NPS for comment under Section 106 on July 7, 2016. When comments on the reports are received, Mountain Valley will file the comments with FERC.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Cultural Resources

4. File a copy of the FS comments on Reeve et al. May 20216, *Mountain Valley Pipeline Project, Phase I Archaeological Investigation in Jefferson National Forest, Monroe County, West Virginia, and Giles and Montgomery Counties, Virginia* (Tetra Tech, Morris Plains, NJ), submitted to the Jefferson National Forest by Mountain Valley on May 16, 2016.

Response:

A copy of the May 24, 2016 comments from the Forest Service is provided as Attachment DR3 Cultural Resources-4. Mountain Valley continues to consult with the Forest Service's cultural resource specialists regarding the surveys requested in their comments.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Cultural Resources

5. Provide hard copies (directly to the FERC staff) of the testing plans for:
- sites 46HS100, 101, 104, 109, and 111 in Harrison County, West Virginia;
 - site 46DO94 in Doddridge County, West Virginia;
 - site 46LE77 in Lewis County, West Virginia;
 - sites 46BX111 and 114 in Braxton County, West Virginia;
 - sites 46WB405, 407, 412, 414, and 416 in Webster County, West Virginia;
 - sites 46NI808, 817, 821, 822, and 827 in Nicholas County, West Virginia.
 - sites 46GB492, 493, 498, 499, 500, 503, 504, and 505 in Greenbrier County, West Virginia.
 - sites 46SU78, 147, 239, 717, 722, 724, and 725 in Summers County, West Virginia; and
 - sites 46ME273, 281, 283, 284, and 285 in Monroe County, West Virginia.

Response:

Mountain Valley will mail hard copies of the testing plans for the sites listed above to FERC Staff on July 18, 2016.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Cultural Resources

6. File avoidance plans for:
- site 46HS99 in Harrison County, West Virginia;
 - sites 46LE42, 81, and 82 in Lewis County, West Virginia;
 - sites 46NI811, 813, 818, 819, and 824 in Nicholas County, West Virginia;
 - sites 46SU181 and 730, and historic site 4 in Summers County, West Virginia;
 - sites 46ME280 and 282, and historic site 233 in Monroe County, West Virginia;
 - sites 44GS231, 232, 235, and 236, and historic sites 35-412-10, 35-412-245, 35-412-465, and 35-412-237 in Giles County, Virginia;
 - site 44MY216 in Montgomery County, Virginia;
 - sites 44FR355, 357, 371, and 372 in Franklin County, Virginia; and
 - sites 44PY421 and 427 in Pittsylvania County, Virginia.

Response:

Avoidance plans for the sites listed above are provided in Attachment DR3 Cultural Resources-6a (**Contains Privileged Information – Do Not Release**) for West Virginia and Attachment DR3 Cultural Resources-6b (**Contains Privileged Information – Do Not Release**) for Virginia. Note that site 46LE42 in that list was not identified by Mountain Valley and it is not located in the project area. That site appears to have been included in the list in error and actually refers to site 46LE80 in Lewis County, West Virginia that Mountain Valley committed to avoiding. In addition to those sites specifically called-out above, also provided in Attachment DR3 Cultural Resources-6a and -6b (**Contains Privileged Information – Do Not Release**) are copies of avoidance plans for the remaining sites and cemeteries in Virginia and West Virginia that Mountain Valley has committed to avoiding, as reported to the SHPO and filed with FERC. These additional sites include:

- site 46WZ136-CEM in Wetzel County, West Virginia;
- sites 46BX111, 46BX127-CEM, and 46BX126-CEM in Braxton County, West Virginia;
- sites 46WB405, 46WB412, 46WB404-CEM, and 46WB434-CEM in Webster County, West Virginia;

Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000

Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016

- sites 46NI817, 46NI821, 46NI822, 46NI840-CEM, 46NI841-CEM, 46NI842-CEM, and 46NI843-CEM in Nicholas County, West Virginia;
- sites 46GB492 and 46GB515-CEM in Greenbrier County, West Virginia;
- sites 46SU733-CEM, 46SU732-CEM, and 46SU734-CEM in Summers County, West Virginia; and
- site 46ME273 in Monroe county, West Virginia.

The following archaeological sites in Virginia will not be avoided by the Project and avoidance plans are therefore not included: Sites 44GS231, 44GS0236, and 44FR0372. Site 44PY0421 in Pittsylvania County, Virginia will be partially avoided. Phase II testing will be focused on the portions of the site located within the LOD. Mountain Valley will fence the portion of the site outside of the LOD to protect it during construction.

Attachment DR3 Cultural Resources 6c presents avoidance plans for architectural sites 46SU0004 (Wiseman Residence in Summers County, West Virginia) and 46ME0233 (Tilley Farmstead in Monroe County, West Virginia). Attachment DR3 Cultural Resources 6 presents avoidance plans for four architectural resources in Giles County, Virginia including: 035-0412-0010 (Pole Barn on Adlie Jones Farm); 035-0412-0237 (Fidel Store); 035-0412-0245 (035-0005) (1912 Sinking Creek Covered Bridge, Link Farm); and 035-0412-0465 (Cemetery).

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Cultural Resources

7. File a list of all testing and avoidance plans prepared for unevaluated or potential National Register of Historic Places (NRHP) eligible properties in Virginia and West Virginia; the dates the plans were filed with the FERC and submitted to the State Historic Preservation Offices (SHPO); and dates of SHPOs response.

