

APPLICATION FOR TRANSPORTATION, UTILITY SYSTEMS, TELECOMMUNICATIONS AND FACILITIES
ON FEDERAL LANDS AND PROPERTYFORM APPROVED
OMB Control Number: 0596-0249
Expiration Date: 2/28/2023

FOR AGENCY USE ONLY

NOTE: Before completing and filing the application for an authorization (easement, right-of-way, lease, license or permit), the applicant should completely review this package, including instructions, and schedule a pre-application meeting with representatives of the agency responsible for processing the application. Each agency may have specific and unique requirements to be met in preparing and processing the application. Many times, with the help of the agency representative, the application can be completed at the pre-application meeting.

Application Number

Date Filed

June 3, 2022

1. Name and address of applicant

Mountain Valley Pipeline, LLC
Attn: Robert J. Cooper
2200 Energy Drive, Canonsburg, PA 15317

2. Name and address of authorized agent if different from item 1

Mountain Valley Pipeline, LLC
Attn: Megan Neylon
2200 Energy Drive, Canonsburg, PA 15317

3. Applicant telephone number and email:

(412) 395-3361
RCooper@Equitransmidstream

Authorized agent telephone number and email:

(304) 841-2086
MNeylon@Equitransmidstream

4. As applicant are you? (check one)

- a. Individual
- b. Corporation*
- c. Partnership/Association*
- d. State Government/State Agency
- e. Local Government
- f. Federal Agency

* If checked, complete supplemental page

5. Specify what application is for: (check one)

- a. New authorization
- b. Renewing existing authorization number
- c. Amend existing authorization number
- d. Assign existing authorization number
- e. Existing use for which no authorization has been received *
- f. Other*

* If checked, provide details under item 7

6. If an individual, or partnership, are you a citizen(s) of the United States? Yes No

7. Project description (describe in detail): (a) Type of use or occupancy, (e.g., canal, pipeline, road, telecommunications); (b) related structures and facilities; (c) physical specifications (Length, width, grading, etc.); (d) term of days/years needed; (e) time of year of use or operation; (f) Volume or amount of product to be transported; (g) duration and timing of construction; and (h) temporary work areas needed for activity/construction (Attach additional sheets, if additional space is needed.)

See Attachment A. Attachment B contains a figure showing the proposed route crossing the Jefferson National Forest.

5f- Other - This application is a request to amend the prior application accepted on May 1, 2020. The Fourth Circuit Order 21-1039 Sierra Club, Inc. v. United States Forest Services, (2022) which challenges the authorizations for VAES-058143-02, VAES-058143-03, and WVES-058142 is included as Attachment E.

8. Attach a map covering area and show location of project proposal.

9. State or Local government approval: Attached Applied for Not Required10. Nonrefundable application fee: Attached Not required To be determined by agency11. Does project cross international boundary or affect international waterways? Yes No (if "yes," indicate on map)

12. Give statement of your technical and financial capability to construct, operate, maintain, and terminate system for which authorization is being requested.

See Attachment A.

13a. Describe other alternative locations considered.

See Attachment A for comprehensive answers as to why the route is required to cross federal lands.

b. Why were these alternatives not selected?

See Attachment A.

c. Give explanation as to why it is necessary to use or occupy Federal assets (lands or buildings).

There is no potential route to deliver gas from the Project's origination to its terminus without crossing federal lands. The pipeline route runs in a generally southeast direction while federal lands are southwest to northeast with no gaps that would allow for pipeline construction.

14. List authorizations and pending applications filed for similar projects which may provide information to the authorizing agency. (Specify number, date, code, or name)

Several projects that are of similar facility types, such as WB Xpress, have proposed projects that cross U.S. Forest Service and U.S. Army Corps of Engineers lands; WB Xpress was completed in 2018.

15. Provide statement of need for project, including the economic feasibility and items such as: (a) cost of proposal (construction, operation, and maintenance); (b) estimated cost of next best alternative; and (c) expected public benefits.

See Attachment A.

16. Describe probable effects on the population in the area, including the social and economic aspects, and the rural lifestyles.

See Attachment A.

17. Describe likely environmental effects that the proposed project will have on: (a) air quality; (b) visual impact; (c) surface and ground water quality and quantity; (d) the control or structural change on any stream or other body of water; (e) existing noise levels; and (f) the surface of the land, including vegetation, permafrost, soil, and soil stability; and, (g) historic or archaeological resources or properties.

See Attachment A.

18. Describe the probable effects that the proposed project will have on (a) populations of fish, plant life, wildlife, and marine life, including threatened and endangered species; and (b) marine mammals, including hunting, capturing, collecting, or killing these animals.

See Attachment A.

19. State whether any hazardous material, as defined in this paragraph, would be used, produced, transported or stored on or in a federal building or federal lands or would be used in connection with the proposed use or occupancy. "Hazardous material" shall mean (a) any hazardous substance under section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9601(14); (b) any pollutant or contaminant under section 101(33) of CERCLA, 42 U.S.C. § 9601(33); (c) any petroleum product or its derivative, including fuel oil, and waste oils; and (d) any hazardous substance, extremely hazardous substance, toxic substance, hazardous waste, ignitable, reactive or corrosive materials, pollutant, contaminant, element, compound, mixture, solution or substance that may pose a present or potential hazard to human health or the environment under any applicable environmental laws. The holder shall not store any hazardous materials at the site without prior written approval from the authorized officer. This approval shall not be unreasonably withheld. If the authorized officer provides approval, this permit shall include (or in the case of approval provided after this permit is issued, shall be amended to include) specific terms addressing the storage of hazardous materials, including the specific type of materials to be stored, the volume, the type of storage, and a spill plan. Such terms shall be proposed by the holder and are subject to approval by the authorized officer.

No Hazardous Materials will be used or stored during operation of the pipeline.

20. Name all the Federal Department(s)/Agency(ies) where this application is being filed.

This application is not being filed with any other agencies.

I HEREBY CERTIFY, That I am of legal age and authorized to do business in the State and that I have personally examined the information contained in the application and believe that the information submitted is correct to the best of my knowledge.

Signature of Applicant

Date

June 3, 2022

Title 18, U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious, or fraudulent statements or representations as to any matter within its jurisdiction.

GENERAL INFORMATION
ALASKA NATIONAL INTEREST LANDS

This application will be used when applying for a right-of-way, permit, license, lease, or certificate for the use of Federal lands which lie within conservation system units and National Recreation or Conservation Areas as defined in the Alaska National Interest lands Conservation Act. Conservation system units include the National Park System, National Wildlife Refuge System, National Wild and Scenic Rivers System, National Trails System, National Wilderness Preservation System, and National Forest Monuments.

Transportation utility systems telecommunication installations facility uses for which the application may be used are:

1. Canals, ditches, flumes, laterals, pipes, pipelines, tunnels, and other systems for the transportation of water.
2. Pipelines and other systems for the transportation of liquids other than water, including oil, natural gas, synthetic liquid and gaseous fuels, and any refined product produced therefrom.
3. Pipelines, slurry and emulsion systems, and conveyor belts for transportation of solid materials.
4. Systems for the transmission and distribution of electric energy.
5. Wired and wireless systems for transmission or reception of radio, television, telephone, telegraph, and other electronic signals, and other means of communications.
6. Improved right-of-way for snow machines, air cushion vehicles, and all-terrain vehicles.
7. Roads, highways, railroads, tunnels, tramways, airports, landing strips, docks, and other systems of general transportation.

This application must be filed simultaneously with each Federal department or agency requiring authorization to establish and operate your proposal.

In Alaska, the following agencies will help the applicant file an application and identify the other agencies the applicant should contact and possibly file with:

Department of Agriculture
Regional Forester, Forest Service (USFS)
P.O. Box 21628
Juneau, Alaska 99802-1628
Telephone: (907) 586-7847
(or a local Forest Service Office)

Department of the Interior
Bureau of Indian Affairs (BIA)
Alaska Regional Office
709 West 9th Street
Juneau, Alaska 99802
Telephone: (907) 586-7177

Department of the Interior
Alaska State Office
Bureau of Land Management
222 West 7th Avenue #13
Anchorage, Alaska 99513
Public Room: 907-271-5960
FAX: 907-271-3684
(or a local BLM Office)

U.S. Fish & Wildlife Service (FWS)
Office of the Regional Director
1011 East Tudor Road
Anchorage, Alaska 99503
Telephone: (907) 786-3440

National Park Service (NPS)
Alaska Regional Office
240 West 5th Avenue
Anchorage, Alaska 99501
Telephone: (907) 644-3510

Department of Transportation
Federal Aviation Administration
Alaska Region AAL-4, 222 West 7th Ave., Box 14
Anchorage, Alaska 99513-7587
Telephone: (907) 271-5285

NOTE - The Department of Transportation has established the above central filing point for agencies within that Department. Affected agencies are: Federal Aviation Administration (FAA), Coast Guard (USCG), Federal Highway Administration (FHWA), Federal Railroad Administration (FRA).

OTHER THAN ALASKA NATIONAL INTEREST LANDS

Use of this form is not limited to National Interest Conservation Lands of Alaska.

Individual department/agencies may authorize the use of this form by applicants for transportation, utility systems, telecommunication installations and facilities on other Federal lands outside those areas described above.

For proposals located outside of Alaska, applications will be filed at the local agency office or at a location specified by the responsible Federal agency.

SPECIFIC INSTRUCTIONS
(Items not listed are self-explanatory)

- 7 Attach preliminary site and facility construction plans. The responsible agency will provide instructions whenever specific plans are required.
- 8 Generally, the map must show the section(s), township(s), and range(s) within which the project is to be located. Show the proposed location of the project on the map as accurately as possible. Some agencies require detailed survey maps. The responsible agency will provide additional instructions.
- 9, 10, and 12 The responsible agency will provide additional instructions.
- 13 Providing information on alternate locations in as much detail as possible, discussing why certain locations were rejected and why it is necessary to use Federal assets will assist the agency(ies) in processing your application and reaching a final decision. Include only reasonable alternate locations as related to current technology and economics.
- 14 The responsible agency will provide instructions.
- 15 Generally, a simple statement of the purpose of the proposal will be sufficient. However, major proposals located in critical or sensitive areas may require a full analysis with additional specific information. The responsible agency will provide additional instructions.
- 16 through 19 Providing this information with as much detail as possible will assist the Federal agency(ies) in processing the application and reaching a decision. When completing these items, you should use a sound judgment in furnishing relevant information. For example, if the project is not near a stream or other body of water, do not address this subject. The responsible agency will provide additional instructions.

Application must be signed by the applicant or applicant's authorized representative.

Note - Filings with any Interior agency may be filed with any office noted above or with the Office of the Secretary of the Interior, Regional Environmental Officer, P.O. Box 120, 1675 C Street, Anchorage, Alaska 99513.

EFFECT OF NOT PROVIDING INFORMATION

Disclosure of the information is voluntary. If all the information is not provided, the proposal or application may be rejected.

DATA COLLECTION STATEMENT

The Federal agencies collect this information from proponents and applicants requesting a right-of-way, permit, license, lease, or certification for use of Federal assets. The Federal agencies use this information to evaluate a proponent's or applicant's proposal to use Federal assets.

BURDEN STATEMENT

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0249. The time required to complete this information collection is estimated to average 8 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The authority to collect this information is derived from 47 U.S.C. 1455(c)(3) and 16 U.S.C. 3210.

USDA NONDISCRIMINATION STATEMENT

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call toll free (866) 632-9992 (voice). TDD users can contact USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice). USDA is an equal opportunity provider and employer.

The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service.

SUPPLEMENTAL

NOTE: The responsible agency(ies) will provide instructions	CHECK APPROPRIATE BLOCK	
I - PRIVATE CORPORATIONS	ATTACHED	FILED *
a. Articles of Incorporation	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Corporation Bylaws	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. A certification from the State showing the corporation is in good standing and is entitled to operate within the State	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Copy of resolution authorizing filing	<input type="checkbox"/>	<input type="checkbox"/>
e. The name and address of each shareholder owning 3 percent or more of the shares, together with the number and percentage of any class of voting shares of the entity which such shareholder is authorized to vote and the name and address of each affiliate of the entity together with, in the case of an affiliate controlled by the entity, the number of shares and the percentage of any class of voting stock of that affiliate owned, directly or indirectly, by that entity, and in the case of an affiliate which controls that entity, the number of shares and the percentage of any class of voting stock of that entity owned, directly or indirectly, by the affiliate.	<input type="checkbox"/>	<input type="checkbox"/>
f. If application is for an oil or gas pipeline, describe any related right-of-way or temporary use permit applications, and identify previous applications.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. If application is for an oil and gas pipeline, identify all Federal lands by agency impacted by proposal.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
II - PUBLIC CORPORATIONS		
a. Copy of law forming corporation	<input type="checkbox"/>	<input type="checkbox"/>
b. Proof of organization	<input type="checkbox"/>	<input type="checkbox"/>
c. Copy of Bylaws	<input type="checkbox"/>	<input type="checkbox"/>
d. Copy of resolution authorizing filing	<input type="checkbox"/>	<input type="checkbox"/>
e. If application is for an oil or gas pipeline, provide information required by item "I - f" and "I - g" above.	<input type="checkbox"/>	<input type="checkbox"/>
III - PARTNERSHIP OR OTHER UNINCORPORATED ENTITY		
a. Articles of association, if any	<input type="checkbox"/>	<input type="checkbox"/>
b. If one partner is authorized to sign, resolution authorizing action is	<input type="checkbox"/>	<input type="checkbox"/>
c. Name and address of each participant, partner, association, or other	<input type="checkbox"/>	<input type="checkbox"/>
d. If application is for an oil or gas pipeline, provide information required by item "I - f" and "I - g" above.	<input type="checkbox"/>	<input type="checkbox"/>

* If the required information is already filed with the agency processing this application and is current, check block entitled "Filed." Provide the file identification information (e.g., number, date, code, name). If not on file or current, attach the requested information.

Attachment A

Attachment A to Mountain Valley Pipeline, LLC's Form SF-299 Application

Mountain Valley Pipeline, LLC (Mountain Valley), a joint venture between EQM Midstream Partners, LP; NextEra Capital Holdings, Inc.; WGL Midstream; RGC Midstream, LLC; and Con Edison Midstream, LLC, received a Certificate of Public Convenience and Necessity from the Federal Energy Regulatory Commission (FERC) pursuant to Section 7(c) of the Natural Gas Act authorizing it to construct and operate the proposed Mountain Valley Pipeline Project (Project) located in 17 counties in West Virginia and Virginia. Mountain Valley plans to construct an approximately 303.5-mile, 42-inch diameter natural gas pipeline to provide timely, cost-effective access to the growing demand for natural gas for use by local distribution companies, industrial users, and power generation in the Mid-Atlantic and southeastern markets, as well as potential markets in the Appalachian region. Construction began first quarter 2018 and is anticipated to conclude fourth quarter 2022.

The purpose of this application is to provide information to support an issuance of a Right-of-Way (ROW) Grant pursuant to the Mineral Leasing Act of 1920 (MLA) by the Bureau of Land Management (BLM) to allow operation of the Project proposed by Mountain Valley across approximately 3.5 miles of the Jefferson National Forest (JNF), which is administered by the United States Forest Service (USFS). The construction and related ROW for the approximately 60 feet of the Weston and Gauley Bridge Turnpike Trail in Braxton County, West Virginia, administered by the United States Army Corps of Engineers (USACE) has been completed as of the submission of this amended SF-299 application. The MLA authorizes the BLM to grant a pipeline ROW when federal lands are under the jurisdiction of two or more federal agencies. See 30 U.S.C. § 185(a) and 43 CFR 2881.11(b). See Attachment B for figures showing the proposed crossing federal lands. Figures 1 and 2 show the proposed route through the JNF, and Figure 3 shows the Weston and Gauley Bridge Turnpike Trail crossing. Attachment C contains bore plans for facilities on these federal lands.

Additionally, the Project crosses a USACE flowage easement on private property in Braxton County, West Virginia. This crossing is approximately 80.6 feet in width. Although this property is not owned by the USACE, due to the flowage easement, a consent to easement structure agreement was executed on February 28, 2018, and confirmed on March 12, 2018, to construct and operate the pipeline through the easement. This consent agreement can be found in Attachment D.

The overwhelming majority of the Project has been completed as of the date of this application, including installation of pipe under the Weston and Gauley Bridge Turnpike Trail. This SF-299 application is updated from its original version to remove references to forward-looking work on the Weston and Gauley Bridge Turnpike Trail crossing, as the requisite permits and construction in this location is already completed. Within the JNF, 100 percent of the trees have been felled. The ROW along Sinking Creek and Brush Mountain has been approximately 51 percent cleared and graded, however no pipe installation has occurred in the national forest. The work performed on federal lands was authorized under permits and other approvals issued in 2017 and 2018. Work within the JNF was halted in September 2018 following a decision issued by the U.S. Court of Appeals for the Fourth Circuit¹ that vacated certain approvals pertinent to the Project's use of JNF lands. BLM and USFS reissued RODs for the Project to cross the JNF in January 2021. In January 2022, the Fourth Circuit² again vacated certain approvals pertinent to the Project's use of JNF lands.

¹ Sierra Club, Inc. v. United States Forest Service, 897 F.3d 582 (2018)

² Sierra Club, Inc. v. United States Forest Service, Order 21-1039 (2022)

Responses to specific items in SF-299 Document

7. Project description (describe in detail): (a) Type of system or facility, (e.g., canal, pipeline, road); (b) related structures and facilities; (c) physical specifications (Length, width, grading, etc.); (d) term of years needed; (e) time of year of use or operation; (f) Volume or amount of product to be transported;(g) duration and timing of construction; and (h) temporary work areas needed for construction (Attach additional sheets, if additional space is needed.)

Project details for the locations within the JNF and across the Weston and Gauley Bridge Turnpike Trail are shown on the bore plans contained in Attachment C. These facilities are also described below:

(a) Type of facility: 42-inch-diameter natural gas pipeline

(b) Related Structures and Facilities: Temporary facilities are discussed in subpart h (below). No aboveground ancillary facilities are proposed on the JNF or required on USACE-managed lands.

(c) Physical specifications: Mountain Valley utilized the conventional bore technique under the Weston and Gauley Bridge Turnpike Trail. The bore pits were outside of the USACE-owned approximate 60-foot right-of-way. No disturbance to the surface of the USACE-owned property occurred. A bore profile for the Weston and Gauley Bridge Turnpike Trail can be found in Attachment C. On October 10, 2018, the Fourth Circuit clarified its July 27 Order allowing Mountain Valley to retain temporary right of way authorization and temporary use permits to cross the Weston and Gauley Bridge Turnpike Trail. This clarification can also be found in Attachment E-2.

The pipeline in the JNF, will generally require a 125-foot-wide construction right-of-way and a 50-foot- wide permanent right-of-way. Mountain Valley will install the pipe via subsurface excavation under the Appalachian National Scenic Trail (ANST), leaving an approximate buffer of 273 feet on the north side and 307 feet on the south side, i.e., a 580-foot buffer around the ANST where tree clearing and land disturbance will not occur. The buffers on each side of the ANST refer to the distance between the safety fence that will be installed in front of the bore pits and the ANST. These temporary safety fences will be installed approximately ten feet in front of each bore pit to provide for the safety of workers and visitors to the ANST during construction activities. The distance between the ANST and the edge of the bore pit to the north and the edge of the bore pit to the south are identified as 283 feet and 317 feet, respectively, for a total of 600 feet. A bore profile for the Appalachian National Scenic Trail can be found in Attachment C. This crossing is also discussed in further detail in the Plan of Development (found in Attachment F).

(d) Term of years needed: Mountain Valley currently has no plans for future expansion or abandonment of the facilities on federally owned properties. Market forces will determine the timing and need for future expansions or abandonment. Mountain Valley will seek the appropriate authorizations from the BLM, FERC, USACE, and USFS, along with other federal and state agencies should facilities need to be expanded or abandoned.

(e) Time of year of use or operation: Year-round.

(f) Volume or amount of product: Up to 2.0 million dekatherms per day (MMDth/d) of natural gas.

(g) Duration and timing of construction: Construction began during the first quarter of 2018 with tree-clearing activities and was suspended in September 2018. Following reauthorization, Mountain Valley anticipates completion of the project on USFS property in the fourth quarter of 2022.

(h) Temporary work areas needed for construction: On the JNF include two additional temporary work spaces (ATWS) totaling 0.66 acres. No temporary work areas were needed for construction on USACE-managed lands associated with the Weston and Gauley Bridge Turnpike Trail crossing.

9. State or Local government approval.

The West Virginia Department of Environmental Protection (DEP) and the Virginia Department of Environmental Quality (DEQ) both approved stormwater construction permits for ground-disturbing activities for Mountain Valley. The Virginia DEQ also approved an Upland 401 application with both state agencies issuing water quality certifications. These approvals are provided in Attachment G.

12. Give statement of your technical and financial capability to construct, operate, maintain, and terminate system for which authorization is being requested.

The Mountain Valley Pipeline Project is owned by and being constructed by Mountain Valley Pipeline, LLC—a joint venture between EQM Midstream Partners, LP; NextEra Capital Holdings, Inc.; WGL Midstream; RGC Midstream, LLC; and Con Edison Midstream, LLC, will provide all required financing and support to develop, construct, operate, and maintain Mountain Valley. As one of the five joint venture (JV) partners, EQM Midstream Partners (EQM) has a significant 45.5% ownership interest in the JV and will operate the Mountain Valley Pipeline Project once it is placed in-service.

Equitrans Midstream Corporation (Company) has a premier asset footprint in the Appalachian Basin and, as the parent company of EQM Midstream Partners (EQM), is one of the largest natural gas gatherers in the United States. With nearly 140 years of experience, the Company provides midstream services to its customers in Pennsylvania, West Virginia and Ohio through its three primary assets: the gathering system, which includes predominantly dry gas gathering systems of high-pressure gathering lines; the transmission system, which includes FERC-regulated interstate pipelines and storage systems; and the water network, which primarily consists of water pipelines and other facilities that support well completion and produced water handling activities.

As of December 31, 2021, an overview of the Company's assets included:

- a) *Gathering System* (inclusive of Eureka Midstream) - approximately 1,170 miles of high- pressure gathering lines and 133 compressor units with compression of approximately 491,000 horsepower and multiple interconnect points with the Company's transmission and storage system and to other interstate pipelines.
- b) *Transmission and Storage* - approximately 950 miles of FERC-regulated, interstate pipelines that have interconnect points to seven interstate pipelines and multiple LDCs; 43 compressor units, with total throughput capacity of approximately 4.4 Bcf per day and compression of approximately 136,000 horsepower; and 18 associated natural gas storage reservoirs, which had a peak withdrawal capacity of approximately 850 MMcf per day and a working gas capacity of approximately 43 Bcf.
- c) *Water Assets* - approximately 200 miles pipeline that deliver fresh water from local municipal water authorities, the Monongahela River, the Ohio River, local reservoirs, and several regional waterways; and 23 freshwater impoundment facilities.

As of December 31, 2021, the Company provided a majority of its natural gas gathering, transmission and storage services under long-term contracts that generally include firm reservation fees. The Company maintains a stable cash flow profile, with approximately 64% of the Company's operating

revenues for the year ended December 31, 2021, generated from firm reservation fees. The percentage of the Company's revenues that are generated by firm reservation fees is expected to increase in future years as a result of the 15-year term Global Gas Gathering Agreement with its largest customer, which includes a minimum volume commitment of 3.0 Bcf per day that became effective on April 1, 2020, and gradually steps up to 4.0 Bcf per day through December 2031, following the full in-service date of the MVP.

13a. Describe other reasonable alternative routes and modes considered.

The identification of alternative routes for the Project as a whole, and for specific Project segments for crossings of the Weston and Gauley Bridge Turnpike Trail and JNF, began with a detailed routing analysis performed in May 2014 that analyzed 94 corridor segments including 2,362 miles of potential pipeline routes that would move gas from Northern West Virginia to Transco Station 165 in Pittsylvania County, Virginia. After selection of the Proposed Route, Mountain Valley continued to identify and evaluate alternatives as issues were raised by stakeholders or located in the field. Two alternatives evaluated (Alternative 1 and Northern Alternative-ACP Collocation Alternative) would avoid crossing the Weston and Gauley Bridge Turnpike Trail and would include alternative crossing locations of the JNF. These are shown on Figure 13a-1 and described below. Mountain Valley identified a third major alternative that would avoid crossing USFS-managed lands entirely, a conceptual Forest Service Avoidance Alternative. This is also described below. Following the discussion of the system alternatives is a discussion of various route variations relevant to the crossing of federal lands that Mountain Valley also analyzed. In August 2018, the BLM concluded that the additional utilization of existing ROWs across federal lands would be impractical. This conclusion can be found in Attachment I. To date, 271.9 miles of the 303.5 miles of pipe is laid and 169.3 miles of land along the pipeline ROW is in final restoration.

SYSTEM ALTERNATIVES

Route Alternative 1

Route Alternative 1 was considered to maximize collocation with existing rights-of-way. Alternative 1 would be collocated primarily with existing electric transmission lines for approximately 101 miles, or about 31 percent of its total length. As with the proposed route, Alternative 1 would begin at the proposed Webster Interconnect in Wetzel County, West Virginia and end at the Transco Station 165 in Pittsylvania County, Virginia. The pipeline could be installed as close as 25 feet away from power line infrastructure, with temporary workspace located even closer, but other configurations would also be required based on soil type and working conditions where the pipeline would be located much further away from the power line. For comparison, the October 2016 Proposed Route (revised December 2016) would be collocated with existing rights-of-way for 29 miles, or about 9 percent of its total length (See Table 1).

Alternative 1 crosses approximately one-half less distance of National Register of Historic Places (NRHP)-designated or eligible Historic Districts and USFS lands (also including less USFS-designated old growth forest, roadless areas, and semi-primitive areas), as well as 898 acres less of interior forest in comparison to the October 2016 Proposed Route. However, Alternative 1 is approximately 20 miles longer and would disturb 336 more acres. The alternative crosses approximately 1,924 feet more of wetlands and 38 more perennial waterbodies compared to the October 2016 Proposed Route. Alternative 1 also crosses the New River twice, as well as Radford University Conservancy property, all of

which is avoided by the October 2016 Proposed Route. Additionally, Alternative 1 crosses about 51 more miles of steep slopes and 7 more miles of severe side slope, which would represent significant construction challenges including the need for extra workspaces to achieve a level working area and an increased risk of future slope instability following restoration. Given consideration of these factors, Alternative 1 does not offer a significant environmental advantage when compared to the corresponding October 2016 Proposed Route.

Table 1
(February 2017)

Comparison of Route Alternative 1 and the Proposed Route

Feature	Route Alternative 1	Proposed Route
General		
Total length (miles)	323.8	303.4
Length adjacent to existing right-of-way (miles)	101.0	29.4
Land disturbed within construction right-of-way (acres) <u>a/</u>	4,892	4,556
Federal Lands and Federally Managed Areas		
National Forest System lands crossed (miles)	1.6	3.5
National Forest Wilderness crossed (miles)	0.0	0.0
Appalachian National Scenic Trail crossings (number)	1	1
Blue Ridge Parkway crossings (number)	1	1
National Forest – US Forest Service-designated old growth forest crossed (feet)	0	1,710
National Forest – US Forest Service-designated old growth forest affected by construction (acres)	0	4.9
National Forest – trails crossed (number)	15	2
National Forest – inventoried roadless areas crossed (feet)	0	5,030
National Forest – inventoried semi-primitive areas crossed (feet)	8,660	14,170
NRHP designated or eligible historic districts crossed (miles)	5.0	10.0
Human Environment		
Populated areas within 0.5 mile (number) <u>b/</u>	11	8
Landowner parcels crossed (number)	1,424 <u>c/</u>	1,334
Residences within 50 feet of construction workspace (number)	65	66
Resources		
Forested land crossed (miles)	237.6	248.7
Forested land affected during construction (acres)	3,608.7	3,771.9
Forested land affected during operation (acres)	1,441.2	1,507.1
Interior forest crossed (acres)	1,565.2	2,463.6
Wetlands (NWI) crossed (feet) <u>d/</u>	5,525	3,601
Forested wetlands crossed (feet) <u>d/</u>	1,657	1,721
Forested wetlands affected by construction (acres)	2.9	3.0
Forested wetlands affected by operation (acres)	1.9	2.0
Perennial waterbody crossings (number) <u>d/</u>	133	95
Major (>100 feet) waterbodies crossed	7	5
New River crossings (number)	2	0
Shallow bedrock crossed (miles)	217.3	216.4
Steep slope (>20 percent) crossed (miles)	171.4	128.6
Side slope crossed (miles)	165.1	158.2
Landslide potential crossed (miles)	232.2	225.6
Karst area crossed (miles)	56.2	41.7

- | | |
|-----------|---|
| <u>a/</u> | Assuming 125-foot-wide construction right-of-way. |
| <u>b/</u> | City or town limits as shown in Environmental Systems Research Institute (ESRI) data. |
| <u>c/</u> | Estimated assuming similar size and number of landowner parcels would be crossed by the alternative as those crossed by the corresponding segment of Proposed Route. |
| <u>d/</u> | National Wetlands Inventory (NWI) and National Hydrography Dataset (NHD) data used in order to provide a common comparison between the two routes since field surveys were not conducted along the alternative. |

Northern Alternative – ACP Collocation Alternative

The Northern Pipeline – ACP Collocation Alternative was developed to evaluate a pipeline route that would be collocated with the proposed Atlantic Coast Pipeline (ACP) Project. This alternative has also been called the “two pipelines – one route” alternative. The Northern Pipeline Alternative – ACP Collocation Alternative would involve the installation of a 42-inch-diameter pipeline for the Project adjacent to the pipeline proposed for the ACP Project. Conceptually, this alternative would begin at about milepost (MP) 37 of the October 2016 Proposed Route where it would begin paralleling the proposed ACP at its point of origin. The alternative would then generally be routed parallel to the proposed ACP for about 191 miles in a southeasterly direction before intersecting the existing Transco pipeline. Then it would generally parallel the Transco pipeline corridor to the southwest for about 60 miles to reach Transco Station 165.

The alternative does provide some benefits (See Table 2). Specifically, there would be more collocation with existing and proposed (principally the ACP Project) rights-of-way and less impacts to interior forest (approximately 460 less acres), USFS-designated old growth forest, roadless areas, and semi-primitive areas than the October 2016 Proposed Route. However, the Northern Pipeline – ACP Collocation Alternative would cross more National Forest System lands (approximately 16 more miles) than the corresponding segment of the October 2016 Proposed Route. Both routes are fairly comparable in overall length and land disturbance (the Northern Pipeline – ACP Collocation Alternative would be approximately 7 miles longer and would disturb about 100 acres more during construction than the corresponding segment of the October 2016 Proposed Route). The Northern Pipeline – ACP Collocation Alternative would cross 36 more perennial waterbodies, 9 more major waterbodies, and approximately 1,400 feet more wetlands (including approximately 1,250 feet more forested wetlands), than the corresponding segment of the October 2016 Proposed Route.

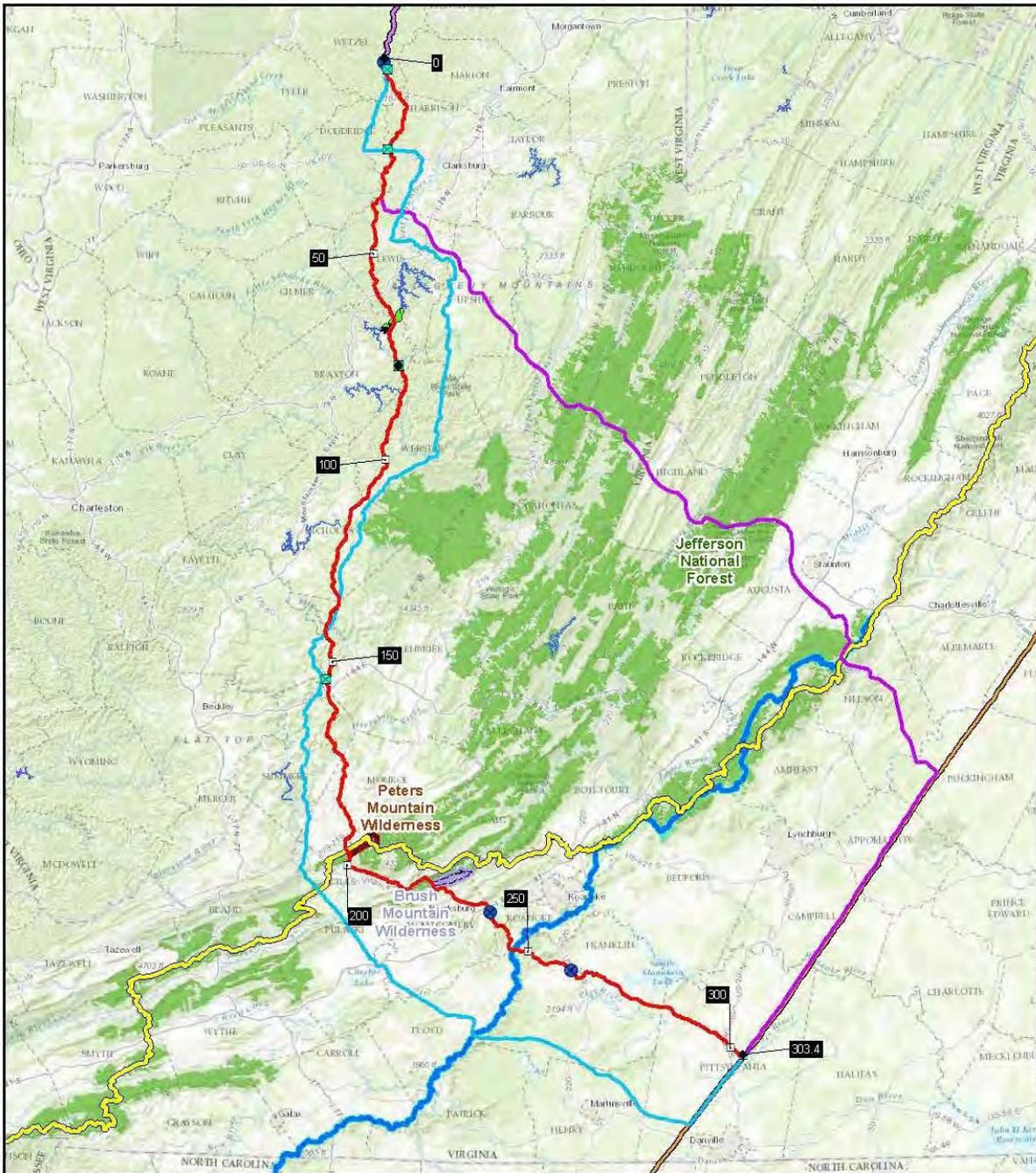
However, the major disadvantage of the Northern Pipeline – ACP Collocation Alternative route is the necessity to construct two parallel pipelines along approximately 191 miles of the ACP route, much of which presents significant constructability issues related to topography and space. Based on review of data, aerial photography, and topography, in many areas such as in Lewis and Upshur counties, West Virginia and Augusta and Nelson counties, Virginia, there is insufficient space along the narrow ridgelines to accommodate two parallel 42-inch-diameter parallel pipelines. The amount of right-of-way necessary to construct the two pipelines would be considerable, given the amount space needed to safely accommodate equipment and personnel, as well as spoil storage. The constructability issues alone render this alternative technically infeasible. Also, because the resource impacts for the proposed route and the alternative are similar, the alternative does not provide a significant environmental advantage.

TABLE 2
(February 2017)

Comparison of the Northern Pipeline Alternative and the Proposed Route

Feature	Northern Pipeline – ACP Collocation Alternative	Proposed Route
General		
Total length (miles)	273.5	267.1
Length adjacent to existing right-of-way (miles)	77.3	25.4
Land disturbed within construction right-of-way (acres) <u>a/</u>	4,144.3	4,043.8
Federal Lands and Federally Managed Areas		
National Forest System lands crossed – Total (miles)	19.1	3.5
Monongahela National Forest (miles)	5.5	0.0
George Washington and Jefferson National Forests	13.6	3.5
National Forest Wilderness crossed (miles)	0.0	0.0
Appalachian National Scenic Trail crossings (number)	1	1
Blue Ridge Parkway crossings (number)	1	1
National Forest – US Forest Service-designated old growth forest crossed (feet)	0	1,710
National Forest – US Forest Service-designated old growth forest affected by constr. (acres)	0	4.9
National Forest – trails crossed (number)	5	2
National Forest – inventoried roadless areas crossed (feet)	0	5,030
National Forest – inventoried semi-primitive areas crossed (feet)	0	14,170
NRHP designated or eligible historic districts crossed (miles)	0.0	10.0
Human Environment		
Populated areas within 0.5-mile (number) <u>b/</u>	9	7
Landowner parcels crossed (number)	1,160 <u>c/</u>	1,132
Residences within 50 feet of construction workspace (number)	47	44
Resources		
Forested land affected during construction (acres)	2,794.8	3,256.9
Forested land affected during operation (acres)	1,117.2	1,301.0
Interior forest crossed (acres)	1,616.2	2,064.5
Wetlands (NWI) crossed (feet) <u>d/</u>	4,941	3,529
Forested wetlands crossed (feet) <u>d/</u>	2,977	1,721
Forested wetlands affected by construction (acres)	5.1	3.0
Forested wetlands affected by operation (acres)	3.4	2.0
Perennial waterbody crossings (number) <u>d/</u>	120	84
Major (> 100 feet) waterbodies crossed	14	5
Karst area crossed (miles)	51.2	41.8

- a/ Assuming a 125-foot-wide construction right-of-way.
- b/ City or town limits as shown in ESRI data.
- c/ Estimated assuming similar size and number of landowner parcels would be crossed by the alternative as those crossed by the corresponding segment of proposed route.
- d/ NWI and NHD data used in order to provide a common comparison between the two routes since field surveys were not conducted along the alternative.



Mountain Valley Pipeline Project NAD 1983 UTM 17N 1:1,625,000 0 25 50 Miles

Mountain Valley
PIPELINE

Figure 13a-1
Alternative 1 and
Northern Pipeline-ACP Collocation
Alternatives

February 2017

Data Sources: ESRI Streaming Data, 2014, Ventyx 2014.

- Legend**
- ◆ Proposed Interconnect
 - Proposed Compressor Station Location
 - Proposed Tap Location
 - Milepost
 - October 2016 Proposed Route
 - Alternative 1
 - Northern Pipeline - ACP Collocation Alternative
 - Existing Equitrans H-302 Line
 - Existing Transco Pipeline
 - Weston Gauley Turnpike Trail
 - Appalachian National Scenic Trail
 - Blue Ridge Parkway
 - Army Corps of Engineers Reservoir
 - Peters Mountain Wilderness
 - Brush Mountain Wilderness
 - US National Forest Service Lands
 - National Park Service Blue Ridge Parkway



Conceptual Forest Service Avoidance Alternative

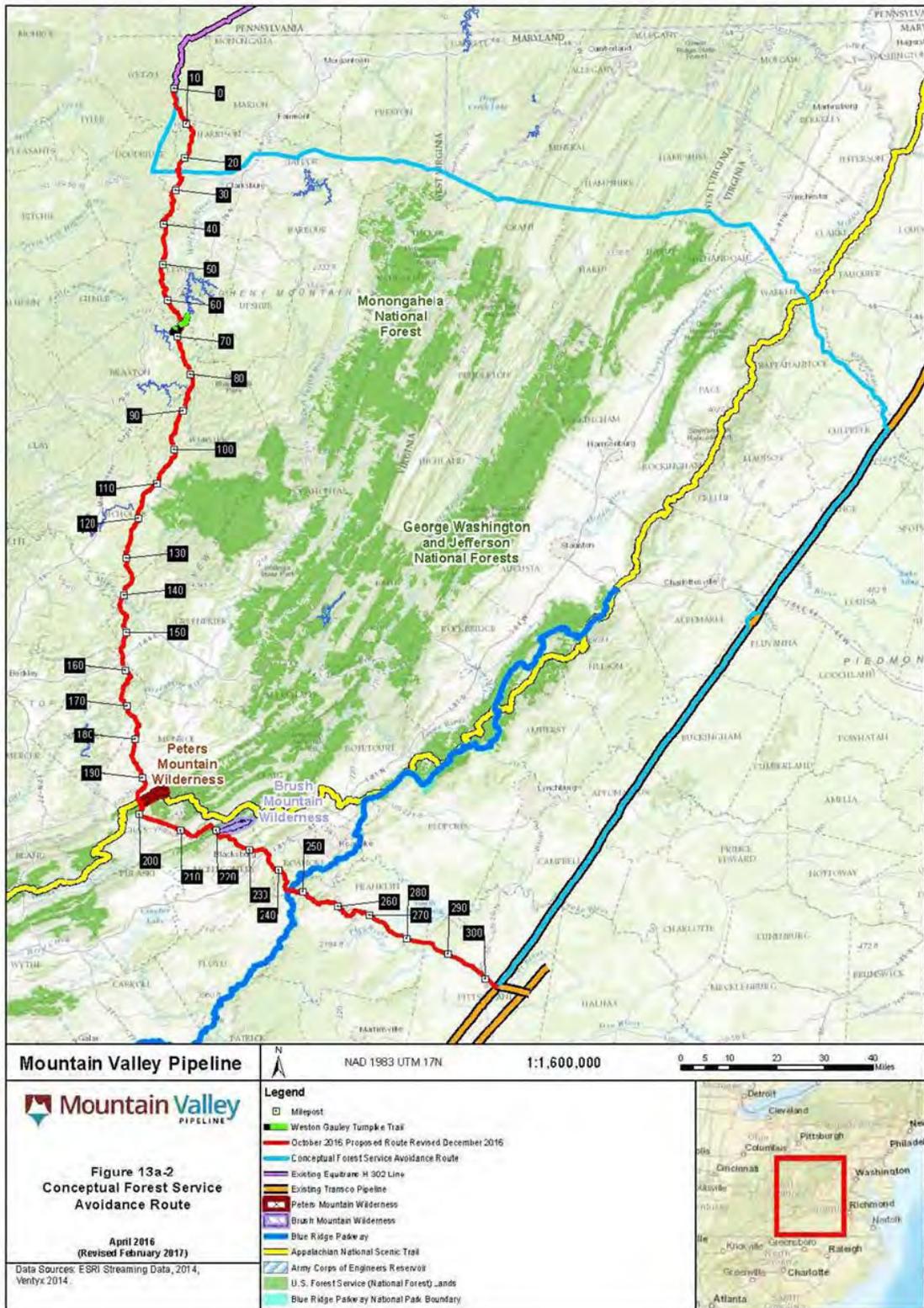
On April 8, 2016, Mountain Valley submitted information to the JNF that identified a conceptual route alternative that would entirely avoid any crossing of National Forest System Lands (see Figure 13a-2). The conceptual route would add approximately 50 miles of additional pipeline and approximately 740 additional acres of impact during construction (See Table 3), nearly all of which would be on private lands. In addition, the conceptual route would include approximately 11 additional large waterbody crossings and 15,000 feet of wetland crossings, including approximately 6,000 feet of forested wetlands. Mountain Valley must consider the route that has the least environmental and human impact as possible. By crossing less than 4 miles of the JNF, Mountain Valley has reduced the impact to private landowners to the greatest extent practicable and reduced the overall environmental impact while meeting the purpose and need of the Project. This route was further confirmed as having the least impact to human and environmental resources through the issuance of the Concurrence Letter and Stipulations from the Forest Service in the Record of Decision, issued January 11, 2021.