Response:

A list of all testing and avoidance plans prepared for unevaluated or potential NRHP eligible properties in Virginia and West Virginia, the dates the plans were filed with the FERC and submitted to the SHPO, and dates of SHPO response is provided as Attachment DR3 Cultural Resources-7.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Cultural Resources

8. File the results of additional research at archaeological site 46NI808 in Nichols County, West Virginia, and for the historic houses at sites numbers 33-5304, 5325, 5329, 389, 5398, and 5400 in Franklin County, Virginia, or a schedule for the conduct of that research. Document that the additional research results reports were submitted to the SHPOs, and file the SHPO's comments.

Response:

Additional research at archaeological site 46NI808 in Nicholas County, West Virginia has not been conducted due to lack of landowner access permission. It is anticipated that access will be obtained in the summer of 2017. Once access to the site has been obtained, additional Phase I survey will be conducted to determine if the site extends into the direct APE, and if it does, whether that portion of the site is potentially eligible for listing in the National Register of Historic Places (NRHP).

New South Associates recommended Phase II intensive survey for resources 033-5304, 033-5325, 033-5329, 033-0389, 033-5398, and 033-5400 to determine if these resources are eligible for the NRHP. These recommendations can be found in reports *Phase I Reconnaissance Architectural Survey of the Mountain Valley Pipeline, Franklin County, Virginia* and *ADDENDUM: Phase I Reconnaissance Architectural Survey of the Mountain Valley Pipeline, Pittsylvania and Franklin Counties, Virginia*.

In discussions that took place on January 12, 2016, at a meeting with the Virginia Department of Historic Resources (VDHR) in Richmond, Virginia, and May 27, 2016 by teleconference, Mountain Valley and VDHR agreed that all architectural resources in the Virginia segment of the pipeline route recommended by New South Associates for Phase II level study would be treated as eligible for the NRHP for purposes of Section 106 of the National Historic Preservation Act and this Project. Therefore, Phase II reports will not be prepared and submitted to VDHR for resources 33-5304, -5325, -5329, -389, -5398, or -5400 in Franklin County, Virginia.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Cultural Resources

9. File a schedule for all archaeological testing field work and reporting, projected dates when the reports would be filed with the SHPOs, and the dates when SHPO reviews would be filed with the FERC.

Response:

A schedule for all archaeological testing field work and reporting, projected dates when the reports would be filed with the SHPOs, and the dates when SHPO reviews would be filed with the FERC is included as Attachment DR3 Cultural Resources-9.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Cultural Resources

10. File data recovery-treatment plans for sites 46HS101 in Harrison County and LE77 in Lewis County, West Virginia, and reviews of these plans by the West Virginia SHPO.

Response:

Data recovery treatment plans have not been developed for sites 46HS101 in Harrison County or 46LE077 in Lewis County, West Virginia. Both sites were recommended eligible for listing in the National Register of Historic Places after archaeological testing. The West Virginia Department of Culture and History (WVDCH) is currently reviewing the results of the archaeological testing and recommendations for sites 46HS101 and 46LE077. Data recovery treatment plans will be developed if requested by the WVDCH once they have concluded their review.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Cultural Resources

11. File documentation of correspondence from Mountain Valley to Certified Local Governments, counties, and local historical organizations and archaeological societies regarding cultural resources investigations, not already filed in the docket for the project. File copies of responses from the governments and organizations.

Response:

Documentation of correspondence from Mountain Valley regarding cultural resource investigations not already filed with FERC is provided as Attachment DR3 Cultural Resources-11.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Cultural Resources

12. File updated information and correspondence regarding the Delaware Tribe's research for the project, if any.

Response:

Mountain Valley included the Delaware Nation in its Resource Report 4 filed with FERC in October 2015. Since that time, there has been no additional correspondence with the Delaware Nation.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Cultural Resources

13. File a revision of the historical architectural addendum survey report for Franklin and Pittsylvania Counties, Virginia (Turco and Jones, June 2016) to include:
 - a. identification of all historic sites within the indirect APE (within 0.5 mile of the pipeline);
 - b. identification of which sites were previously recorded and which sites were recorded by Mountain Valley's contractor. If previously recorded, state by who and when and provide a report reference;
 - c. the distance (in feet) of all historic sites in the indirect APE to the pipeline centerline;
 - d. assessments of effects for all NRHP-eligible properties;
 - e. copies of 7.5-minute USGS topographic quadrangle maps illustrating all areas surveyed and the location of all historic sites in the indirect APE; and
 - f. copies of Virginia historic architectural site forms for all identified resources.

Response:

- a-c. Mountain Valley revised Table 3 of the report. The revised table is provided as Attachment DR3 Cultural Resources-13a.
- d. A formal assessment of effects evaluation is pending VDHR's review of the historical architectural addendum survey report for Franklin and Pittsylvania Counties.
- e. Copies of 7.5-minute USGS topographic quadrangle maps illustrating all areas surveyed and the location of all historic sites in the indirect APE are provided as Attachment DR3 Cultural Resources-13e.
- f. Copies of the Virginia historic architectural site forms for resources included in the above-named report are provided as Attachment DR3 Cultural Resources-13f. The original photographs and site plans that accompany these site forms are on file at the VDHR.

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Cultural Resources

14. File a revision of Turco June 2016, *Addendum to the Phase I Reconnaissance Architectural Survey for the Mountain Valley Pipeline, Craig and Giles Counties, Virginia* that includes copies of 7.5-minute USGS topographic quadrangle maps that illustrate all areas surveyed, and the location of all historic sites in the indirect and direct APE. Clarify which sites in the indirect and direct APE were previously recorded, and which sites were recorded by New South Associates for this project. Also, address the comments of the May 25, 2016 comment letter from the Virginia SHPO.

Response:

The referenced report provided supplemental materials related to the Greater Newport Rural Historic District (GNRHD). The materials address those review comments provided on May 25, 2016 by VDHR on the report entitled *Phase I Architectural Reconnaissance Survey for the Mountain Valley Pipeline, Craig and Giles Counties, Virginia* (March 2016) and focus specifically on GNRHD. The remaining comments provided by VDHR were addressed separately by Mountain Valley in the form of replacement pages for the Phase I report and were submitted to VDHR July 7, 2016. This submittal to VDHR is included in Attachment DR3 Cultural Resources-14a.

Figure 1 of the referenced report, as provided to VDHR and filed with FERC June 24, 2016, illustrates the location of the 83 known historic sites—comprised of both contributing and non-contributing resources to the Greater Newport Rural Historic District (GNRHD)—in the indirect and direct APE. Eighty of the 83 sites were previously recorded. While not all of these previously recorded sites are accounted for in VDHR’s Virginia Cultural Resource Information System (V-CRIS), they are part of the inventory of resources contained within the GNRHD National Register Nomination. The three resources that were included in the referenced report and were not previously recorded include: 035-0412-0010/Pole Barn, 035-0412-0465/Cemetery, and 035-0412-0466/Road Trace.

The survey plan did not include the collection of data for individual resources within the previously recorded historic districts except in cases where potentially contributing, previously unrecorded resources were observed, or where aboveground resources were encountered by archaeologists within the archaeological survey corridor.

However, Figure 1 has been revised, using 7.5-minute USGS topographic quadrangle base mapping, to distinguish the six sites recorded by New South Associates (symbolized in red and noted in legend). The revised figure is included in Attachment DR3 Cultural Resources-14b.

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

On July 12, 2016, MVP responded to VDHR's report comments (three letters dated May 25, 2016). The response included revisions and updates to historic architecture reports regarding Craig and Giles Counties, Virginia; Montgomery County, Virginia; and Roanoke County, Virginia. Copies of revised pages for substitution into Phase I reports on file at VDHR offices were provided. A table listing the resources for which revisions were made either to V-CRIS entries or the report text was also included in MVP's letter to VDHR. MVP transmitted two original photographs that had been requested by VDHR. MVP also agreed to treat a number of properties as contributing resources and/or eligible to the NRHP for purposes of Section 106 of the NHPA. Attachment DR3 Cultural Resources-14c contains the materials described.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Cultural Resources

15. File a list of all areas that still require cultural resources inventories, including about 36 miles of pipeline route, ATWS, aboveground facilities, yards, and new or to-be-improved access roads. Provide a schedule for conducting the field work, filing the reports with the FERC, and filing SHPO reviews.

Response:

A list with the requested information for West Virginia and Virginia is included as Attachment DR3 Cultural Resources-15.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Geology

6. Respond to VADCR's letter filed on May 20, 2016 (Accession Number 20160520-5051) regarding the avoidance of the Mill Creek Springs Natural Area Preserve, and the Slussers Chapel and Old Mill Cave conservation sites.

Response:

A modification from the proposed Mount Tabor Variation to avoid the Old Mill Conservation area poses a number constructability challenges including known caves and sinkholes. To the east of the Mount Tabor Variation there are conservation easements such as the Skyline Soil and Water Conservation District. Within this area, construction challenges such as large sink holes located on ridgetops occur would eliminate the ability to use ridgetops for pipeline construction and result in a need to conduct side-slope construction. Ridgetops are ideal for pipeline construction to avoid side-slope construction which could lead to landslide events. In addition to sinkholes, there are several problematic cave features such as Gardner's Cave and Gardner's Little Cave. Though Mountain Valley crosses Old Mill Conservation Area, more than half of this crossing is co-located with an existing timber clear cut thus reducing environmental impact by not only co-locating, but also by reducing fragmentation and the overall footage of pipe.

Respondent: John Uhrin
Position: Construction Director
Phone Number: 724-873-3497
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Geology

7. File an updated table 6.3-1 Mineral Resources within 0.25 mile of the Mountain Valley Pipeline Project Work Spaces to include the coal mines and quarries identified on sheet 27 of Mountain Valley's updated Karst Hazard Assessment, Karst Review – FERC 4.0.0 Desktop and Incomplete Field (filed April 21, 2016). Data fields in the updated table should include: the county; start and end MPs; distance from pipeline (in feet); the mineral resource; mine name; mine type (surficial or subsurface); and status (active or abandoned).

Response:

Table 6.3-1 has been updated to include five additional rows of mine locations based on Mountain Valley's updated Karst Hazard Assessment, Karst Review – FERC 4.0.0 Desktop and Incomplete Field (filed April 21, 2016). The updated table is included as Attachment DR3 Geology-7.

Respondent: Ricky Myers
Position: Engineering Manager
Phone Number: 724-873-3640
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Geology

9. In response to an agency comment, indicate if Mountain Valley is willing to employ an engineering geologist in addition to a geotechnical engineer to monitor construction.