Comparison of a Conceptual Forest Service Avoidance Route and the Proposed Route		
Feature	Conceptual Forest Service Avoidance Route	Proposed Route
General		
Total length (miles)	351	303.0
Length adjacent to existing ROW (miles)	332	22
Land disturbed within construction ROW (acres) <u>a/</u>	5,301	4,556
Land Use		
Populated areas <u>b/</u> within ½ mile (number)	31	8
National Forest System lands crossed (miles)	0	3.4
National Forest Wilderness crossed (miles)	0	0
Appalachian National Scenic Trail crossings (number)	1	1
Blue Ridge Parkway crossings (number)	0	1
NRHP designated or eligible historic districts crossed (miles)	0.1	10.1
Landowner parcels crossed (number)	1,743 <u>c/</u>	1,495
Residences within 50 feet of construction work space (number)	168	63
Resources		
Forested land crossed (miles)	206.0	245.2
Forested land affected during construction (acres)	3,121.2	3,720.0
Forested land affected during operation (acres)	1,248.5	1,486.0
Interior forest crossed (miles)	41.1	129.8
Wetlands (NWI) crossed (feet) <u>d/</u>	18,918	3,299
Forested wetlands crossed (feet) <u>d</u>	7,761	1,721
Forested wetlands affected by construction (acres)	13.4	3.0
Forested wetlands affected by operation (acres)	8.9	2.0
Perennial waterbody crossings (number) <u>d/</u>	206	97

**Table 3
(February 2017)**

Comparison of a Conceptual Forest Service Avoidance Route and the Proposed Route

Feature	Conceptual Forest Service Avoidance Route	Proposed Route
Major (> 100 feet) waterbodies crossed (number)	16	5
Shallow bedrock crossed (miles) <i>e/</i>	80.9	214.9
Steep slope (>20 percent) crossed (miles)	86.3	120.0
Side slope crossed (miles)	133.8	122.8
Landslide potential crossed (miles) <i>f/</i>	249.2	199.7
Karst area crossed (miles)	98.5	53.3
<p><i>a/</i> Assuming 125-foot-wide construction ROW. <i>b/</i> City or town limits as shown in Environmental Systems Research Institute (ESRI) data. <i>c/</i> estimated assuming similar size and number of landowner parcels would be crossed by the alternative as those crossed by the corresponding segment of Proposed Route. Does not account for fact that number of parcels crossed would be greatly reduced if alternative were constructed entirely within highway rights-of-way. <i>d/</i> NWI and NHD data used in order to provide a common comparison between the two routes since field surveys were not conducted along the alternative. Public data on waters with drinking water designation not available. <i>e/</i> Based on data available for only about 68 percent of the route. <i>f/</i> areas mapped as High Incidence and/or High Susceptibility from Radbruch-Hall et. al 1982.</p> <p>ROW = right-of-way NRHP = National Register of Historic Places NHD = U.S. Geological Survey National Hydrography Dataset NWI = U.S. Fish and Wildlife Service National Wetland Inventory</p>		



Route Variations

Burnsville Lake Wildlife Management Area Variation

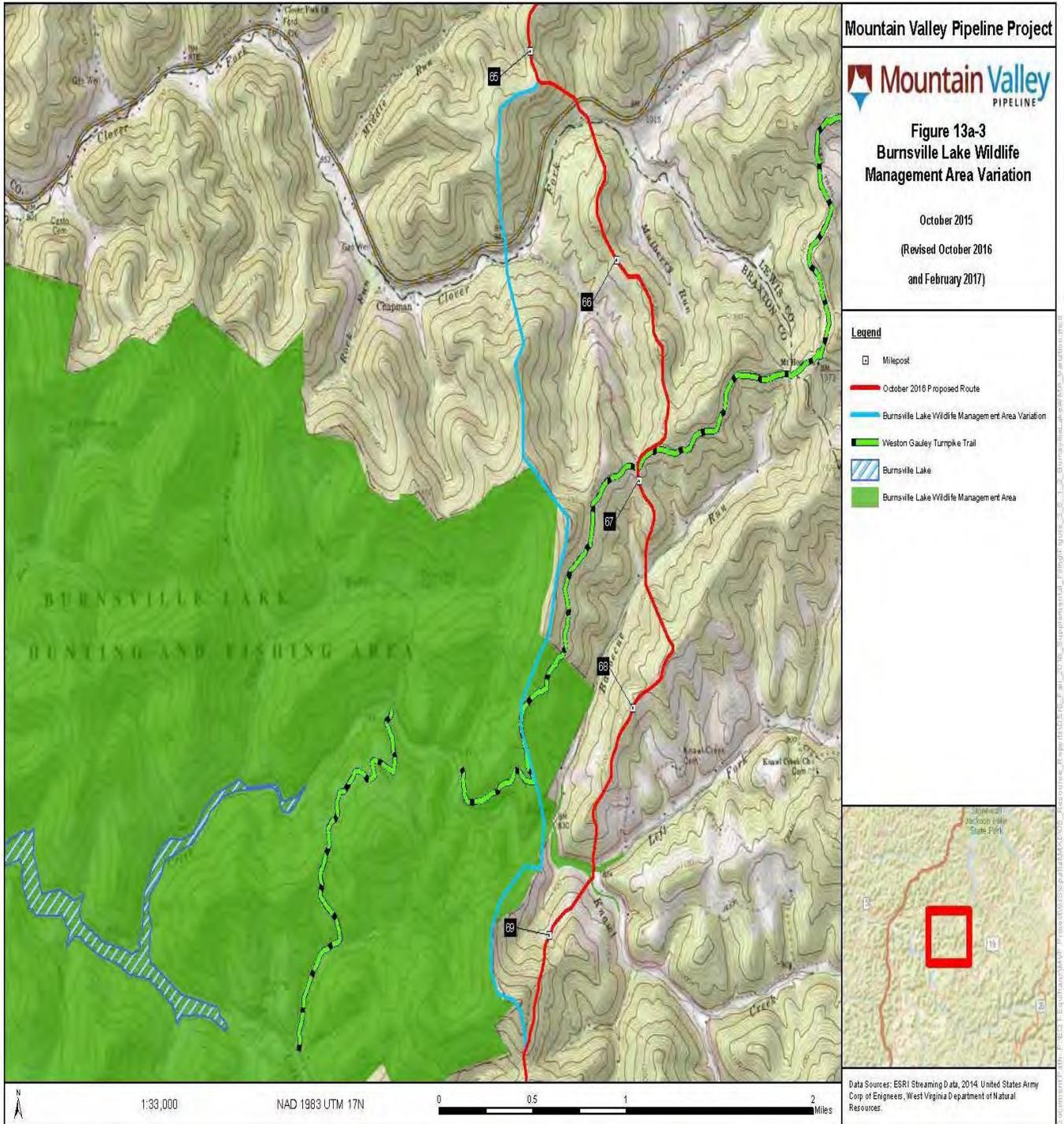
The Burnsville Lake Wildlife Management Area Variation would include an alternative crossing location of the Weston and Gauley Bridge Turnpike Trail. Mountain Valley initially identified this variation as the original route through the Burnsville Lake Wildlife Management Area (WMA) in Braxton County, West Virginia. In its October 2015 application to the FERC, Mountain Valley revised the originally considered route in this area in order to avoid the Burnsville Lake WMA. The Burnsville Lake WMA Variation would begin at MP 65.3, would turn southwest from the proposed route for approximately 0.2 mile, would then turn south for about 3.5 miles, would cross the eastern portion of the Burnsville Lake WMA, and would rejoin the proposed route at MP 69.6 (see Figure 13a-3).

The Burnsville Lake WMA Variation would be about 0.2 mile shorter than the comparable segment of the proposed route (See Table 4), disturb less land, affect fewer parcels, and cross one fewer perennial waterbody. The variation would affect the same amount of forest but cross more steep terrain. The variation would cross 1.8 miles of the Burnsville Lake WMA, while the October 2016 Proposed Route would avoid this WMA. Because the Burnsville Lake WMA Variation would affect high-quality habitat managed by the WVDNR, it would not offer significant environmental advantages over the corresponding segment of proposed route. Additionally, Mountain Valley has already completed the bore underneath the Weston and Gauley Bridge Turnpike Trail, so this alternative would not reduce environmental impacts.

Table 4
(February 2017)

Comparison of the Burnsville Lake Wildlife Management Area Variation and the Proposed Route

Feature	Burnsville Lake WMA Variation	Proposed Route
General		
Total length (miles)	4.1	4.3
Length adjacent to existing right-of-way (miles)	0.0	0.0
Land disturbed within construction right-of-way(acres) <u>a/</u>	61.7	65.2
Land Use		
Populated areas within 0.5-mile (number) <u>b/</u>	0	0
National Forest System lands crossed (miles)	0.0	0.0
National Forest Wilderness crossed (miles)	0.0	0.0
Appalachian National Scenic Trail crossings (number)	0	0
Blue Ridge Parkway crossings (number)	0	0
NRHP designated or eligible historic districts crossed (miles)	0.0	0.0
Landowner parcels crossed (number)	15	20
Residences within 50 feet of construction workspace (number)	0	0
WMA lands crossed (miles)	1.8	0.0
Resources		
Forested land crossed (miles)	4.0	4.0
Forested land affected during construction (acres)	61.1	60.9
Forested land affected during operation (acres)	24.5	24.3
Interior forest crossed (acres)	56.1	48.5
Wetlands (NWI) crossed (feet) <u>c/</u>	0	0
Forested wetlands crossed (feet)	0	0
Forested wetlands affected by construction (acres)	0.0	0.0
Forested wetlands affected by operation (acres)	0.0	0.0
Perennial waterbody crossings (number)	2	3
Major (> 100 feet) waterbodies crossed	0	0
Shallow bedrock crossed (miles)	4.0	3.9
Steep slope (>20 percent) crossed (miles)	2.9	2.2
Side slope crossed (miles)	2.8	2.7
Landslide potential crossed (miles)	4.1	4.3
Karst area crossed (miles)	0.0	0.0
<u>a/</u> Assuming 125-foot-wide construction right-of-way. <u>b/</u> City or town limits as shown in ESRI data. <u>c/</u> NWI and NHD data used in order to provide a common comparison between the two routes since field surveys were not conducted along the alternative.		



Burnsville Weston Gauley Alternative

Burnsville Weston Gauley Alternative, deviates from the proposed route alignment approximately 2 miles southeast of the Burnsville Lake WMA and continues west around the western boundary of the Burnsville Lake WMA and Weston and Gauley Bridge Turnpike Trail and converges with the proposed route alignment just north of I-79 (See Figure13a-3.5). This alternative is approximately 19.2 miles long and would parallel an existing natural gas gathering pipeline for approximately 6 miles.

This proposed route was selected because it was the most direct route to get from the origination of the Project to its terminus. The proposed route was also selected due to constructability of the pipeline and constraints identified along the proposed route paralleling the natural gas pipeline. The proposed route is also 3.7 miles shorter than the Burnsville Weston Gauley alternative and would disturb approximately 57 less acres. The Burnsville Weston Gauley Alternative would cross more private landowners, be closer to three additional homes, impact more forested land, and cross steeper slope and landslide prone areas. Other crossing locations, including the Weston and Gauley Bridge Turnpike Trail and the Burnsville Weston Gauley alternatives, were evaluated and found prohibitive due to the steep terrain, previously existing utilities, other environmental concerns and proximity to residences and/or populated areas. In addition, the Interstate 79 cannot be crossed at this location due to United States Department of Transportation controlled access and fill placed to support the Interstate.

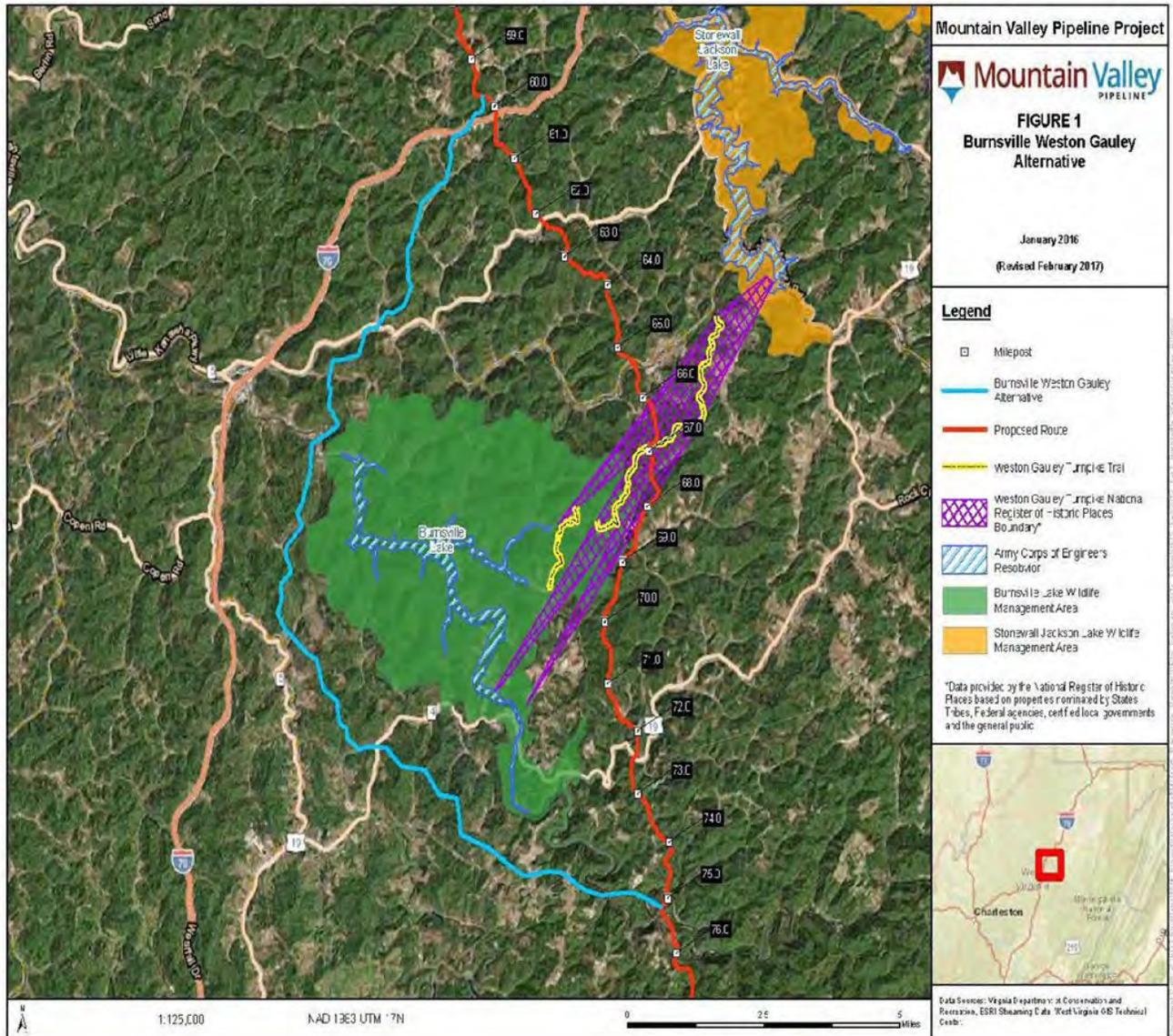
Figure 5
(February 2017)

Comparison of the Burnsville Weston Gauley Alternative and the Proposed Route

Feature	Burnsville Weston Gauley Alternative	Proposed Route
General		
Total length (miles)	19.2	15.5
Length adjacent to existing right-of-way (miles)	3.7	0.3
Land disturbed within construction right-of-way (acres) <u>a/</u>	290.7	233.9
Federal Lands and Federally Managed Areas		
U.S. Army Corp of Engineers lands crossed (feet)	0	60
National Forest System lands crossed (feet)	0	0
NRHP designated or eligible historic districts crossed (miles)	0	1.8
Human Environment		
Populated areas within 0.5-mile (number) <u>b/</u>	0	0
Landowner parcels crossed (number)	109	65
Residences within 50 feet of construction workspace (number)	4	1
Resources		
Forested land affected during construction (acres)	269.7	222.1
Forested land affected during operation (acres)	108.1	88.9
Interior forest affected during construction (acres)	179.0	185.1
Wetlands (NWI) crossed (feet) <u>d/</u>	0	0
Forested wetlands crossed (feet) <u>d/</u>	0	0
Forested wetlands affected by construction (acres)	0	0
Forested wetlands affected by operation (acres)	0	0
Perennial waterbody crossings (number) <u>d/</u>	4	5
Major (> 100 feet) waterbodies crossed	0	0
Steep Slope (miles)	15.2	8.2
Landslide Potential (miles)	19.2	15.5
Karst area crossed (miles)	0	0

Notes:

- a/ Assuming a 125-foot-wide construction right-of-way.
- b/ City or town limits as shown in ESRI data.
- c/ Estimated assuming similar size and number of landowner parcels would be crossed by the alternative as those crossed by the corresponding segment of proposed route.
- d/ NWI and NHD data used in order to provide a common comparison between the two routes since field surveys were not conducted along the alternative.



Variation 110, Variation 110J, Variation 110R

Variation 110 and modifications to this variation called Variation 110R and Variation 110J were developed by Mountain Valley as alternatives that include different crossing locations of the Appalachian National Scenic Trail (ANST) and JNF (see Figure 13a-4). Additionally, these variations would avoid specific resources and areas of concern raised by stakeholders. Some of the concerns that Mountain Valley sought to avoid through exploration of Variations 110, 110R, and 110J included:

- karst terrain in the Pembroke and Newport areas;
- mapped caves (including Pig Hole Cave, Smoke Hole Cave, and Tawney Cave);
- the Greater Newport Rural Historic District and North Fork Valley Rural Historic District;
- the Nature Conservancy's Blake Preserve;
- the Mercer Angler's Club;
- the Red Sulfur Public Utility District watershed;
- Big Stony Creek Road (Virginia Scenic Byway); and
- Peters Mountain and Mountain Lake Wilderness Areas.