Response:

For construction on spreads with steep slopes, Mountain Valley will have technical experts on-site with proven and specific pipeline construction experience and skill sets to evaluate the site-specific geologic setting and engineer solutions to mitigate slope stability failure. The skill sets may include, but not be limited to: pipeline material engineering, pipeline construction techniques, soil loads, static loads, thermal loads, buoyancy forces, ground displacement, geotechnical expertise, longitudinal and lateral ground movement analysis, hydrogeologic understanding, slope stability analysis, identification, and design of slope failure mitigation techniques during pipeline construction. The technical experts will be hired based on whether they meet the targeted skill sets, not based on a specific title.

Respondent: Ricky Myers
Position: Engineering Manager
Phone Number: 724-873-3640
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Soils

1. File revisions to appendices 7A-1 (Pipeline Route Soil Map Units and Descriptions in West Virginia by Milepost), 7A-2 (Pipeline Route Soil Map Units and Descriptions in Virginia by Milepost), 7-D (Soils of Additional Temporary Workspace) filed April 21, 2016 to include:
 - a. soil limitations as acreages crossed at each MP, and not as “yes/no” for each soil series and soil limitation;
 - b. temporary and permanent acreage impacts for each soil series and soil limitation as presented in table 7.2-4 (revised April 21, 2016);
 - c. a column that identifies the county for each row;
 - d. soil limitation totals that equal the totals presented in the summary table RR7-2 (Soil Impacts (in acres) for the Mountain Valley Pipeline Project).

Response:

The Appendices 7A-1, 7A-2 and 7-D have been updated to include acreages of each soil limitation. See the updated tables included in Attachment DR3 Soils-1a, Attachment DR3 Soils-1b, and Attachment DR3 Soils-1c. It should be noted that for the pipeline there will be no permanent impacts to soils, therefore only temporary impacts are included. The summary Table RR7-2 has also been updated based on this request and is included as Attachment DR3 Soils-1d.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Soils

2. File revised tables similar to table 7.2-4 (Soils at Proposed Contractor Yards) for aboveground facilities, new or improved access roads, and cathodic protection beds. Include temporary and permanent impacts, acreages for each soil series and soil limitation, and ensure that the totals for each soil limitation match the totals presented in table RR7-2 (Soil Impacts (in acres) for the Mountain Valley Pipeline Project).

Response:

Tables for aboveground facilities, new or improved access roads, and cathodic protection beds have been created with acreages. These tables include temporary and permanent impacts, acreages for each soil series, and soil limitation. See Attachment DR3 Soils-2a, Attachment DR3 Soils-2b, Attachment DR3 Soils-2c, and Attachment DR3 Soils-2d. The totals for each soil limitation match the totals presented in the updated Table RR7-2 (Attachment DR3 Soils-1d).

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Land Use, Recreation and Visual Resources

3. In response to a FS comment, file a visual assessment of Craig Creek Road (SR 621) as a Key Observation Point.

Response:

Mountain Valley has previously provided results to the Forest Service of a visual assessment from Craig Creek Road as a Key Observation Point (KOP). On April 8, 2016 Mountain Valley submitted to the Forest Service responses to their March 9, 2016 comments on the visual assessment. Attachment USFS-143b from the April 8, 2016 submittal included a viewshed map from Craig Creek Road (KOP 116). Additional assessment is provided below.

The surrounding forests around KOP 116 at Craig Creek Road are primarily Appalachian hardwood and mixed pine-hardwood forest types located within the Blue Ridge, Central Ridge and Valley, Allegheny, and Cumberland Plateau provinces. The landscape setting is rural with some scattered residences and dominant vegetation. The roadway itself appears as a convergent horizontal band in the view. The pipeline will cross Craig Creek Road at MP 218.0 approximately 2.5 miles northeast of an existing high-voltage transmission line. A viewshed map from KOP 116 was prepared using bare-earth terrain elevation models (see Attachment USFS-143b in the April 8, 2016 submittal), which showed some visibility of the pipeline right-of-way from the KOP due to assumed model condition of bare earth (no vegetation screening). A visual simulation was created for KOP 116 assuming vegetation would be in place. That visual simulation was included in Appendix 8-F of Resource Report 8. Mountain Valley proposes to cross Craig Creek Road using conventional bore. As clarified in Mountain Valley's response to Resource Report 8 Question 32 of FERC's December 24, 2015 data request, the estimated length of the bore is 60 feet. As shown in the visual simulation in Resource Report 8, there would be no physical change to the existing environment at the road crossing itself, and existing vegetation left within the area of the bore (approximately 30 feet on either side of the road) would screen views of the right-of-way from the road, resulting in a low visual contrast.

The crossing of Craig Creek Road is located on private land. However, the adjacent lands are managed by the Forest Service and are required to meet a Scenery Integrity Objective (SIO) of Moderate such that management activities remain visually subordinate to the characteristic landscape. It is anticipated that the low visual contrast at the Craig Creek Road crossing would achieve the SIO management objective of Moderate.

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Land Use, Recreation and Visual Resources

5. File a response to the May 20, 2016 letter from the VADCR regarding the crossing of the Blake Preserve in Montgomery County, Virginia.

Response:

Mountain Valley will continue to coordinate with The Nature Conservancy (TNC) and the VDCR regarding the proposed crossing of TNC's Mill Creek Springs (Blake) Natural Area Preserve. The Mount Tabor Variation, which would avoid this proposed crossing, is currently being evaluated for construction feasibility and environmental impacts. As part of this review, Mountain Valley is comparing the currently-proposed route and the Mount Tabor Variation for potential impacts to karst and other resources in consultation with TNC and government agencies.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Land Use, Recreation and Visual Resources

6. File a response to the New River Conservancy (NRC) letter dated May 31, 2016. Investigate an alternative that would avoid crossing the NRC conservation easement between about MPs 203.4 and 203.6 in Giles County, Virginia; and illustrate the route variation on a 7.5-minute USGS topographic map together with the proposed pipeline route. The alternative analysis should include the following information so that a quantitative comparison can be made between the route variation and the corresponding segment of the proposed route:
 - a. length of alternative and proposed pipeline route (miles);
 - b. construction right-of-way acres, and acreage of the permanent easement;
 - c. number and size (in total acres) of all extra temporary, non-typical workspaces, and staging areas required outside of the nominal construction right-of-way width;
 - d. number of residences within 50 feet of the edge of the construction right-of-way;
 - e. number of waterbodies, and the total length (in feet) of crossings;
 - f. number of wetlands crossed, and acres affected;
 - g. acres of agricultural land affected;
 - h. acres of forest cleared;
 - i. miles of route that would be parallel or adjacent to existing rights-of-way (such as powerlines and roads);
 - j. acres of habitat for federally-listed threatened and endangered species; and
 - k. number of recorded archaeological sites within the APE.

Response:

In response to the referenced letter, Mountain Valley identified the New River Conservancy Variation. The New River Conservancy Variation would begin at MP 202.4 just south of the crossing of Route 688/Hendrickson Road, where it would turn south from the existing AEP right-of-way and continue across mixed wooded and open land for about 0.3 mile, then turn southeast for another 0.3 mile crossing Route 753/Big Branch Hollow Road. The variation would then turn south, crossing Route 623/Cascade Drive for 0.4 mile, then turn east for 0.8 mile across a wooded hill, parallel to and just south of the New River Conservancy easement, before rejoining the Proposed Route at MP 203.8 after crossing Route 618/Collins Ave. The variation is shown on a map included in Attachment DR 3 Land Use-6a.

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

The New River Conservancy Variation would be about 0.4 mile longer (1.8 miles compared to 1.4 miles) than the corresponding segment of the Proposed Route. While the Proposed Route collocates with an electric transmission line for 1.0 mile total and collocates for the entire length of the segment through the subject easement to reduce forest fragmentation, the New River Conservancy Variation does not collocate with any existing right-of-way. The variation would require about 6.1 more acres of disturbance during construction, and 2.4 more acres during operation than the corresponding segment of Proposed Route. The variation would cross about 0.4 more mile of forest land and affect about 5.9 more acres of forest land than the proposed route. The variation would also affect about 2.5 acres more agricultural land, and cross more steep slope and side slopes, than the corresponding segment of Proposed Route. A comparison of other environmental features is included in Attachment DR3 Land Use-6b.

Mountain Valley is also providing a revised alternatives overview map that adds the New River Conservancy Variation to the alternatives and variations previously filed with FERC. See Attachment DR3 Land Use-6c.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Land Use, Recreation and Visual Resources

8. Respond to the letters filed on May 13, 2016 from the FS, and on May 16, 2016 from the Appalachian Trail Conservancy regarding the crossing of the AT within the Jefferson National Forest. Address:
 - a. feasibility of using an HDD to cross under the AT;
 - b. extending the length of the bore under the AT;
 - c. moving the crossing of the AT to be adjacent to an existing utility or road crossing;
 - d. moving the AT crossing further away from the Peters Mountain Wilderness and Angels Rest; and
 - e. meeting the highest possible Scenic Integrity Objectives at the crossing.

Response:

- a. Mountain Valley hired Rummel, Klepper and Kahl LLP (RK&K), a design engineering firm that has expertise in trenchless crossing methods, to review the feasibility of an HDD to cross under the Appalachian National Scenic Trail (ANST) at Modification FS78, which is the modified route Mountain Valley filed with FERC on June 24, 2016. While in general the HDD method is a proven technology for pipe installation, the potential exists for a HDD installation to fail for a number of reasons, including encountering soil conditions not conducive to boring, caving of the borehole, loss of the drill string in the borehole, loss of circulation, loss of fugitive drilling fluids, and pullback refusal.

The terrain of the ANST exceeds 18° (40%) upslope on the Virginia side and 27° (60%) upslope on West Virginia side. Ideal entry and exit angles are 12° (27%) and 6° (13%) downslope, respectively. It would require substantial site work to perform bore areas for the effective combined angles above, pipe staging and pullback within safe bending radii of the pipe. Fabrication and pullback of the pipe in one continuous pullback is the preferred method for installing pipe by HDD. In analyzing the proposed exit side for HDD construction, the steep slopes on either side of the ANST lower the feasibility of an HDD. Due to the length of the proposed HDD and the sloping topography, long sections of pipe would have to be elevated to maintain a safe bend radius during the pullback phase. In addition, pipe pullback will likely have to be achieved in numerous sections, further complicating pullback operations. Based on these factors an HDD is not a

Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000

Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016

feasible method for crossing the ANST. Minor adjustments to the proposed pipeline route do not improve the feasibility of the HDD. Similarly, pulling the pipe back in multiple sections instead of one continuous pull would make the installation of an HDD a higher risk of failure.