Variation 110 is about 43.4 miles long. It would leave the proposed route at about MP 176 turning east—southeast passing south of Swoopes Knob, going between Little Mountain and Gap Mountain. It would then cross over Peters Mountain to near Waiteville, West Virginia, through the JNF over John Creek Mountain, Sinking Creek Mountain, and Brush Mountain. It would then cross the Brush Mountain Wilderness Area and the North Fork of the Roanoke River before rejoining the proposed route at about MP 227.5 near I-81, west of Elliston, Virginia.

Variation 110J is about 49.5 miles long and was considered as a modification to Variation 110 to avoid crossing the Brush Mountain Wilderness Area. This variation would leave Variation 110 on the east side of John Creek Mountain, heading northeast, cross State Route 42 (Cumberland Gap Turnpike), and would eventually rejoin Variation 110 on the east side of Brush Mountain. Variation 110J would avoid the Brush Mountain Wilderness.

Variation 110R is about 44.3 miles long and was considered as a modification to Variation 110 to avoid crossing the Brush Mountain Wilderness Area. It would leave Variation 110 at the same place as Variation 110J, but would generally parallel Variation 110, with a jog to the east through a break in the Brush Mountain and Brush Mountain East Wilderness Areas, before rejoining Variation 110 at the same terminus as Variation 110J.

During scoping for the EIS, stakeholders commented on potential impacts from these alternatives, including potential impacts on Brush Mountain East Wilderness, 6C-Old Growth and 8C-Black Bear Habitat management prescription areas on the JNF, the ANST near the Dragon Tooth, cultural attachment, and a federally listed endangered aquatic mussel, the James spiny mussel.

In a letter to FERC dated April 6, 2015, the Virginia Department of Conservation and Recreation (VDCR) provided comments on Variation 110, stating the alternative would cross the Mudlick Branch Woodland

Conservation Site, which has a very high biodiversity ranking (B2). The alternative would also cross the Craig Creek-Johns Creek Stream Conservation Unit, which is ranked as having outstanding biodiversity (B1). Species that inhabit streams in the unit include the federally threatened yellow lance, federally threatened Atlantic pigtoe, the state-listed orangefin madtom, and the federally endangered James spinymussel. The 110 would cross the Fort Lewis Mountain Slopes Conservation Site, with a biodiversity ranking of B5 (of general biodiversity significance), which contains common snowberry. Additionally, alternative 110 would cross the Sinking Mountain Conservation Site, which has a biodiversity significance ranking of B2, containing Central Appalachian Montane Oak-Hickory Forest and Central Appalachian Xeric Chestnut Oak-Virginia Pine Woodland Forest. The alternative would cross the Lynn Hollow Conservation Site, with a biodiversity ranking of B2, containing box huckleberry.

The VDCR indicated that Alternative 110J would cross the Sinking Creek Mountain Conservation Site, as well as the Trout Creek Barren and Pickles Branch conservation sites. The Trout Creek Barren Conservation Site has a biodiversity ranking of B3 (high significance) and contains the Central Appalachian Xeric Shale Woodland (Chestnut Oak, Mixed Herbs Type). The Pickles Branch Conservation Site has a biodiversity ranking of B4 (moderate significance). Finally, The VDCR indicated that Alternative 110R would cross the Sugar Bottom Hollow Conservation Site, which has a biodiversity ranking of B3.

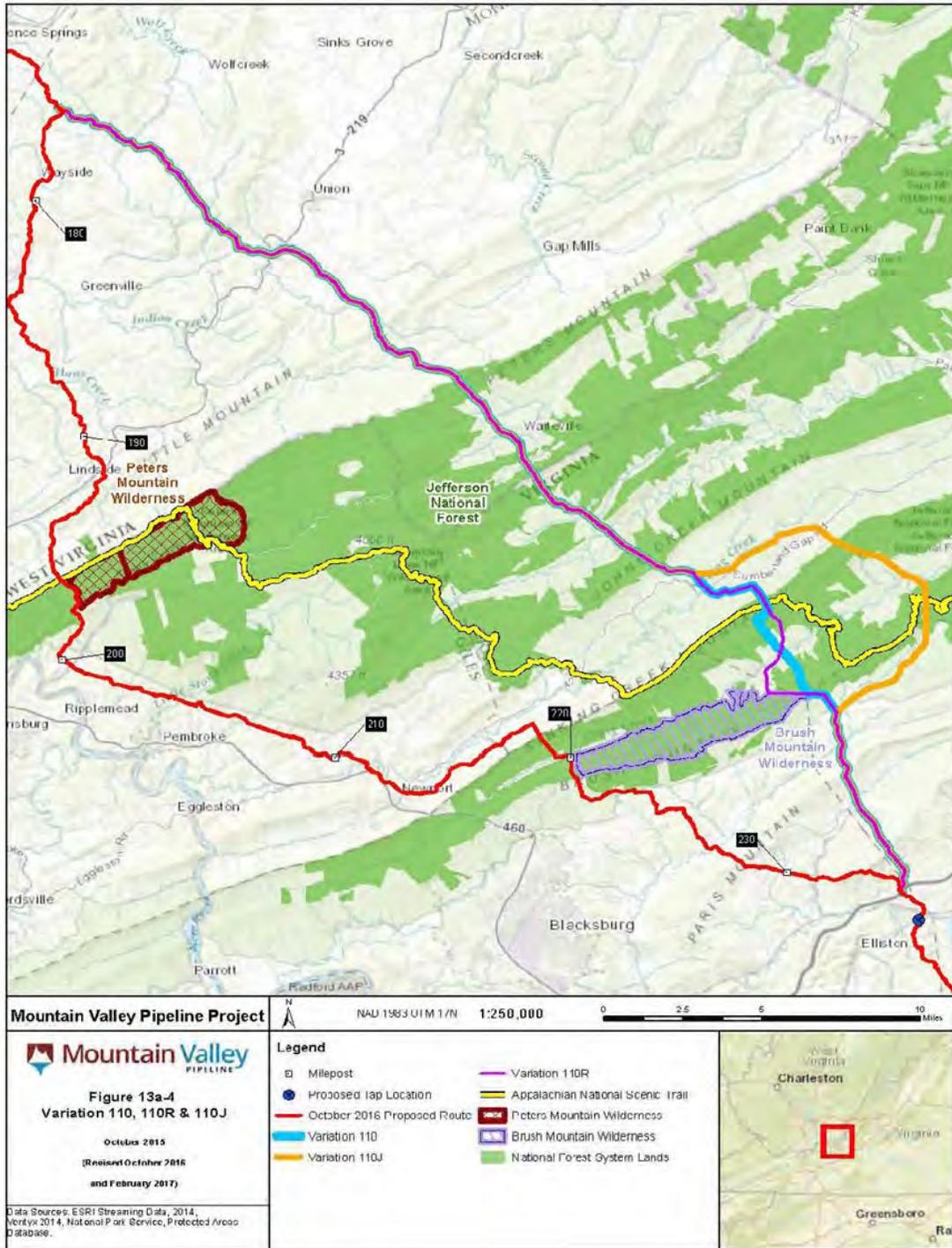
Variation 110 is approximately 15.3 miles shorter than the corresponding segment of the October 2016 Proposed Route and would cross much less USFS-designated semi-primitive areas; however, it crosses about 1.1 miles of designated wilderness that would be avoided by the proposed route (See Table 6). It would cross about 2.7 more miles of national forest and 12 fewer miles of side slopes compared to the proposed route. This variation would also cross the only known population of the federally endangered James spinymussel in West Virginia at the South Fork of Potts Creek. Additionally, this variation would cross about three times more distance of mapped old growth forest within the JNF (including designated black bear habitat management areas) and three more USFS-designated trails and more roadless areas compared to the proposed route. During site surveys, two USFS-designated sensitive plants, American barberry and rock skullcap, were found within the route of this variation. This alternative would also cross the Allegheny Trail, a 330-mile-long hiking trail, which would not be crossed by the October 2016 Proposed Route. Variation 110 would cross the Mudlick Branch Woodland, Craig Creek-Johns Creek, Sinking Creek Mountain, Lynn Hollow, and Fort Lewis Mountain conservation sites. Mountain Valley believes that Variation 110 does not provide a significant environmental advantage over the October 2016 Proposed Route.

Variation 110R is about 14.4 miles shorter than the corresponding segment of the October 2016 Proposed Route; however, it crosses approximately 2.7 more miles of the JNF (including designated black bear habitat management areas). This variation would also cross about 0.5 mile more of USFS-designated old growth forest and three more USFS-designated trails than the corresponding segment of the proposed route as well about 1.2 more miles of landslide-prone areas. Variation 110R would cross substantially less USFS-designated roadless and semi-primitive areas. However, alternative 110R would cross the Sugar Bottom Hollow Conservation Site. Mountain Valley believes that Variation 110R does not provide a significant environmental advantage over the October 2016 Proposed Route.

Variation 110J is approximately 9.2 miles shorter than the corresponding segment of the proposed route; however, it would cross about 1.8 more miles of the JNF (including designated black bear habitat management areas). This variation would also cross about 0.5 mile more of USFS-designated old growth forest than the corresponding segment of the October 2016 Proposed Route as well as about 5 more miles of landslide-prone areas. Variation 110J would cross substantially fewer USFS-designated roadless areas and semi-primitive areas. Variation 110J would cross the Sinking Creek Mountain, Trout Creek Barren, and Pickles Branch conservation sites. Given consideration of the potential impacts on all affected resources, Mountain Valley believes that Variation 110J does not provide a significant environmental advantage over the October 2016 Proposed Route.

Feature	Variation 110	Variation 110R	Variation 110J	Proposed Route
General				
Total length (miles)	43.4	44.3	49.5	58.7
Length adjacent to existing right-of-way (miles)	0.6	0.6	1.3	9.7
Land disturbed within construction right-of-way (acres) <u>a/</u>	656.5	670.5	749.6	888.8
Federal Lands and Federally Managed Areas				
National Forest lands crossed (miles)	6.2	6.2	5.3	3.5
National Forest Wilderness crossed (miles)	1.1	0.0	0.0	0.0
Appalachian National Scenic Trail crossings (number)	1	1	1	1
Blue Ridge Parkway crossings (number)	0	0	0	0
National Forest – US Forest Service-designated old growth forest crossed (feet)	4,550	4,240	4,260	1,710
National Forest – US Forest Service-designated old growth forest affected by constr. (acres)	13.0	12.1	12.2	4.9
National Forest – trails crossed (number)	3	3	3	0
National Forest – inventoried roadless areas crossed (feet)	5,900	40	210	5,030
National Forest – inventoried semi-primitive areas crossed (feet)	7,150	7,100	210	14,170
NRHP designated or eligible historic districts crossed (miles)	0.0	0.0	0.0	10.0
Human Environment				
Populated areas within 0.5 mile (number) <u>b/</u>	1	1	1	1
Landowner parcels crossed (number)	181	198	250	245
Residences within 50 feet of construction workspace (number)	0	3	9	8
Resources				
Forested land crossed (miles)	31.8	32.2	35.3	46.9
Forested land affected during construction (acres)	482.0	487.6	535.2	7,11.9
Forested land affected during operation (acres)	192.9	195.2	214.1	284.5
Interior forest crossed (acres)	368.2	372.7	395.5	478.1
Wetlands (NWI) crossed (feet) <u>c/</u>	446	446	765	44
Forested wetlands crossed (feet)	223	223	223	0
Forested wetlands affected by construction (acres)	0.4	0.4	0.4	0.0
Forested wetlands affected by operation (acres)	0.3	0.3	0.3	0.0
Perennial waterbody crossings (number)	19	19	25	20
Major (> 100 feet) waterbodies crossed	0	0	0	0

Shallow bedrock crossed (miles)	26.6	27.9	28.1	22.4
Steep slope (>20 percent) crossed (miles)	21.3	22.4	24.8	29.1
Side slope crossed (miles)	21.1	22.0	26.2	33.0
Landslide potential crossed (miles)	20.9	21.7	24.6	19.7
Karst area crossed (miles)	26.3	25.8	32.0	29.6
<p><u>a/</u> Assuming 125-foot-wide construction right-of-way.</p> <p><u>b/</u> City or town limits as shown in ESRI data.</p> <p><u>c/</u> NWI and NHD data used in order to provide a common comparison between the two routes since field surveys were not conducted along the alternative.</p>				



State Route 635-Appalachian Trail Variation

The State Route (SR) 635-Appalachian National Scenic Trail Variation was evaluated as an alternative crossing of the ANST. The SR 635-ANST Variation would deviate from Mountain Valley's October 2016 Proposed Route near MP 190.8 and proceed east before turning south (avoiding the Peters Mountain Wilderness located to the west) on NFS land, crossing the ANST at SR 635/Big Stony Creek Road, and then continuing south crossing NFS land and rejoining the proposed route near MP 206.8. SR 635 is the nearest (about 7 miles away) utility or road crossing of the ANST located to the east of Mountain Valley's proposed route (see Figure 13a-5).

The SR 635-ANST Variation would be about 1.5 miles shorter than the corresponding segment of the proposed route and would affect fewer residences and side slopes (See Table 7). The SR 635-ANST Variation does collocate the ANST crossing with an existing corridor (SR 635/Big Stony Creek Road); however, the crossing location would also be adjacent to the Big Stony Creek trailhead and foot bridge. The proposed route would, overall, be more collocated with existing corridors by about 4 miles and would cross less of the JNF (approximately 3 less miles), USFS-designated old growth forest, trails, and roadless areas, and shallow bedrock, and fewer wetlands.

The location of the ANST and SR 635 crossing by the variation is at the lowest point in this area, making it extremely difficult and dangerous to perform a long conventional bore of the road and trail. The elevation variance from the bore launch pit to the bore receiving pit is approximately 46 feet. That elevation difference is anticipated to require a bore receiving pit that would need to be approximately 45-50' in depth, which would require significant space to access the bore pit and create hazardous conditions for workers in the bore pit. The alternative alignment would also generally parallel the ANST for about one mile after crossing the trail and SR 635, increasing the possibility the pipeline right-of-way would be visible from locations along the trail. In addition, the SR 635-ANST Variation would move the pipeline crossing of Peters Mountain about 6 miles northeast of the proposed crossing, moving the ANST crossing to about 3.5 miles of the Wind Rock overlook on the ANST, compared to over 8 miles from the October 2016 Proposed Route. The variation would result in a significantly greater length of pipeline right-of-way visible from Wind Rock, and from a closer distance, than compared to the October 2016 Proposed Route, and would therefore have a greater visual impact.

For the reasons described above, Mountain Valley believes the SR 635-ANST Variation would not offer an environmental or constructible advantage over the October 2016 Proposed Route.

AEP-ANST Variation

The AEP-ANST Variation was also evaluated as an alternative crossing of the ANST. The AEP-ANST Variation would deviate from Mountain Valley's proposed route near MP 194.4 and proceed southwest along CR 219/24, turning southeast and entering the JNF and crossing the ANST at a point where it would be collocated with an AEP electrical powerline. The AEP-ANST Variation continues southeast, exiting the JNF near Gravely Hill Road and rejoining the proposed route near MP 199. The AEP electrical powerline is the nearest (about 3.3 miles away) utility or road crossing of the ANST located to the west of Mountain Valley's October 2016 Proposed Route (see Figure 13a-5).

The AEP-ANST variation would be about 3.2 miles longer than the proposed route, would result in approximately 70 acres more disturbance during construction than the corresponding segment of proposed route (See Table 7). The variation would also increase the length of the pipeline within the JNF by about 1.0 mile. The variation would pass through the Red Sulphur Public Service District (PSD) Protection Watershed for about 4.1 miles versus about 1.2 miles for the proposed route. The variation also passes within 100 feet of the Red Sulphur PSD Zone of Critical Concern. A portion of the variation also passes near known karst features including a cave and sinkholes. The variation would be about 950 feet upslope of Rich Creek Cave and Rich Creek Wilson Spring. The variation would affect 12.3 acres more forested land and would be near two fewer residences.

The location of the pipeline crossing of ANST would be on the southern down slope, and the southern bore pit would likely be shielded from view by trail users at the crossing itself by a buffer of trees. However, the terrain alone at the crossing location would likely not shield the pipeline right-of-way from view. While a conventional bore of the ANST at this location is possible, 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. 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 (SIOs) of the 2004 JNF Revised Land and Resource Management Plan (Forest Plan). Even though the variation would place the pipeline adjacent to an existing cleared right-of-way, the visual impact on ANST users would likely be greater because of the open view that trail users have when within the AEP right-of-way.

In addition to visual impacts on the ANST at the pipeline crossing itself, this variation would have a higher visual impact from the Angels Rest overlook than the October 2016 Proposed Route. The variation would move the pipeline crossing of Peters Mountain about 3 miles closer to the Angels Rest overlook (4 miles away, compared to about 7 miles by the October 2016 Proposed Route). Mountain Valley has prepared a viewshed map from the Angels Rest overlook, which shows that about 2.5 miles of the variation, beginning at the crest of Peters Mountain, would be within the direct viewshed from Angels Rest. While other disturbances and linear features are within this same viewshed, including the existing AEP right-of-way, the pipeline right-of-way would be a new and clearly visible linear feature codominant with the AEP right-of-way. Because the variation would be 3 miles closer to Angels Rest, it is expected that the variation would result in a greater visual impact on the Angel's Rest viewshed than compared to the October 2016 Proposed Route.

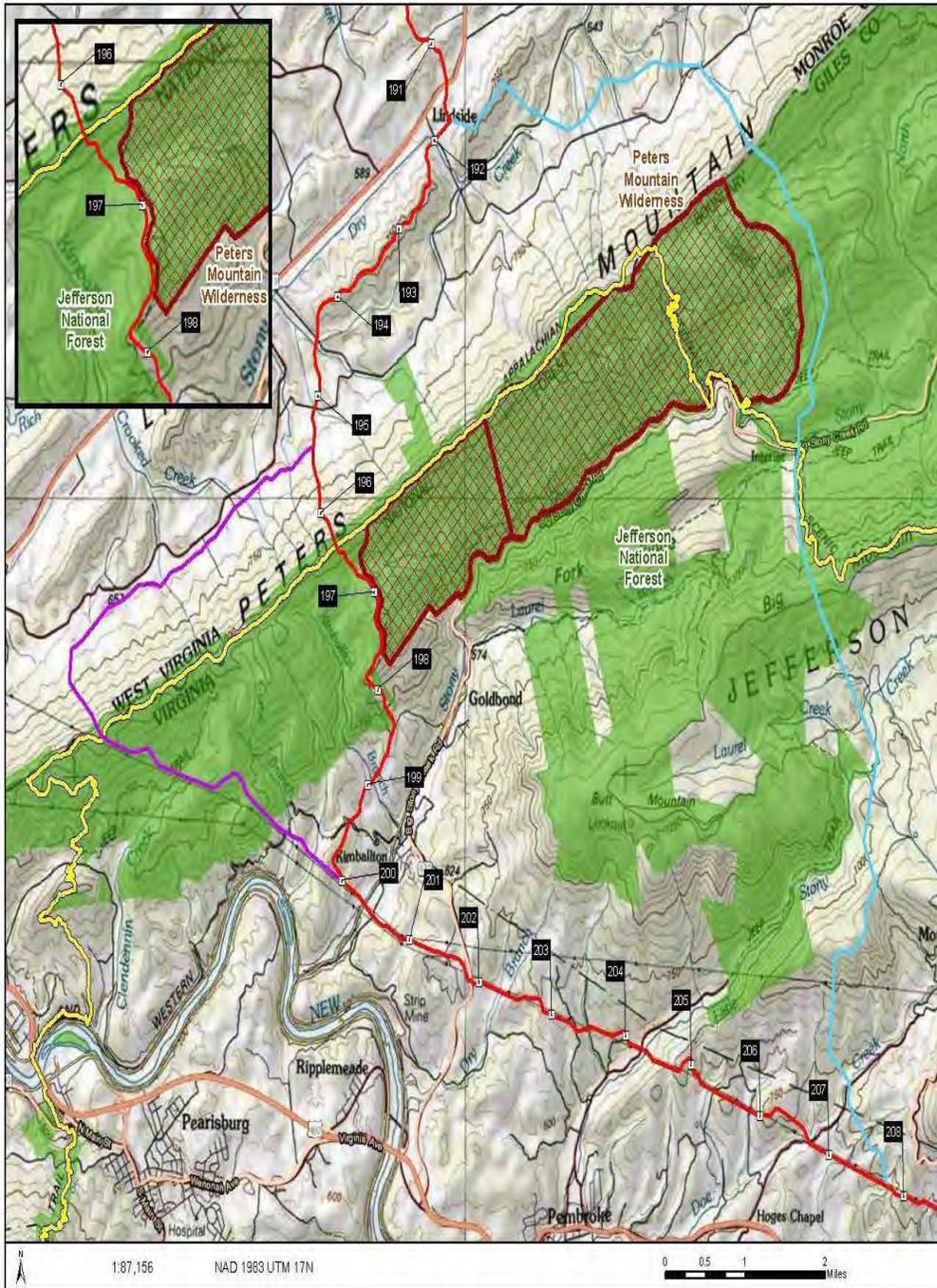
For the reasons described above, Mountain Valley believes the AEP-ANST Variation would not offer an environmental or constructible advantage over the proposed route.

Table 7
(February 2017)

Comparison of the SR 635-ANST and the AEP-ANST Variations and the Proposed Route				
Feature	SR 635-ANST Variation	Proposed Route	AEP-ANST Variation	Proposed Route
General				
Total length (miles)	14.6	16.1	7.9	4.7
Length adjacent to existing right-of-way (miles)	0.0	4.3	1.8	0
Land disturbed within construction (acres) <u>a/</u>	221.6	244.79	120.0	71.1
Federal Lands and Federally Managed Areas				
National Forest System lands crossed (miles)	4.6	1.7	2.6	1.7
Appalachian National Scenic Trail crossings (number)	1	1	1	1
National Forest – US Forest Service-designated old growth forest crossed (feet)	490	0	0	0
National Forest – US Forest Service-designated old growth forest affected by constr. (acres)	1.4	0	0	0
National Forest – trails crossed (number)	6	0	0	0
National Forest – inventoried roadless areas crossed (feet)	8,420	120	0	120
National Forest – inventoried semi-primitive areas crossed (feet)	8,420	9,130	0	9,130
NRHP designated or eligible historic districts crossed (miles)	0.7	0.6	0	0
Human Environment				
Landowner parcels crossed (number)	50	71	26	16
Residences within 50 feet of construction workspace (number)	3	7	2	4
Resources				
Forested land crossed (miles)	13.6	13.3	5.2	4.5
Forested land affected during construction (acres)	206.3	202.1	79.3	67.0
Forested land affected during operation (acres)	82.6	80.8	31.7	27.1
Interior forest crossed (acres)	59.1	148.3	39.4	104.6
Wetlands (NWI) crossed (feet) <u>c/</u>	97	0	0	0
Forested wetlands crossed (feet)	0	0	0	0
Perennial waterbody crossings (number) <u>c/</u>	18	5	17	1
Major (> 100 feet) waterbodies crossed	0	0	0	0
Shallow bedrock crossed (miles)	6.7	5.3	1.5	0.5

Steep slope (>20 percent) crossed (miles)	8.6	9.6	3.9	3.0
Side slope crossed (miles)	7.9	10.0	5.9	2.7
Landslide potential crossed (miles)	14.6	8.4	7.9	0.3
Karst area crossed (miles)	7.8	8.3	2.9	3.4

a/ Assuming 125-foot-wide construction right-of-way.
b/ City or town limits as shown in ESRI data.
c/ NWI and NHD data used in order to provide a common comparison between the two routes since field surveys were not conducted along the alternative.



Mountain Valley Pipeline Project



Figure 13a-5
SR635-ANST and AEP-ANST
Variations

October 2016
(Revised February 2017)

Legend

- Milepost
- October 2016 Proposed Route
- AEP - Appalachian Trail Route Variation
- State Route 635 - Appalachian Trail Route Variation
- Appalachian National Scenic Trail
- Peters Mountain Wilderness
- National Forest System Lands



Data Sources: ESRI Streaming Data, 2014, United States Department of Agriculture, National Park Service, Virginia Department of Conservation and Recreation.



1:87,156 NAD 1983 UTM 17N



Columbia Gas of Virginia (CGV) Peters Mountain Variation

Columbia Gas of Virginia (CGV) maintains a 6-inch-diameter pipeline that crosses about 0.8 mile of the JNF across Peters Mountain to provide service to the Celanese Acetate LLC (Celanese) plant near Narrows, Virginia. CGV recently installed an additional 12-inch-diameter natural gas distribution pipeline adjacent to the existing 6-inch pipeline in this area. The CGV pipeline to the Celanese plant is about five miles southwest of where the October 2016 Proposed Route crosses Peters Mountain. Mountain Valley evaluated the CGV pipeline route as an alternative to cross the JNF and the ANST adjacent to an existing right-of-way.

The USFS and Celanese reached an agreement on an easement for a relocation of the ANST to the east of the CGV pipeline. Because of this relocation, following the CGV pipeline route for the Project would avoid crossing the ANST along the Peters Mountain ridge; however, the pipeline would still need to cross the ANST at another location. To avoid crossing the New River two times, from the area of the Celanese plant the pipeline would need to turn east, requiring a crossing of the ANST within the recently relocated segment of the trail east of the Celanese plant. A conceptual route for such a variation is shown on Figure 13a-6. Alternatively, Mountain Valley could move to the west of the Celanese plant, which would require a crossing of the New River, then cross the ANST within the JNF south of Bluff City, then crossing the New River a second time to return to the Proposed Route. Because neither version of the CGV Peters Mountain Variation would avoid a crossing of the ANST but would just move the crossing to another location within the JNF, Mountain Valley does not believe either of these options are favorable. However, a conceptual route has been identified east of the Celanese plant for comparison to the corresponding segment of October 2016 Proposed Route. In addition, the Proposed Route is approximately 9 miles shorter than the CGV Variation and will disturb approximately 136 less acres during construction (See Table 8).

The variation would pass through the Red Sulphur PSD Protection Watershed for about 6.3 miles versus about 1.2 miles for the proposed route. Within this watershed, the variation passes in close proximity to Rich Creek Spring and Coburn Spring, including crossing about 0.7 mile of the Source Water Protection Area for Coburn Spring and about 0.2 mile of the Red Sulphur PSD Zone of Critical Concern.

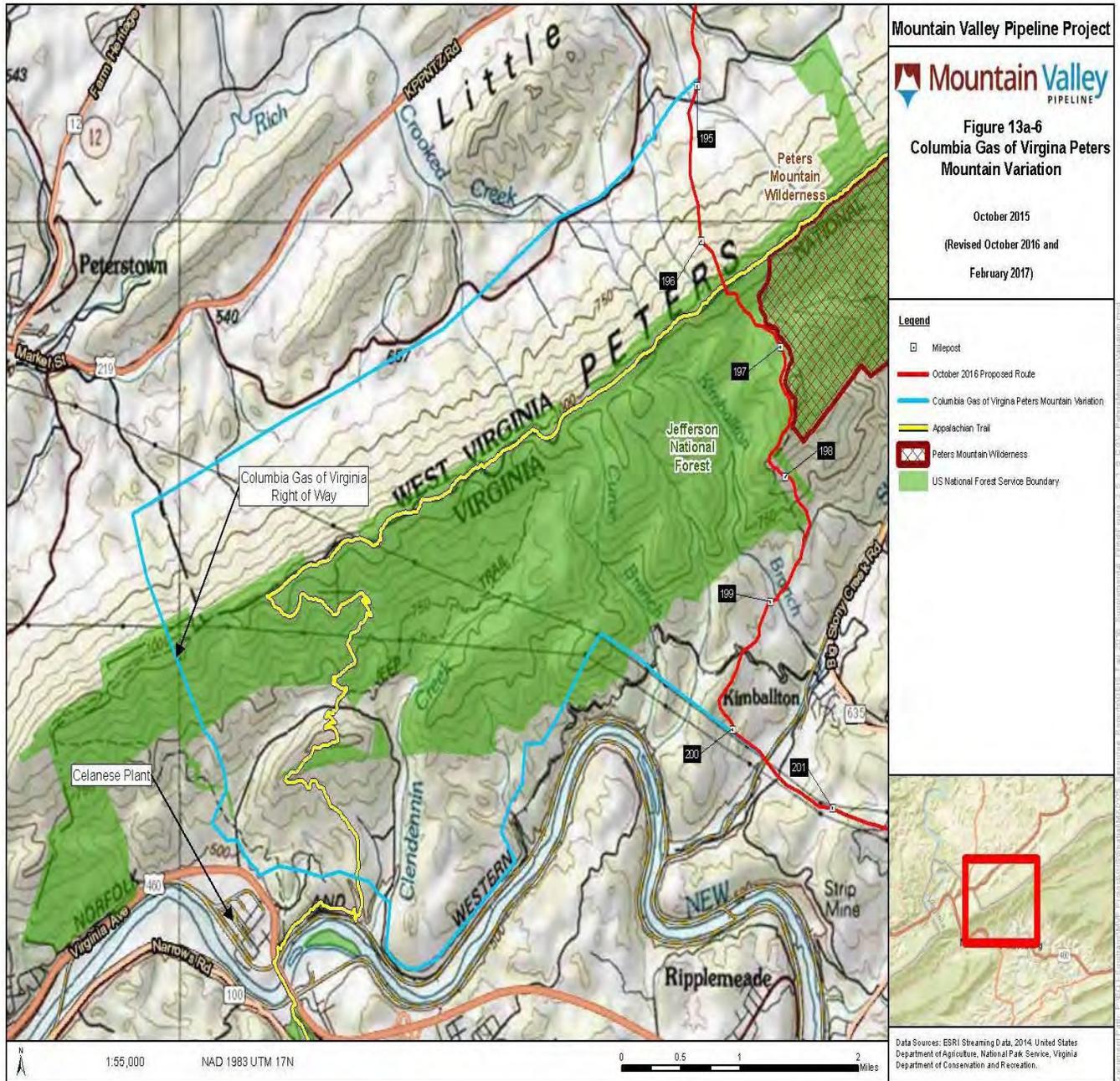
The variation would cross the ANST in a wooded area near the closed landfill northeast of the Celanese Plant. Mountain Valley has not conducted a ground-based engineering evaluation of the ANST crossing by the variation but assumes that a bored crossing of the ANST could be accomplished at this location, similar to the proposed crossing location. Assuming that ANST crossing could be completed by conventional bore and a visual buffer of undisturbed forest vegetation could be left on either side of the crossing, the visual impact on the ANST at the crossing location itself would be minimal. However, the CGV Peters Mountain Variation would move the pipeline crossing of Peters Mountain about 5 miles closer to the Angels Rest overlook on the ANST, moving the pipeline to within 2 miles of Angels Rest compared to 7 miles by the proposed route. While other disturbances and linear features are within this same viewshed, the pipeline would be a new and clearly visible linear feature in the forefront of the viewshed. The variation would result in a significantly greater length of pipeline right-of-way visible from Angels Rest, and from a significantly closer distance, than the proposed route and would have a significantly greater visual impact.

For the reasons described above, Mountain Valley believes that none of the options for the CGV Peters Mountain Variation would offer an environmental or constructible advantage over the October 2016 Proposed Route.

TABLE 8
(February 2017)

Comparison of the CGV Peters Mountain Variation and the Proposed Route

Feature	CGV Peters Mountain Variation	Proposed Route
General		
Total length (miles)	14.5	5.5
Length adjacent to existing right-of-way (miles)	1.6	0.0
Land disturbed within construction (acres) <u>a/</u>	219.4	83.1
Federal Lands and Federally Managed Areas		
National Forest System lands crossed (miles)	1.6	1.7
National Forest Wilderness crossed (miles)	0.0	0.0
Appalachian National Scenic Trail crossings (number)	1	1
National Forest – inventoried roadless areas crossed (feet)	0	120
National Forest – inventoried semi-primitive areas crossed (feet)	0	9,130
Human Environment		
Populated areas within 0.5 mile (number) <u>b/</u>	1	0
Landowner parcels crossed (number)	53	20
Residences within 50 feet of construction workspace (number)	2	3
Resources		
Forested land crossed (miles)	8.7	4.8
Forested land affected during construction (acres)	132.4	71.6
Forested land affected during operation (acres)	52.7	28.9
Interior forest crossed (acres)	24.2	104.6
Wetlands (NWI) crossed (feet) <u>c/</u>	103	0
Forested wetlands crossed (feet)	0	0
Perennial waterbody crossings (number) <u>c/</u>	1	1
Major (> 100 feet) waterbodies crossed	0	0
Shallow bedrock crossed (miles)	4.1	1.6
Steep slope (>20 percent) crossed (miles)	7.3	3.2
Side slope crossed (miles)	7.5	2.9
Landslide potential crossed (miles)	1.3	0.8
Karst area crossed (miles)	11.1	3.8
<u>a/</u> Assuming 125-foot-wide construction right-of-way. <u>b/</u> City or town limits as shown in ESRI data. <u>c/</u> NWI and NHD data used in order to provide a common comparison between the two routes since field surveys were not conducted along the alternative.		



Brush Mountain Alternatives

The USFS requested that Mountain Valley evaluate alternatives between about MPs 219.5 and 220.0 of the October 2016 Proposed Route to reduce the length of construction work space near Craig Creek and avoid crossing a tributary to Craig Creek. Mountain Valley evaluated two alternatives in this area, each following ridge lines to the west of the proposed route. The general location of the alternatives are shown on Figure 13a-7.

Brush Mountain Alternative 1

Brush Mountain Alternative 1 would begin at MP 219.7 where it would turn south and move the pipeline to another ridge about 0.1 mile to the west of the October 2016 Proposed Route. When reaching the top of Brush Mountain, the alternative would turn east and follow JNF Road 188/Brush Mountain Road for about 0.2 mile before rejoining the proposed route at MP 220.7. The alternative would be about 0.1 mile longer than the October 2016 Proposed Route, and both routes would cross primarily forested areas. About 0.2 mile of the proposed route would be adjacent to an existing pipeline right-of-way along the south side of Craig Creek Road, while about 0.2 mile of the alternative would be collocated with FS Road 188/Brush Mountain Road, temporarily disturbing regular recreational and USFS vehicle access in that location.

The alternative would move about 0.2 mile of the pipeline away from the immediate vicinity of Craig Creek and avoid crossing one tributary to Craig Creek that would be crossed by the October 2016 Proposed Route. The alternative would be slightly longer and result in more disturbance, including forest habitat, during construction and operation, than the corresponding segment of October 2016 Proposed Route. The alternative would parallel the same amount (0.2 mile) of existing road or right-of-way as the October 2016 Proposed Route. The alternative would move the pipeline approximately 600 feet further west from the western boundary of the Brush Mountain Wilderness.

Constructability of the Brush Mountain Alternative 1 is similar to the October 2016 Proposed Route with the exception that it involves both steep slope and side slope construction. The slope on this route reaches a grade of 43.64%, more than 12% greater than the steepest section of the Proposed Route. This alternative will require winch construction, which creates a safety risk that would not be present on the Proposed Route or the Brush Mountain Alternative 2 Route. Also, due to the steep terrain in this area, Mountain Valley's contractors would not be able to travel this area with vehicles. Finally, due to the winch construction, Mountain Valley would have to add additional temporary work space at the "winch area end" location creating approximately 0.57 acre of additional disturbance to a private landowner and the USFS. Brush Mountain Alternative 1 would also require extensive steep side-slope construction at the top of Brush Mountain. Side-slope construction creates both a safety concern for Mountain Valley workers and also, since it occurs at the top of the mountain, adds the potential for debris slides down towards Craig Creek.

Brush Mountain Alternative 2

Brush Mountain Alternative 2 would begin at MP 219.5 where it would turn south and move the pipeline to another ridge about 0.4 mile west of the October 2016 Proposed Route. When reaching the top of Brush Mountain, the alternative would turn east and follow FS Road 188/Brush Mountain Road for about 0.4 mile before rejoining the proposed route at MP 220.7. The alternative would be about 0.1 mile longer than the October 2016 Proposed Route, and both routes would cross primarily forested areas. None of the corresponding segment of October 2016 Proposed Route would be adjacent to existing right-of-way, while about 0.4 mile of the alternative would be collocated with JNF Road 188/Brush Mountain Road.

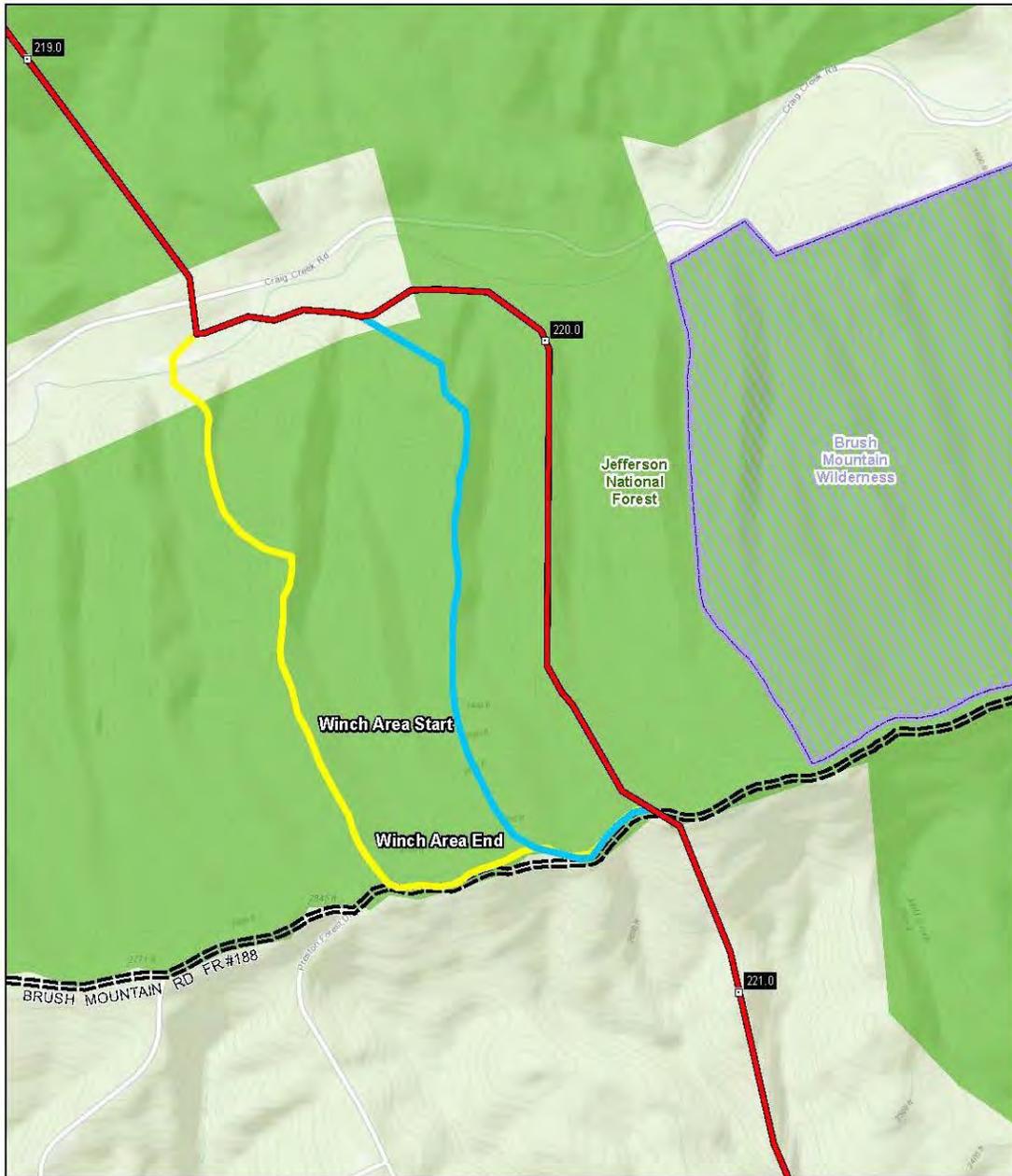
The alternative would move about 0.4 mile of the pipeline away from the immediate vicinity of Craig Creek and avoid crossing two tributaries to Craig Creek that would be crossed by the proposed route. The alternative would cross slightly more NFS lands and would be slightly longer and result in more disturbance, including forest habitat, during construction and operation, than the corresponding segment of October 2016 Proposed Route. The alternative would parallel more (0.4 mile) of existing road as the October 2016 Proposed Route; however, following this road would require closure during construction. The alternative would also move the pipeline within about 370 feet of a residence on Preston Forest Drive, while the corresponding segment of October 2016 Proposed Route would not be adjacent to any residences. The alternative would move the pipeline approximately 2,000 feet further west from the western boundary of the Brush Mountain Wilderness. Constructability of the Brush Mountain Alternative 2 is similar to the October 2016 Proposed Route.

The Brush Mountain Alternative 2 also requires steep slope and side-slope construction. Under this alternative the pipeline route would be on steep slopes for approximately 450 feet that reaches a grade of 32.94% grade. While this is very steep, it is not anticipated that winch construction would be necessary and that vehicles would be able to traverse the right-of-way. Brush Mountain Alternative 2 would also require extensive steep side-slope construction at the top of Brush Mountain. Side-slope construction creates both a safety concern for Mountain Valley workers and also, since it occurs at the top of the mountain, adds the potential for debris slides down towards Craig Creek.