While topographic constraints limit the likely success of HDD for this specific application, there are also soil and bedrock limitations to be considered. The area of the ANST crossing is located in the Valley and Ridge physiographic province. High rock fragment content has been reported in soils overlying bedrock in this area. Materials requiring rock drilling techniques to penetrate are anticipated at this site. During the HDD process, drilling fluid consisting of bentonite clay and water would be continuously pumped into the hole to remove cuttings and maintain the integrity of the hole. The probability of encountering rock fragments makes the installation of a HDD in this area at a higher risk of failure.

Also, in this specific area of southern Monroe and Giles counties, the Valley and Ridge aquifer system includes carbonate (limestone and dolostone) aquifers characterized by karst terrain. While an HDD to cross the ANST in this area would take place topographically higher on the ridgeline and above karst-forming bedrock, there is elevated concern regarding drilling fluid management and risks to sensitive karst features lower on the flank of the mountain.

In whole, the risk of failure of the HDD bore is likely insurmountable. Given the topography limitations for staging, and geology of the area for borehole stability and potential risks for managing drilling fluid upslope of a karst aquifer, Mountain Valley does not recommend the use of HDD for this crossing.

Mountain Valley attempted to find an alternate alignment that would alleviate the concerns discussed herein, but to no avail. For a 42" pipe, the longest HDD in North America was completed in 2015 and was 7,201 feet in length, and located more favorable terrain. From strictly a technical feasibility perspective, the HDD length to achieve proper entry and exit angles and necessary staging and pullback would be over double that length at approximately 15,000 feet.

- b. On June 24, 2016, Mountain Valley submitted to FERC Modification FS78, which is Mountain Valley's proposed crossing of the Appalachian National Scenic Trail (ANST). Using Modification FS78, Mountain Valley revised the crossing to be nearly 90 degrees, and extended the bore length to 600 feet. The bore pits will be located about 283 feet from the ANST on the north side and about 317 feet from the ANST on the south side. The distance from the cleared

Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000

Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016

pipeline right-of-way from the north to the ANST is about 273 feet and from the south is about 307 feet. With these adjustments, Mountain Valley believes that the scenic integrity objectives (SIO) of the Jefferson National Forest Revised Land and Resource Management Plan (LRMP) (January 2004) will be met.

- c. Mountain Valley previously evaluated two alternative routes that would move the crossing of the ANST to be adjacent to an existing utility right-of-way or road crossing. Refer to the evaluations included in Resource Report 10 and supplemental filings for the Northern Alternative (RR10, Section 10.5.3), and Variation 110J (RR10, Section 10.6.4). Resource Report 10, Section 10.6.17 also includes analysis specific to the ANST crossings by each alternative, including the use of existing utility right-of-way or road crossings.

In response to this current request Mountain Valley also considered possible route changes that would move the crossing of the ANST to the existing utility and road crossings closest to the current proposed route. These are described below.

The closest identified road or utility crossing east of the proposed pipeline crossing of the ANST is about 7.0 miles to the east of the proposed crossing, where the Appalachian National Scenic Trail crosses Virginia State Route 635. See map included in Attachment DR3 Land Use-8c-1. This alternative (State Route 635-Appalachian Trail (SR635-AT) Variation) crossing would be within the Jefferson National Forest. Moving the pipeline to utilize this existing road crossing would result in a reroute of about 14.6 miles (based on desktop review). The corresponding segment of proposed route is about 15.9 miles, therefore this alignment would result in a decrease in length of about 1.3 miles. This reroute would avoid the Peters Mountain Wilderness, but would increase the length of pipeline within the Jefferson National Forest by about 3.8 miles (5.4 miles compared to 1.6 miles by the corresponding segment of proposed route). The alternate alignment would result in a reduction of co-location with existing rights-of-way of about 8.0 miles. The alternate alignment would eliminate about 0.4 miles through a New River Easement but add about 1.9 miles through the Doe Creek Conservation site. The location of the PNST/ Virginia State Route 635 crossing is at the lowest point in this area, making it impossible to perform a long conventional bore of the road and trail. Therefore a bore of the ANST at this location would avoid direct impact on the trail, but would not allow for a buffer of terrain or vegetation as visual screening. The alternative alignment would also generally parallel the ANST for about one mile after crossing the trail and Virginia State Route 635, increasing the possibility the pipeline right-of-way would be visible from locations along the trail. See additional comparison of

Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000

Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016

additional environmental data for the SR635-AT Variation in Attachment DR3 Land Use-8c-2. Based on initial desk top analysis Mountain Valley believes use of the Virginia State Route 635 crossing of the ANST would likely not meet the scenic integrity objectives of the Jefferson National Forest Revised Land and Resource Management Plan.