Mountain Valley believes that neither Brush Mountain alternative would provide a significant environmental or constructible advantage over the Proposed Route.

Table 9
(February 2017)
Brush Mountain Alternatives and the Proposed Route

Feature	Proposed Route	Brush Mountain Alternative 1	Brush Mountain Alternative 2
General			
Total length (miles)	1.0	1.1	1.3
Length adjacent to existing right-of-way (miles)	0.2	0.2	0.4
Land disturbed within construction ROW (acres)	15.5	16.4	20.5
Land Use			
Residences within 0.5 mile (number)	10	13	26
NRHP-designated or eligible historic districts crossed (miles)	0	0	0
National Forest System lands crossed (miles)	1.0	1.0	1.3
National Forest Wilderness Area crossed (miles)	0	0	0
Distance to Brush Mountain Wilderness at closest point (feet)	1,030	1,670	3,040
Length adjacent to Brush Mountain Wilderness (miles)	0.7	0.7	0.7
Residences within 50 feet of construction workspace (number)	0	0	0
Landowner parcels crossed (number)	2	2	2
Resources			
Forested land crossed (miles)	1.0	1.1	1.1
Forested land affected during construction (acres)	15.2	16.4	17.4
Forested land affected during operation (acres)	6.1	6.5	6.9
Interior forest crossed (acres)	1.0	0.9	1.3
Forested wetlands crossed (feet)	0	0	0
Wetlands (NWI) crossed (feet)	0	0	0
Perennial waterbody crossings (number)	1	1	1
All streams crossed (number)	3	2	2
Shallow bedrock crossed (miles)	1.0	1.1	1.2
Steep slope (> 20 percent) crossed (miles)	0.7	0.7	0.8
Side slope crossed (miles)	0.6	0.7	1.0
Landslide potential crossed (miles)	0.3	0.5	0.6
Karst area crossed (miles)	0	0	0



<p>Mountain Valley Pipeline Project</p>		<p>NAD 1983 UTM 17N</p>	<p>1:12,000</p>	
<p>Mountain Valley PIPELINE</p> <p>Figure 13a-7 Brush Mountain Alternatives</p> <p>February 2017</p>		<p>Legend</p> <ul style="list-style-type: none"> Milepost October 2016 Proposed Route Revised December 2016 Brush Mountain Alternative 1 Brush Mountain Alternative 2 U.S Forest Service Road Brush Mountain Wilderness U.S. Forest Service (National Forest) Lands 		
<p><small>Data Sources: ESRI Streaming Data, 2014, Vertyx 2014, Virginia Department of Recreation and Conservation, 2015, Protected Areas Database, 2015.</small></p>				

Alternative Modes of Transporting Natural Gas

In addition to alternative pipeline routes, Mountain Valley evaluated alternative modes of transporting natural gas to meet the Project objectives. As required by FERC, Mountain Valley evaluated alternative pipeline systems, including existing pipelines and other proposed pipelines that could potentially meet the Project objectives. Potential existing alternative pipeline systems evaluated include the Texas Eastern, Columbia, East Tennessee, and Transco pipelines, and potential proposed alternative pipelines evaluated include the Atlantic Coast and the WB XPress pipelines. None of the potential system alternatives could meet the project objectives without construction of significant new pipeline facilities and/or compressor stations, resulting in similar environmental impacts as the proposed Project, and are therefore not considered reasonable alternatives.

13b. Why were these alternatives not selected

The reasons that each alternative was not selected is described in section 13a above. As described for each alternative in section 13a, considering all the environmental and constructability factors compared, none of the alternatives was found to significantly reduce environmental impacts over the October 2016 Proposed Route and many posed significant constructability concerns.

15. Provide statement of need for project, including the economic feasibility and items such as: (a) cost of proposal (construction, operation, and maintenance); (b) estimated cost of next best alternative; and (c) expected public benefits.

The Project's purpose is to initially transport up to 2.0 MMDth/d of natural gas from the Marcellus and Utica regions to growing markets in the mid-Atlantic and southeastern U.S. The Project will provide timely, cost-effective access to the growing demand for natural gas for use by local distribution companies, industrial users, and power generation facilities in the Appalachian, mid-Atlantic and southeastern markets costing approximately \$6 billion.

Mountain Valley considered various alternatives and route variations to avoid and/or minimize crossing of federal lands. Pipeline construction costs are determined by the length, landscape and terrain. As such the costs of the alternatives considered will vary based on how these features compare with the proposed route.

In recent years the North American natural gas market has seen enormous growth in production and demand. The Energy Information Administration projects that U.S. total natural gas consumption will increase from 25.6 trillion cubic feet (TCF) in 2012 to 35.27 TCF in 2050, with a large portion of this increased demand occurring in the electric generation sector. A sizable portion of this growth in production is occurring in the Marcellus and Utica regions, with Marcellus production alone increasing from 2 billion cubic feet per day (Bcf/d) in 2010 to over 15 Bcf/d in July 2014. Likewise, the increased demand for natural gas is expected to be especially high in the southeastern U.S., as new environmental regulations result in coal-fired generation plants being converted or replaced by natural-gas-fired generation plants. The infrastructure design of the Mountain Valley Project is expected to benefit these regions by connecting the production supply to the market demand. In doing so, Mountain Valley will bring clean-burning, domestic-produced natural gas supplies from the Marcellus and Utica shale

regions and connect it to the demand markets to increase from the prolific Marcellus and Utica shale plays in order to support the growing demand for clean-burning natural gas, provide increased supply diversity, and improve supply reliability to these growing markets. Mountain Valley may also allow for additional uses of natural gas in south central West Virginia and southwest Virginia to develop by providing an open-access pipeline that will allow interconnects and subsequent economic development associated with having access to affordable gas supplies, as these areas currently have limited interstate pipeline capacity.

16. Describe probable effects on the population in the area, including the social and economic aspects, and the rural lifestyles.

Lands managed as part of the JNF are located in more than 20 counties in three states: Virginia, West Virginia, and Kentucky. The USFS estimated that management activities on the JNF supported more than 3,400 jobs and \$86 million in labor income in the counties and cities that contain Forest acreage, about 1 percent of total employment and labor income in the affected area. The Project would impact a small portion of the JNF. Though minor impacts during construction are anticipated, no impacts to social uses or economic aspects are expected after construction is complete and the pipeline is in operation.

The Weston and Gauley Bridge Turnpike Trail extends from Burnsville Lake to Stonewall Jackson Lake. The population in the vicinity of the crossing is sparse, and no impacts will occur to the surface of USACE-owned lands. Therefore, impacts on population and rural lifestyle are not anticipated.

Mountain Valley conducted a detailed economic market analysis of the Project impacts in West Virginia and Virginia. These reports are included in Attachment J.

Describe likely environmental effects that the proposed project will have on: (a) air quality; (b) visual impact; (c) surface and ground water quality and quantity; (d) the control or structural change on any stream or other body of water; (e) existing noise levels; and (f) the surface of the land, including vegetation, permafrost, soil, and soil stability; and (g) historic or archaeological resources or properties.

A comprehensive review of the Project's potential environmental effects was completed and issued by the FERC in the Final Environmental Impact Statement (FEIS) in June of 2017.

(a) No compressor stations are proposed within the JNF or on USACE-owned lands, and air quality impacts will be temporary and limited to pipeline construction. Air quality impacts from pipeline construction will be minimal and temporary in nature.

The JNF is managed under the Forest Plan, which includes specific goals, objectives, and standards related to resources. The Forest Plan includes one standard specific to air quality (FW-11). Because the federal and state air quality standards will be met, the Project will comply with this standard. In addition, no permanent air emitting sources will be located on the JNF. Air emitting sources, such as construction equipment, will be located on-site only temporarily.

(b) Visual impacts associated with the Project crossing of the JNF would include temporary construction activities such as vegetation clearing; color contrast of soil in the cleared right-of-way (ROW) or other ancillary structures such as roads; and the presence of vehicles and workers. Long-term impacts, which would exist for the life of the Project, would result from the existence of a cleared ROW and associated maintained access roads as well as pipeline marking. Short-term impacts, which would occur at regular intervals during the life of the Project, would include maintenance activities and the presence of workers and maintenance vehicles.

However, Mountain Valley prepared a Visual Impact Assessment (VIA) for the JNF, which analyzed visual impacts to 14 key observation points (KOPs) from the ANST and other locations within the JNF that Mountain Valley selected in consultation with the USFS. The VIA identifies the potential visual impacts at these 14 KOPs and compares them to the scenic integrity objectives (SIOs) for the various management prescription areas within the JNF that will be crossed by the pipeline. Determining consistency with SIOs involves the comparison of existing landscape integrity with integrity that would occur after construction of the pipeline. Impacts to landscape scenery were determined by measuring the extent of effects of the pipeline route on the scenic landscape through USFS scenic attractiveness ratings and scenic quality. The results of the VIA indicate that construction and operation of the Project will have mostly low or no significant visual impacts to the ANST, including from managed vistas, and will comply with existing SIOs. Please see the Jefferson National Forest VIA for further discussion of visual impacts.

For the Weston and Gauley Bridge Turnpike Trail, visual impacts will include vegetation clearing outside the limits of the USACE-owned tracts and pipeline marking. The pipeline route approaches the Trail from the north, parallels the northern side of the Trail for approximately 0.15 mile, then turns 90 degrees and crosses the Trail to the southern side and continues south away from the Trail. The edge of the pipeline ROW is approximately 50 feet from the edge of the Trail where the two run parallel.

Mountain Valley also prepared a VIA for the Weston and Gauley Bridge Turnpike Trail, which concludes that, overall, views are relatively short due to the length of the right-of-way paralleling the Weston and Gauley Bridge Turnpike Trail, which would result in the Project only being visible for as long as it takes to walk 0.15 mile. Most visual impacts were determined to occur during construction, and the landscape will largely appear undisturbed following restoration. See the Weston and Gauley Bridge Turnpike Trail VIA for further discussion of visual impacts.

(c) and (d) Construction methods, impacts, and measures to avoid or minimize impacts on waterbodies crossed within JNF will include following time-of-year restrictions and utilizing the conventional bore method for installing the pipeline under the streams. There will be no waterbodies affected by construction at the Weston and Gauley Bridge Turnpike Trail crossing. Several waterbodies will be crossed within the JNF; a discussion of typical waterbody crossing techniques is provided in the Plan of Development. For the route within the JNF, wetlands were delineated according to the USACE publications including the USACE Wetland Delineation Manual (1987) and the Eastern Mountains and Piedmont Regional Supplement. On behalf of Mountain Valley, Geosyntec Consultants, Inc. prepared a Hydrologic Analysis of Sedimentation² in

² USFWS, the U.S. Forest Service, and the Bureau of Land Management, as well as each agencies' chosen peer reviewers, evaluated the Hydrologic Analysis of Sedimentation report and methodology and provided comments. The final Hydrologic Analysis of Sedimentation report was revised to address those comments.

response to the Fourth Circuit’s first remand,³ that estimated potential delivered sediment loads to 14 streams that (1) exhibit suitable habitat for at least one threatened, endangered, or sensitive aquatic species and (2) include Project ROW within their corresponding watersheds. The evaluation used the Revised Universal Soil Loss Equation (RUSLE) (Renard et al. 1997) at a watershed scale together with RUSLE Version 2 (RUSLE2) (Renard et al. 2011) at a site-specific scale. As described in detail in the Hydrologic Analysis of Sedimentation report, a revised version of which will be provided to the USFS, the RUSLE approach accounts for seasonal rainfall, topography, construction sequencing, climate, soils, vegetation, and management practices. The standard erosion and sediment control BMPs approved by the DEQ and DEP were also incorporated into the model with actual clearing and grading activity schedules and subsequent proposed construction tasks. After reviewing EPA Storet and other publicly available data, none of the streams have been classified as impaired (Category 4 or 5) or assessed for water quality in 303(d) assessments. In 2002, according to EPA Storet, these streams were assessed for Aquatic Life Support (Fish, Shellfish, wildlife Protection and Propagation, Fish Consumption (Aquatic Life Harvesting)). The streams were assessed as Good in both categories. Tier 1 and Tier 2 information was unavailable, but Mountain Valley was able to determine from available DEQ data that no Tier 3 designated streams are crossed by the Project within NFS lands. No control or structural stream changes are anticipated.

(e) Noise impacts on the JNF and USACE-managed lands will be temporary and limited to Project construction and the conventional bore.

The pipeline will cross the ANST within the JNF, where the pipeline crosses over Peters Mountain, and the Weston and Gauley Bridge Turnpike Trail via bore. Noise from pipeline construction activities would be audible to hikers along the trail; however, this impact would occur only during the boring activity. There are no noise impacts anticipated to users of the ANST or the Weston and Gauley Bridge Turnpike Trail during operation of the pipeline.

(f) There are approximately 15 Natural Resources Conservation Service (NRCS) soil types described within the Mountain Valley Route on USFS-managed lands. These 15 soil types soils are similar in texture (sandy loams) and drainage (all well drained), with the bedrock either outcrop (at or above the surface) or relatively shallow. Some of the soil is susceptible to water erosion but none to wind erosion and much of it has good revegetation potential. Slopes in the JNF are steep and range from 11 to 70 percent. A table that indicates the soil limitations in acres within the JNF is included as Table 2 for each proposed land use.

Representatives of the USFS have indicated that much of this area was mapped only by aerial photography and that, because of slope, the NRCS soil mapping in this type of terrain was not well documented by “on the ground” soil evaluators. This is mainly because these areas do not tend to be good farmland where soil type is more important. Mountain Valley presented a plan to the USFS to ground-truth the NRCS soil and geologic mapping of the portion of the Project that will cross USFS land.

³ Sierra Club, Inc. v. United States Forest Services, 897 F.3d 582 (2018).

Soil pits were excavated, and soil profiles were described at a total of 13 locations from November 3 through November 6, 2015. The soil pits were excavated to vertical depths ranging from 14 inches to 40 inches from the soil surface depending on site conditions (e.g., bedrock). The soil profiles were described at each location based on USDA soil classification terminology (National Soil Information System) using the reference *Field Book for Describing and Sampling Soils, Version 3.0*. The results of this effort can be found in the Jefferson National Forest Soil Survey Report submitted in April 2016.

Permafrost, (soil, rock, or sediment that is frozen for more than two consecutive years) is not present in the area of the Project.

TABLE 2
(Revised February 2017)

Soil Limitations by Facility along the Mountain Valley Project in the JNF (in Acres)

Facility	Water Erosion Potential <u>a/</u>		Wind Erosion Potential <u>b/</u>		Prime Farmland <u>c/</u>		Hydric Soils <u>d/</u>		Compaction Potential <u>e/</u>		Stony/Rocky Soils <u>f/</u>		Revegetation Potential <u>g/</u>		Poor Drainage Potential <u>h/</u>	
	Perm	Temp	Perm	Temp	Perm	Temp	Perm	Temp	Perm	Temp	Perm	Temp	Perm	Temp	Perm	Temp
Pipeline Right-of-Way	--	48.9	--	0	--	1.9	--	0	--	0	--	0	--	0.7	--	0
Temporary and Permanent Access Roads	18.1	27.5	0	0	0.5	0.9	0	0	0	0	8.2	11.7	0	0	0	0
Additional Temporary Workspace	0	0.8	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0
Subtotal	18.1	77.2	0	0	0.5	2.8	0	0	0	0	8.2	11.8	0	0.7	0	0
Project Total	95.3		0		3.3		0		0		20.0		0.7		0	

Source: USDA, 2016

Note: Totals may not sum correctly due to rounding.

a/ Areas identified as highly water erodible soils are ranked as "very severe" or "severe" by SSURGO erosion hazard (Off-Road, Off-Trail) criteria.

b/ Areas identified as highly wind erodible soils have a wind erodibility index of 1 or 2 as determined by SSURGO.

c/ Areas identified as prime farmland are identified as lands that meet the "all prime farmland" or "farmland of statewide and local importance" criteria as determined by NRCS, SSURGO.

d/ Areas identified to have a hydric rating include the "all" and "partial" criteria as determined by SSURGO.

e/ Areas identified to have a severe compaction potential are limited to silt loam or finer based on particle size and ranked "somewhat poor," "poor," and "very poor" drainage as determined by SSURGO.

f/ Areas identified to have stony/rocky soils are soils that as determined by SSURGO include stone, rocky, or cobbles in the soil name (does not include rock outcrops).

g/ Areas identified to have poor revegetation potential are lands that have a Capability Class 3 or greater, a low available water capacity and slopes greater than 8 percent as determined by SSURGO.

h/ Areas identified to have poor drainage potential are ranked as "poor" or "very poor" as determined by SSURGO.

Soil stability on the JNF. Mountain Valley has performed a preliminary inventory of potential areas of soil stability concern along the pipeline alignment including within the JNF. This evaluation was completed through review of available historic aerial photographs, soils, and topographic data to identify indications of potential landslide hazards. Mountain Valley also has completed field observations of the steep hill slope sites where there were potential stability issues at all sites where property access had been granted, including three sites within the JNF identified by JNF personnel. Slopes in the JNF are steep and range from 11 to 70 percent. The field observations for these sites included slope characteristics, locations of scarps, geotropically affected trees, drainage features, gullying, and GPS mapping of observed slope slides, slumps, and rockfall. These investigations were conducted by a geotechnical engineer with experience in landslide evaluation. Mountain Valley's Landslide Mitigation Plan and Site-Specific Design of Stabilizations Measures in Selected High-Hazard Portions of the Proposed Route in the JNF address impacts to the pipeline from these field observations and outlines the special procedures and best management practices that will be implemented during the pipeline installation and post-construction periods to mitigate landslide occurrence. It also evaluates post-construction conditions and recommends long-term methods to protect the pipeline from landslides.

Vegetation on the JNF. Based on geospatial data provided by the USFS, the Project crosses several Major Forest Community Types, including Mixed Mesophytic Forest, Conifer-Northern Hardwood Forest, Dry-Mesic Oak Forest, Dry and Dry-Mesic Oak-Pine Forest, Dry and Xeric Oak Forest, Woodland, and Savanna, and Xeric Pine and Pine-Oak Forest and Woodland. Common dominant canopy species observed within the Major Forest Community Types during field surveys included white pine, chestnut oak, black oak, scarlet oak, red oak, white oak, tulip poplar, mockernut hickory, and pignut hickory. Based on available geospatial information provided by JNF, impacts to existing old-growth forest communities associated with disturbance (management prescription 6C) during construction of the Project are approximately 7.4 acres. In upland areas, trees or deep-rooted shrubs will be removed from the construction right-of-way and will not be permitted to grow within the 50-foot-wide permanent right-of-way. The USFS has requested that consideration be given to providing shrub vegetation on the outer edges of the permanently maintained pipeline right-of-way to reduce the sharp edge effect of the maintained pipeline right-of-way and provide as much escape cover as possible for species like small mammals, reptiles, and amphibians needing to cross the maintained right-of-way. This effect will result naturally on one side of the right-of-way because shrub-like vegetation will be permitted to grow between the maintained permanent right-of-way and the naturally regenerating temporary workspaces used along the edge of the construction right-of-way. Mountain Valley will utilize the seeding recommendations and methods requested by the USFS. The Plan of Development discusses seeding specifications within the JNF.

Weston and Gauley Turnpike Trail. The Weston and Gauley Turnpike Trail is underlain by the Gilpin-Upshur silt loam soil series. This soil series consists of well-drained silt loams on slopes from 15 to 25 percent and depths to bedrock of approximately 30 inches. The vegetation in this area is uniform hardwood stands of vegetation except for a few open pasture areas adjacent to the crossing location and a grassed existing ROW that crosses the trail, which is seeded in grass. The Trail was crossed by conventional bore; therefore, the Project's crossing did not have any impacts on the surface of the land.

(g) Mountain Valley completed Phase I identification surveys for the entire Project as currently planned. For the Weston and Gauley Bridge Turnpike, the results of the survey for both historic architecture and archaeological properties were documented in one survey report provided to the West Virginia Department of Arts, Culture and History (VDCH West Virginia's State Historic Preservation Office) in 2015. Listed in the National Register of Historic Properties (NRHP), the Weston and Gauley Bridge Turnpike (NR#98001430) is a historic turnpike, portions of which are in the vicinity of Burnsville and Walkersville, Braxton County, West Virginia. The Weston and Gauley Bridge Turnpike is an unpaved, 10-mile-long section of trail, approximately 60 feet in width, administered by the United States Army Corps of Engineers (USACE). Mountain Valley's architectural survey revealed that the condition of the turnpike remains in fundamentally the same condition as when it was NRHP listed and should maintain its listed status. Mountain Valley remapped the location of the turnpike and updated the boundary for the property as part of the survey. The Project traverses this location by boring beneath the ground surface, avoiding direct impacts on the turnpike. The VDCH concurred with this eligibility recommendation and boundary definition in a letter dated March 22, 2016. In a letter to the Huntington District of the USACE dated April 7, 2017, the VDCH stated that Mountain Valley will have no adverse effect to the turnpike because the construction around the site will be temporary. The VDCH further noted that once the pipe has been placed and tested, the excavated areas will be back filled and returned to pre-construction landscape patterns and features.