The closest identified road or utility crossing west of the proposed crossing of the ANST is about 3.3 miles to the west of the proposed crossing, where the trail crosses an existing Appalachian Power Company (AEP) overhead transmission line right-of-way. This alternative crossing would be within the Jefferson National Forest. Mountain Valley identified an alternate alignment that would move the crossing of the ANST to this existing AEP right-of-way (the AEP-AT Variation). See map included in Attachment DR3 Land Use-8c-1. An alternate alignment to utilize the existing AEP right-of-way crossing of the trail would result in a reroute of about 7.9 miles (based on desktop review). The corresponding segment of proposed route is about 4.5 miles, therefore this alternate alignment would result in an increase in length of about 3.4 miles. The alternate alignment passes through the Red Sulphur PSD Protection Watershed for about 4.1 miles versus about 1.2 miles for the proposed route. The alternative also passes within 100 feet of the Red Sulphur PSD Zone of Critical Concern. A portion of the alternate alignment passes near known karst features including a cave and sinkholes. The alternate alignment runs within about 950 feet upslope of Rich Creek Cave and Rich Creek Wilson Spring. The alternative route would result in an increase in co-location of 2.2 miles and increase the length of the pipeline within the Jefferson National Forest by about 1.0 miles. The location of the ANST crossing adjacent to the AEP right-of-way would be on the southern down slope, and the southern bore pit would likely be shielded from view by trail users by a buffer of trees. However, the terrain alone at the crossing location would likely not shield the pipeline right-of-way from view. In addition, even if the actual trail crossing was accomplished by horizontal bore, lengthy segments of the cleared pipeline right-of-way south of the trail crossing would be visible from the trail where the trail crests the ridge within the cleared AEP right-of-way. See additional comparison of additional environmental data for the AEP-AT Variation in Attachment DR3 Land Use-8c-2. Based on initial desktop analysis Mountain Valley believes use of the existing AEP right-of-way crossing of the ANST would likely not meet the scenic integrity objectives of the Jefferson National Forest Revised Land and Resource Management Plan.

Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000

Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016

Mountain Valley is also providing a revised alternatives overview map that adds the SR635-AT and AEP-AT Variations to the alternatives and variations previously filed with FERC. See Attachment DR3 Land Use-6c.

- d. Mountain Valley has evaluated five pipeline alternatives and five pipeline variations that would move the pipeline crossing of the ANST further from the Peters Mountain Wilderness. See discussions in Resource Report 10 and subsequent filings that describe and compare Route Alternative 1, Northern Alternative, Straight Line Alternative, All Highway Alternative; and the Forest Service Avoidance Alternative; and Variations 110/110R/110J, Peters Mountain West Variation, and Columbia Gas of Virginia (CGV)-Peters Mountain Variation.

The proposed pipeline crossing of the ANST is approximately 6.5 miles from the viewpoint known as Angels Rest. There are numerous elements visible from the Angles Rest viewpoint between the viewpoint and the proposed pipeline crossing of the trail, such as the man-made developments of the Pearisburg and Goldbond communities, high-voltage electric transmission lines, and reclaimed surface mine disturbance, as well as natural elements such as the New River. At a distance of over 6.5 miles the pipeline corridor would not be discernable to a viewer at the Angels Rest lookout.

- e. The ANST crossing SIO is discussed in Section 8.4.3 of Resource Report 8, which states, “All management activities will meet or exceed a Scenic Integrity Objective of High. Compliance with USFS SIOs is discussed further in Section 8.4.3.1.” The analysis in RR8 assumed a 100-foot buffer on the north and south sides of the trail crossing. With Modification FS78, the bore pits will be located about 283 feet from the ANST on the north side and about 317 feet from the ANST on the south side, which increases the vegetative screening substantially. The High SIO requires management activities to not be visually evident to the casual observer. The landscape character should “appear” intact at this crossing. Deviations may be present but must repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that they are not evident. Changes in the qualities of size, amount, intensity, direction, pattern, etc., should not be evident. Due to the proposed method of crossing by horizontal bore resulting in a substantial vegetated buffer on both sides of the trail crossing, the pipeline right-of-way will not be visible from the trail, and the pipeline crossing would comply with the USFS management standard.

The highest SIO that the USFS manages land with is Very High SIO. With Very High SIOs, management activities, except for very low visual-impact recreation facilities, are prohibited. Very High SIOs allow for ecological changes only. The

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

existing landscape character and sense of place is expressed at the highest possible level. If the ANST corridor were managed with a Very High SIO it would not be able to be traversed by any project. The trail however is managed with a High SIO which the project will comply with.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Land Use, Recreation and Visual Resources

10. Document that the North Bend Rail Trail and Highway 50 Crossing Plan filed with the FERC on April 21, 2016 was reviewed and approved by the West Virginia Department of Transportation, WVDNR, and West Virginia Department of Parks and Forest.

Response:

Mountain Valley submitted its application for the North Bend Rail Trail crossing to the WVDNR on July 12, 2016. Mountain Valley has not received a response. The North Bend Rail Trail is operated by the West Virginia State Parks subject to a lease agreement dated May 10, 1991 by and between the West Virginia Railroad Maintenance Authority and the West Virginia Division of Natural Resources (WVDNR). The West Virginia State Parks fall under the WVDNR. The WVDNR has the authority to issue the License Agreement that will allow Mountain Valley to cross the North Bend Rail Trail under Route 50 at milepost 25.99. Mountain Valley has corresponded with Mr. Paul Elliott, representative of the North Bend Rail Trail, and will continue to coordinate with him regarding the crossing.

Mountain Valley has discussed the U.S. Route 50 crossing with the West Virginia Department of Highways on multiple occasions and continues to work with them to receive a road crossing permit. Mountain Valley expects to submit an application for the crossing by August 31, 2016.