Per USACE request, a separate VIA was performed which assessed the potential visual impacts of the Project using the visual inventory and assessment methodology developed by the USACE to evaluate visual change in the landscape. Most visual impacts were determined to occur during construction, and the landscape will largely appear undisturbed following restoration. See the Weston and Gauley Bridge Turnpike Trail VIA for further discussion of visual impacts.

One archaeological site in proximity to the Weston and Gauley Bridge Turnpike was located during the survey and the state concurred with the recommendation that Site 46B 10 was not eligible for the NRHP in the March 22, 2016, letter.

For the portion of the Project crossing the JNF, Mountain Valley completed Phase I identification archaeological surveys in 2016 and documented the results in three reports submitted to the JNF and to the Virginia Department of Historic Resources (VDHR Virginia State Historic Preservation Office). Nine sites were identified during the Phase I survey and Phase II investigations were conducted in 2017. Five of the nine sites were recommended not eligible for the NRHP, three were recommended potentially eligible but were avoided by the Project, and one (44 S0241) was recommended eligible and would be impacted by the Project. The VDHR concurred with these recommendations in a letter dated October 24, 2017. Because Site 44 S0241 was eligible and could not be avoided, a treatment plan for data recovery/mitigation excavations was prepared and submitted to the VDHR on August 25, 2017, and accepted by the VDHR in the October 24, 2017, letter.

Mountain Valley did not conduct JNF-specific historic architecture surveys. However, between the historic architecture survey conducted for the Mountain Valley's indirect effects area of potential effect (APE) in Giles and Montgomery Counties, and the observations made during the archaeological survey within the direct effects APE (aboveground resources observed within the direct effects APE were reported to the JNF and VDHR), the USFS concluded that the historic architecture coverage by the two survey efforts was sufficient and that no significant historic standing structures in the JNF would be adversely affected by Mountain Valley.

For the NRHP-eligible Appalachian Trail Historic District that encompasses the ANST, Mountain Valley provided additional impact/effects assessments in consultation with, and at the request of, the USFS including a Visual Impact Assessment (VIA) for the ANST. To avoid direct impacts on the ANST, Mountain Valley will install the pipeline by boring beneath the ANST and allowing a buffer area to each side of the footpath. Direct impacts on the ANST were determined to be temporary in nature.

The VIA, prepared in consultation with the USFS for FERC's Final EIS, identified areas of vegetation removal that may alter vistas that contribute to the historic district's significance, thereby affecting the integrity of the historic property's feeling and setting. In the VIA, Mountain Valley identified short-term, long-term, and permanent impacts on vegetation cover types resulting from construction of the Project – these impacts could indirectly impact the setting associated with the ANST. The analysis in the VIA was conducted to ensure compliance with Scenic Integrity Objectives (SIOs) on the JNF (including Mountain Valley's crossing of the ANST Historic District). Pursuant to Stipulations III.B.3 and III.B.4 of the executed Programmatic Agreement, consultation regarding the determination of effects for the Project for the ANST Historic District is ongoing. Mountain Valley's efforts (to date) and timeline and process for future efforts to coordinate with the relevant consulting and interested parties to identify minimization measures appropriate to address the Project's potential adverse effects to the ANST Historic District are detailed in the ANST Historic District's Treatment Plan submitted to interested parties and finalized in spring 2021. The Treatment Plan specifies that mitigation measures, should they be required after minimization measures are implemented, will be developed through the consultation process.

17. Describe the probable effects that the proposed project will have on (a) populations of fish, plant life, wildlife, and marine life, including threatened and endangered species; and (b) marine mammals, including hunting, capturing, collecting, or killing these animals.

The USFS coordinates with the USFWS to avoid negative effects and to assist with recovery of federally listed species found within the JNF. The JNF contains, or may influence, suitable habitat with the potential to support both federally listed and non-listed species including mussels, fish, mammals, amphibians, spiders, insects, isopods, crayfish, and plants. Mountain Valley continues to coordinate with the USFWS and the USFS regarding the potential for presence of federally listed species and forest sensitive species within the Project area.

The current range of four federally listed bats (Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), gray bat (*Myotis grisescens*), and Virginia big-eared bat (*Corynorhinus townsendii virginianus*)) overlaps with the JNF. Mist net surveys for federally listed bats began in May 2015 and concluded in August 2015. Additional mist net surveys were conducted in May 2016. No federally listed bats were captured within the JNF during these surveys. Searches for suitable bat hibernacula (portals, caves and mines) on the JNF land were conducted concurrent with mist net surveys. No suitable winter habitat was identified during these searches. Effects to these species on JNF lands are expected to be minor. Small amounts of suitable summer habitat for Indiana and northern long-eared bats may be removed due to construction of the Project; however, an abundance of suitable habitat occurs outside of the Project area. In addition, even if any bats migrate across the site when traveling to and from their summer habitat each year, adverse effects would be expected. Gray and Virginia big-eared bats reside in caves year-round. No potentially suitable roosting features for these two species were identified on JNF lands. Gray bats and Virginia big-eared bats are not expected to forage in the vicinity of the Project on JNF lands.

The Roanoke logperch (*Percina rex*), candy darter (*Etheostoma osburni*), and James spiny mussel (*Parvaspina collina*) are three listed aquatic species that may occur downstream of the Project area, though not within the action area on the JNF. The Project crosses a portion of Craig Creek within the JNF, and mussel surveys completed at the Project crossings in 2015 and 2019 covering 1.5 kilometers and 1.274 kilometers, respectively, and were negative for any mussel species, including James spiny mussel. This is consistent with the best available science, which shows the nearest occurrence of the species is roughly 30 miles downstream of the Project area and crossing location. Due to this and implementation of the defined Project conservation measures during construction, downstream populations of James spiny mussel in Craig Creek are not likely to be affected. No known suitable habitat or occurrences of Roanoke logperch and candy on JNF lands. Project-related activities on JNF lands are not expected to affect either species.

Four eastern small-footed bats (*Myotis leibii*) (three adult males and one pregnant female) were captured during mist net surveys in the JNF (Pocahontas Road) in Giles County, Virginia. All individuals were healthy and released at their capture sites. No potentially suitable roosting habitat for this species was observed within the Project area. The Project may remove small amounts of potentially suitable foraging habitat; however, this species forages widely in all forested and open habitat types.

A single population (approximately 10,000 individuals) of rock skullcap (*Scutellaria saxatilis*) (a USFS sensitive species) was identified during plant surveys on JNF along the proposed route. The population spans approximately 1.45 hectares (3.58 ac); however, only an approximate 0.78 hectare (1.94 ac) is within the proposed construction ROW. While Mountain Valley has shifted the route and necked the

construction right-of-way down to 75 feet, there will be some loss of rock skullcap in this area. To further minimize and mitigate impacts to the population identified within the proposed limits of disturbance (LOD), seeds were collected from existing rock skullcap plants prior to construction and were planted in locations determined through consultation with USFS. Translocation of living plants was also conducted.

Recent Allegheny woodrat (*Neotoma magister*) activity (midden and latrine) within a boulder field was documented 1,600 feet west of the proposed Project's construction right-of-way. Mountain Valley does not anticipate having an adverse effect on the Allegheny woodrat.

The Western and Gauley Bridge Turnpike Trail is an active trail, and no habitat for sensitive species is contained within its limits. Moreover, the Weston and Gauley Bridge Turnpike Trail was crossed by conventional bore and impacts to species will be minimal and temporary and related only to construction noise. Mountain Valley will, if necessary, submit any required biological information to supplement sensitive forest species.

(b) No marine mammals are anticipated to be impacted by this Project.

Attachment B

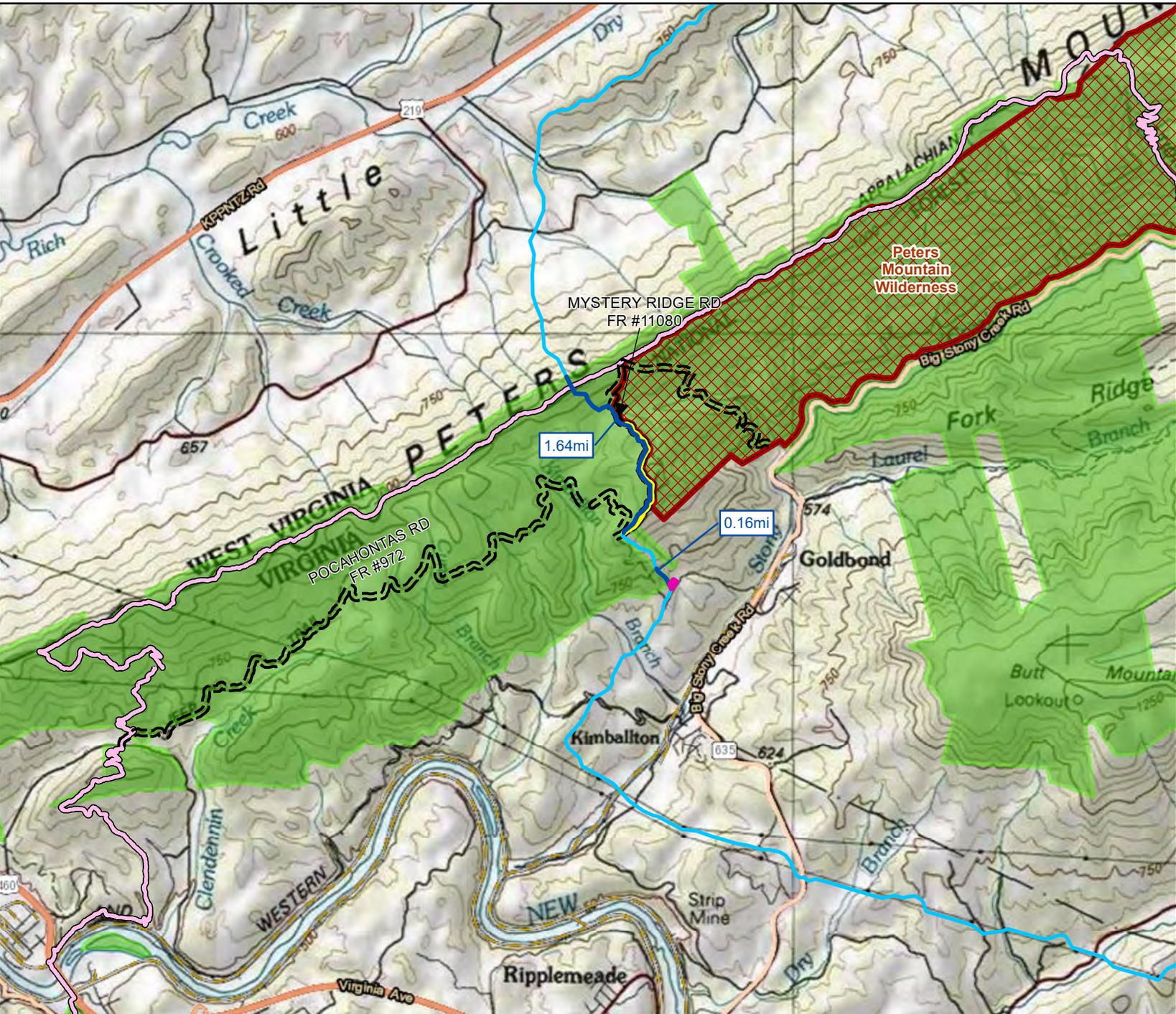


Figure 1
Proposed Route
Jefferson National Forest
Crossing 1

April 2020

Legend

-  Access Road
-  Proposed Route Crossing USFS Land
-  Proposed Route
-  U.S Forest Service Road
-  Appalachian National Scenic Trail
-  Additional Temporary Workspace
-  Peters Mountain Wilderness
-  U.S. Forest Service (National Forest) Lands



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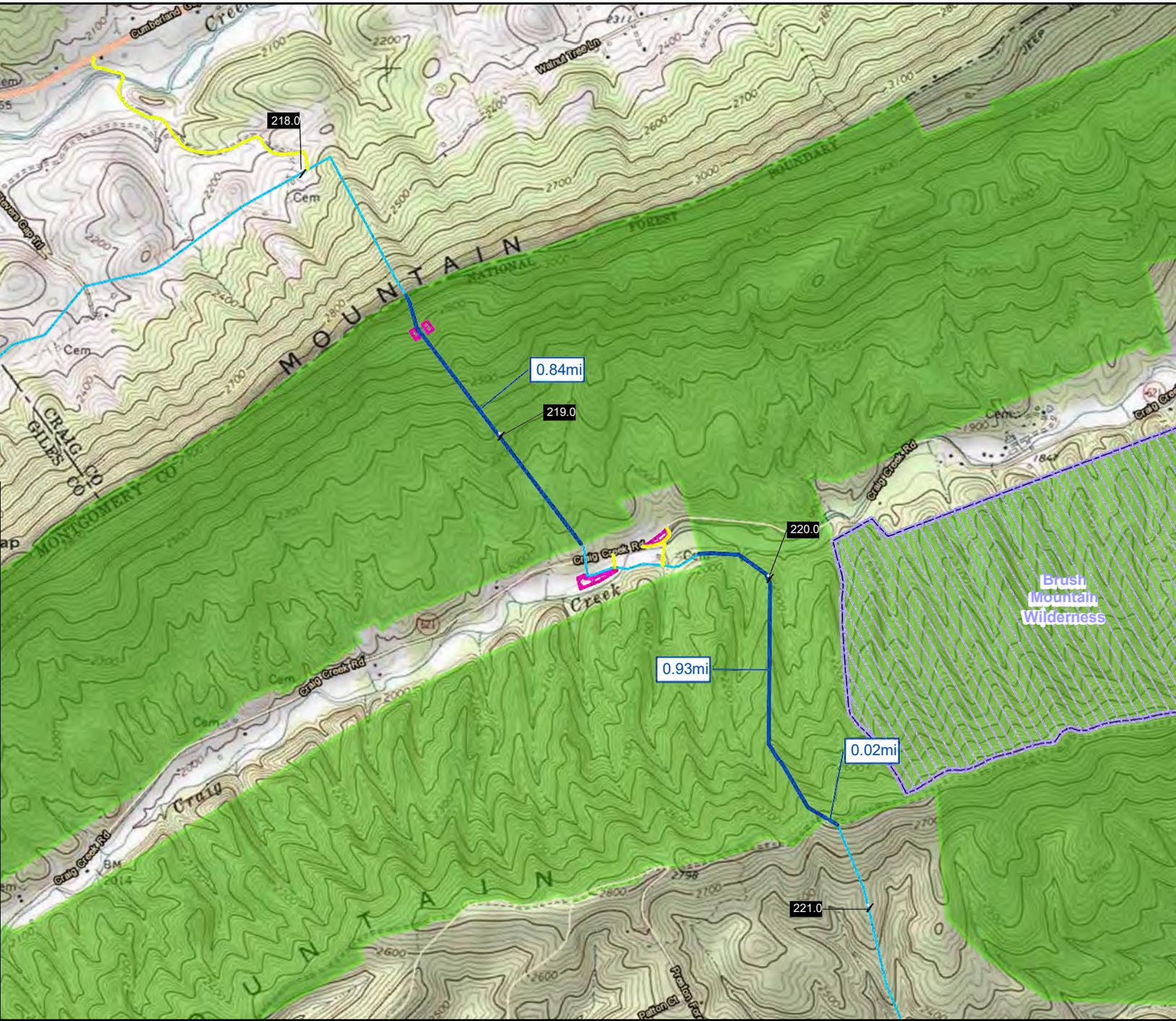


Figure 2
Proposed Route
Jefferson National Forest
Crossing 2

February 2017

Legend

- Milepost
- Access Road
- Proposed Route Crossing USFS Land
- Proposed Route
- Additional Temporary Workspace
- Brush Mountain Wilderness
- U.S. Forest Service (National Forest) Lands



1:24,000

NAD 1983 UTM 17N

0 0.25 0.5 1 Miles

Data Sources: Appalachian Trail Conservancy, VA DCR, USDA, ESRI Streaming Data.

Document Path: P:\EOT-Equitrans\MVP-Project\GIS\Spatial\Map\XD07_SF_289_Submittal\0170216_SF_289_Updatea\BLM_Crossing_Updates\mg.mxd



Figure 3
Proposed Route
Weston and Gauley Bridge
Turnpike Trail
Crossing

February 2017

Legend

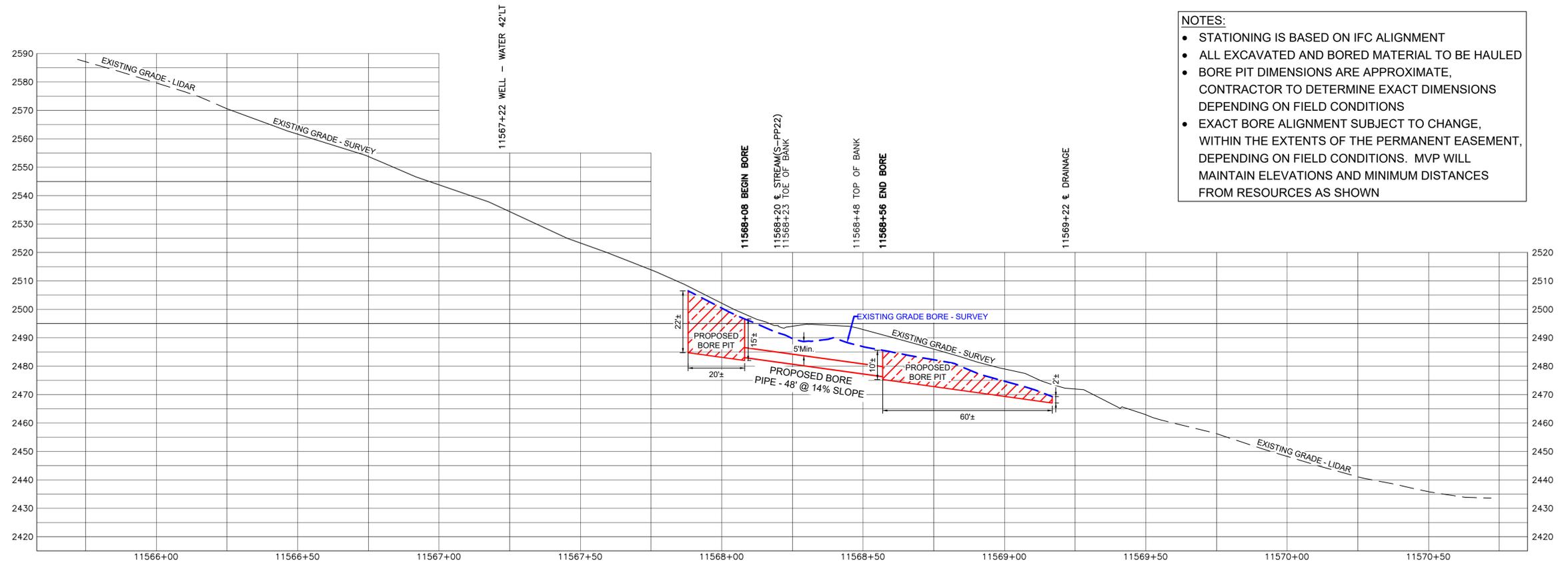
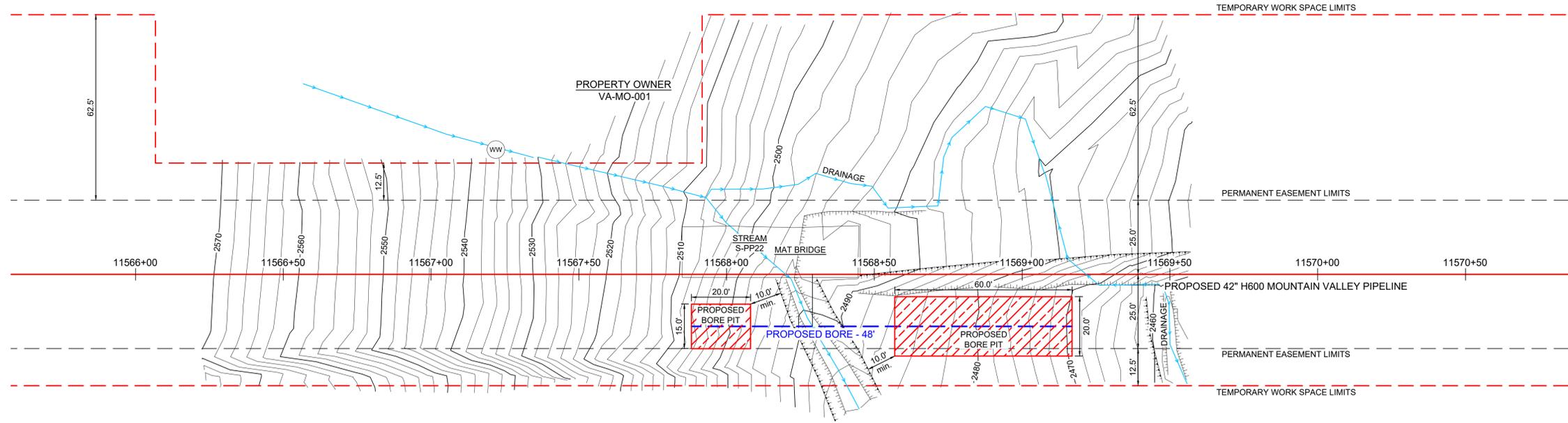
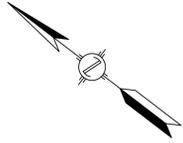
-  Proposed Route
-  Weston Gauley Turnpike Trail
-  Army Corps of Engineers Reservoir
-  Burnsville Lake Wildlife Management Area
-  Stonewall Jackson Lake Wildlife Management Area



Data Sources: Virginia Department of Conservation and Recreation, ESRI Streaming Data, West Virginia GIS Technical Center.