Respondent: Kevin Wagner
Position: Land Director
Phone Number: 304-627-6431
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Land Use, Recreation and Visual Resources

13. File updated tables that include acreages of impacts by land use type for all cathodic protection beds.

Response:

A table that includes acreages of construction and operational impacts by county broken out by land cover from cathodic protection beds is included as Attachment DR3 Land Use-13.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Alternatives

2. File, for all alternative routes that would cross the Jefferson National Forest, in comparison to the corresponding segment of the proposed route:
 - a. the length and acres of old growth forest;
 - b. the number of trails crossed (excluding the AT);
 - c. inventoried roadless areas crossed (length in feet), and
 - d. inventoried semi-primitive areas crossed (length in feet).

Response:

The requested information is included in Attachment DR3 Alternatives-2.

Respondent: Megan Neylon
Position: Senior Environmental Coordinator
Phone Number: 724-873-3645
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Alternatives

3. File an updated assessment of all stakeholder-requested minor route variations considered after April 21, 2016, including, but not limited to the New River Conservancy's Sizemore Easement. The assessment should include the landowner requesting the variation, parcel number, MP, county, a summary of the stakeholder-identified issues, Mountain Valley's response to the issues, and resolution status.

Response:

Since April 21, 2016, the New River Conservancy is the only stakeholder to request a route variation. See the response to Land Use, Recreation and Visual Resources, Request #6.

Respondent: Kevin Wagner
Position: Land Director
Phone Number: 304-627-6431
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Alternatives

4. Explain how potential impacts on resources raised by stakeholders at the tracts listed below have been resolved, avoided, minimized, or mitigated. The parcels/FERC ID-comment Accession Numbers include:
 - a. WV-HA-3906 (AR HA- 18), WV HA-003, WV HA-005 / 20151125-5166;
 - b. WV-WB-23.01, WV-WB-024, WV-WB-025, WV-WB-025.01, MVP-WB-128, MVP-ATWS-956 / 20150316-5023;
 - c. WV-WB-023.01, 024, 025, 025.01 / 20150609-5017;
 - d. WV-NI-004, WV-NI- 005, WV-NI-006, WV- NI-007 / 20150615-5054;
 - e. WV-NI-004, 005, 006, 007 / 20150610-5243;
 - f. WV-GR-022 / 20150615-5185;
 - g. WV-SU-028 / 20150120-0096;
 - h. WV-SU-029 / 20150428-0056;
 - i. WV-SU-046 / 20160223-5034;
 - j. VA-MO-030 / 20160219-5147;
 - k. VA-MO-054 / 20150615-5061;
 - l. VA-RO-5149, VA-RO- 4118 / 20150616-5100;
 - m. VA-RO-040, VA-RO-042, VA-RO-043, VA- RO-030 (AR-RO-281) / 20160406-5119;
 - n. VA-FR-017.12 / 20150615-5089;
 - o. VA-FR-017.11; VA-FR- 017.15 / 20151127-5073;
 - p. VA-FR-094 / 20150616-5003;
 - q. VA-PI-099 / 20150129-5217; and
 - r. VA-PI-100; 101; 102 / 20151127-5076.

Response:

A table with the requested information is included as Attachment DR3 Alternatives-4.

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Respondent: Kevin Wagner
Position: Land Director
Phone Number: 304-627-6431
Date: July 18, 2016

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Responses to FERC Post-Application Environmental Information Request #3
Dated June 28, 2016**

Request:

Reliability and Safety

1. File an analysis of how operation of the pipeline may affect firefighting or emergency response efforts within the Jefferson National Forest, with particular discussion of the potential for prohibition of the use of large tracked vehicles such as bulldozers and fireplows directly over or near the pipeline on National Forest System lands.

Response:

Mountain Valley plans to install a minimum of class 2 pipe in the Jefferson National Forest. Class 2 pipe at a depth of cover of three feet is capable of withstanding up to a 450,000 pound (225 ton) tracked bulldozer. Mountain Valley performed an internet search to determine any tracked bulldozers over 450,000 pounds. The largest Mountain Valley could find is the Komatsu D575A Superdozer, which has an operating weight of 336,420 pounds, and the Caterpillar D11R, which has an operating weight of 248,600 pounds. Therefore, Mountain Valley does not expect to prohibit the use of large tracked vehicles such as bulldozers and fireplows to travel over or near the pipeline in the Jefferson National Forest.

Mountain Valley does not expect the operation of the pipeline to have any effect on firefighting or emergency response within the Jefferson National Forest. As stated in the Draft Fire Prevention and Suppression Plan (see Appendix K of the draft Plan of Development submitted to the U.S. Forest Service in June 2016), Mountain Valley has no restrictions on prescribed fires within the Jefferson National Forest during the operational phase of the Project because such fires would not be expected to adversely affect the safety or reliability of the pipeline while in operation. This is because the heat generated by a prescribed fire would not be intense enough to damage the portion of the Project located in the National Forest. All Project facilities located on the Jefferson National Forest will be buried, and soil has been found to be an effective insulator against fire-generated heat. In one study, soil temperature from intense slash pile burns reached a maximum of only about 50 degrees Celsius (122 degrees Fahrenheit) at a depth of about 24 inches directly under the burn pile (Massman et al. 2008), which is not intense enough to damage a buried natural-gas pipeline.

Respondent: Ricky Myers
Position: Engineering Manager
Phone Number: 724-873-3640
Date: July 18, 2016