Attachment C



- NOTES:**
- STATIONING IS BASED ON IFC ALIGNMENT
 - ALL EXCAVATED AND BORED MATERIAL TO BE HAULED
 - BORE PIT DIMENSIONS ARE APPROXIMATE, CONTRACTOR TO DETERMINE EXACT DIMENSIONS DEPENDING ON FIELD CONDITIONS
 - EXACT BORE ALIGNMENT SUBJECT TO CHANGE, WITHIN THE EXTENTS OF THE PERMANENT EASEMENT, DEPENDING ON FIELD CONDITIONS. MVP WILL MAINTAIN ELEVATIONS AND MINIMUM DISTANCES FROM RESOURCES AS SHOWN

LEGEND

	PROPOSED H600 PIPELINE		MAILBOX
	PROPOSED PERMANENT EASEMENT		FIRE HYDRANT
	TEMPORARY WORK SPACE		GUY ANCHOR - POWER POLE
	ACCESS ROAD		LINE MARKER
	ROAD RIGHT-OF-WAY		SIGN
	PROPERTY LINE		CULVERT
	FENCE		PIPELINE
	TOP OF BANK		WATERMAIN
	TOE OF BANK		OVERHEAD POWER LINE
	STREAM		WETLAND BOUNDARY
	CULVERT		

PROJECTION: UTM ZONE 17
 HORIZONTAL DATUM: NAD 83 US SURVEY FEET
 VERTICAL DATUM: NAVD88

REFERENCE DRAWINGS

DRAWING NUMBER	TITLE
PA-MOVA-H600-01	ALIGNMENT SHEET

REVISIONS

REV	BY	DATE	DESCRIPTION
0	HEI	05/26/20	PRELIMINARY FOR REVIEW
1	HEI	06/24/20	ISSUED FOR REVIEW - ADDED BORE INFORMATION

HOLLAND ENGINEERING

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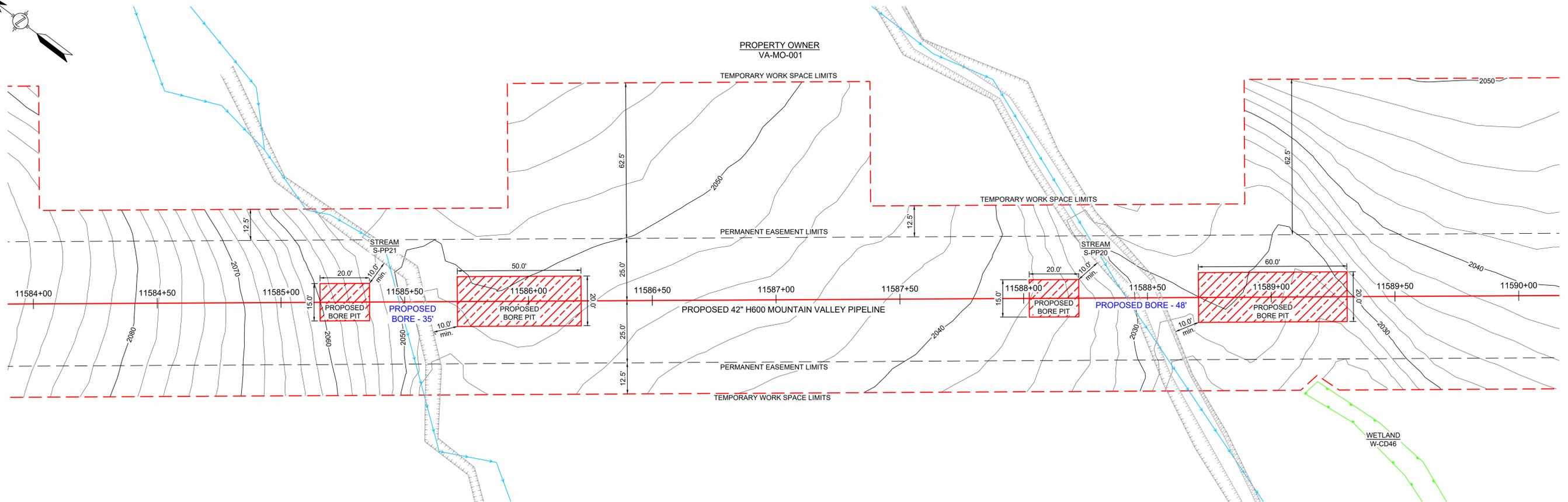
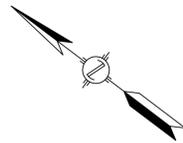
APPROVED FOR BIDDING		APPROVED FOR CONSTRUCTION	
REV.	DATE	REV.	DATE

VERT & HORZ. SCALE: 1" = 20'

DRAWN BY: HEI(DRF)	5/26/2020
DRAFTING CK:	
ENGINEERING CK:	
UIE JOB NO.:	
APE/PO NO.:	
HEI PROJECT NO.:	14-10-052
UIE FILE NO.:	
DRAWING NO.:	PP-H600-014
SHEET 1 OF 1	REV. 1
DATE OF PLOT:	6/24/2020 4:42 PM

Mountain Valley PIPELINE

PLAN & PROFILE
 STATION 11566+00 TO 11570+50
 MVP PIPELINE PROJECT
 PROPOSED H600 PIPELINE
 MONTGOMERY COUNTY, VIRGINIA



- NOTES:**
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11585+36 BEGIN BORE
 11585+48 ± STREAM(S-PP21)
 11585+71 END BORE
 11588+22 BEGIN BORE
 11588+41 ± STREAM(S-PP20)
 11588+70 END BORE



LEGEND

	PROPOSED H600 PIPELINE		MAILBOX
	PROPOSED PERMANENT EASEMENT		FIRE HYDRANT
	TEMPORARY WORK SPACE		GUY ANCHOR - POWER POLE
	ACCESS ROAD		LINE MARKER
	ROAD RIGHT-OF-WAY		SIGN
	PROPERTY LINE		CULVERT
	FENCE		PIPELINE
	TOP OF BANK		WATERMAIN
	TOE OF BANK		OVERHEAD POWER LINE
	STREAM		WETLAND BOUNDARY
	CULVERT		

PROJECTION: UTM ZONE 17
 HORIZONTAL DATUM: NAD 83 US SURVEY FEET
 VERTICAL DATUM: NAVD88

REFERENCE DRAWINGS

DRAWING NUMBER	TITLE
PA-MOVA-H600-01	ALIGNMENT SHEET

REVISIONS

REV	BY	DATE	DESCRIPTION
0	HEI	05/18/20	PRELIMINARY FOR REVIEW
1	HEI	06/09/20	ISSUED FOR REVIEW - ADDED BORE INFORMATION

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APPROVED FOR BIDDING

REV.	BY	DATE

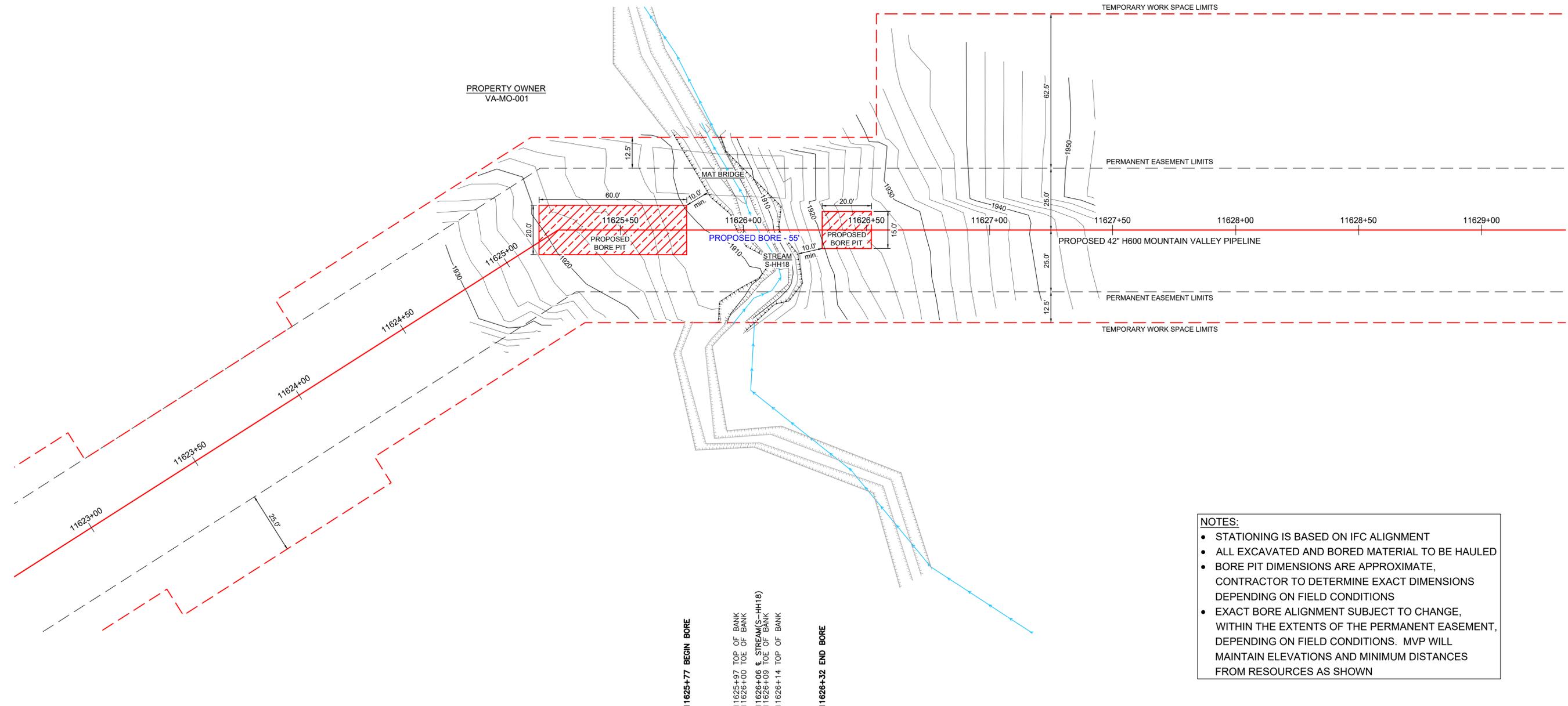
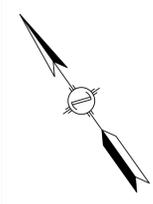
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REV.	BY	DATE

Mountain Valley PIPELINE

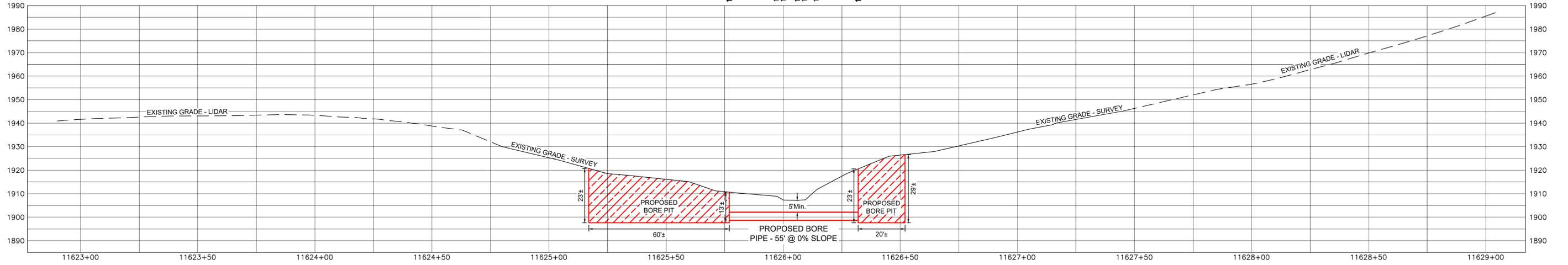
PLAN & PROFILE
STATION 11584+00 TO 11590+00
MVP PIPELINE PROJECT
PROPOSED H600 PIPELINE
MONTGOMERY COUNTY, VIRGINIA

VERT & HORZ. SCALE: 1" = 20'
 DRAWN BY: HEI(AJN) 5/18/2020
 DRAFTING CK: .
 ENGINEERING CK: .
 UEI JOB NO.:
 AFE/P.O. NO.:
 HEI PROJECT NO.: 14-10-052
 UEI FILE NO.:
 DRAWING NO.: **PP-H600-116**
 SHEET 1 OF 1 REV. 1
 DATE OF PLOT: 6/9/2020 5:23 PM



NOTES:

- STATIONING IS BASED ON IFC ALIGNMENT
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- EXACT BORE ALIGNMENT SUBJECT TO CHANGE, WITHIN THE EXTENTS OF THE PERMANENT EASEMENT, DEPENDING ON FIELD CONDITIONS. MVP WILL MAINTAIN ELEVATIONS AND MINIMUM DISTANCES FROM RESOURCES AS SHOWN



LEGEND

	PROPOSED H600 PIPELINE		MAILBOX
	PROPOSED PERMANENT EASEMENT		FIRE HYDRANT
	TEMPORARY WORK SPACE		GUY ANCHOR - POWER POLE
	ACCESS ROAD		LINE MARKER
	ROAD RIGHT-OF-WAY		SIGN
	PROPERTY LINE		CULVERT
	FENCE		PIPELINE
	TOP OF BANK		WATERMAIN
	TOE OF BANK		OVERHEAD POWER LINE
	STREAM		WETLAND BOUNDARY
	CULVERT		

PROJECTION: UTM ZONE 17
HORIZONTAL DATUM: NAD 83 US SURVEY FEET
VERTICAL DATUM: NAVD88

REFERENCE DRAWINGS

DRAWING NUMBER	TITLE
PA-MOVA-H600-02	ALIGNMENT SHEET

REVISIONS

REV.	BY	DATE	DESCRIPTION
0	HEI	05/26/20	PRELIMINARY FOR REVIEW
1	HEI	06/24/20	ISSUED FOR REVIEW - ADDED BORE INFORMATION

HOLLAND ENGINEERING

220 Hoover Boulevard, Suite 2
Holland, Michigan 49423-3766
T 616-392-5938 F 616-392-2116

26555 Evergreen Rd, Suite 430
Southfield, Michigan 48076
T 248-827-7322 F 248-827-7549

www.hollandengineering.com

APPROVED FOR BIDDING			APPROVED FOR CONSTRUCTION		
REV.	BY	DATE	REV.	BY	DATE

VERT & HORZ. SCALE: 1" = 20'

DRAWN BY: HEI(DRF) 5/26/2020

DRAFTING CK: .

ENGINEERING CK: .

UEI JOB NO.: .

AFE/PO NO.: .

HEI PROJECT NO.: 14-10-052

UEI FILE NO.: .

DRAWING NO.: PP-H600-023

SHEET 1 OF 1 REV. 1

DATE OF PLOT: 6/24/2020 4:57 PM

Mountain Valley PIPELINE

PLAN & PROFILE

STATION 11623+00 TO 11629+00

MVP PIPELINE PROJECT

PROPOSED H600 PIPELINE

MONTGOMERY COUNTY, VIRGINIA

Attachment D



DEPARTMENT OF THE ARMY
HUNTINGTON DISTRICT, CORPS OF ENGINEERS
502 EIGHTH STREET
HUNTINGTON, WEST VIRGINIA 25701-2070

REPLY TO
ATTENTION OF

March 12, 2018

Real Estate Division
Acquisition and Management Branch

SUBJECT: Burnsville Lake, West Virginia, Consent No. DACW69-3-18-1019

Mr. John Centofanti
Corporate Director, Environmental Affairs
Mountain Valley Pipeline
625 Liberty Avenue
Pittsburgh, PA 15222

Dear Mr. Centofanti:

Enclosed is a copy of the Department of the Army Consent No. DACW69-3-18-1019 for a 42" natural gas pipeline.

Please refer to Contract No. DACW69-3-18-1019 when referencing this consent. You may contact Anita Bradburn at (304) 399-5890 regarding this consent.

Sincerely,

A handwritten signature in blue ink, appearing to read "Kennon Clarkson", is positioned above the printed name.

Kennon Clarkson
Realty Specialist

Enclosure

**CONSENT TO EASEMENT STRUCTURE
BURNSVILLE LAKE
BRAXTON COUNTY
TRACT NO(S). 723E**

DACW69-3-18-1019

WHEREAS, the United States of America acquired a flowage easement from Dencil Pritt and Mabel Pritt, husband and wife, Reva Skinner and Hayward Skinner, her husband, Edith Whiteman and Sam Whiteman, her husband, Laura Prescott and Adrian Prescott, her husband, Icy Pritt, widow, Pauline McPherson and John McPherson, her husband, William Pritt and June Pritt, his wife, Norma Lee Luzader and William Luzader, her husband, Dennis Pritt, aka Denis Pritt, and Wanema Pritt, his wife, and Lloyd Pritt, single by virtue of a deed recorded in Braxton County, Deed Book 343, Page 631, over Tract No. 723E, hereinafter referred to as the premises, which conveyed to the United States the perpetual easement and right to flood said premises; and

WHEREAS, said easement grants to the United States the right of prior approval for any structure to be located within the easement area, and said area is under the administrative control of the Huntington District, Corps of Engineers; and

WHEREAS, Mountain Valley Pipeline, LLC, hereinafter referred to as the grantee, plans to install a natural gas pipeline forty-two (42) inches in diameter, hereinafter referred to as said structure, on the premises at the point shown in red on the plat marked Exhibit A attached hereto and made a part hereof; and

WHEREAS, the grantee has assured the District Engineer that the portions of said structure that cannot be located outside the reservoir will not be damaged by temporary flooding; and

WHEREAS, the grantee has acquired or is in the process of acquiring from the respective landowner(s) the appropriate interests in land for the location, construction, operation, maintenance, and removal of said structure at the location shown in red on said plat marked Exhibit A attached hereto and made part hereof; and

WHEREAS, the grantee shall comply with all applicable Federal laws and regulations and with all applicable laws, ordinances and regulations of the state, county, and municipality wherein the premises are located; and

WHEREAS, the United States has no objection to the placing of said structure on the premises subject to the conditions herein described:

NOW THEREFORE, THIS CONSENT WITNESSETH: The United States of America, acting by and through the designated representative of the District Engineer, U. S. Army Engineer District, Huntington, West Virginia, subject to the conditions stated below, hereby consents to the construction of said structure at the location shown on said Exhibit A situate in Braxton County, West Virginia designated as Burnsville Lake, Tract No. 723E.

PROVIDED HOWEVER, that this consent is issued subject to the following conditions:

1. The contour of the land will not be changed except as a result of the authorized construction. All excess material shall be removed from the premises.

2. The area disturbed during construction will be reclaimed to the satisfaction of the District Engineer or his authorized representative.

3. No change in operational procedures for flood control will be made due to the construction or maintenance of said structure.

4. The grantee shall not construct or place any additional structure, improvement or advertising sign on the premises or allow or permit such construction or placement without prior written approval of the District Engineer, except Pipeline Warning signs required by law.

5. All activities conducted on the premises shall comply with all applicable Federal, state, county and municipal laws, ordinances and regulations wherein the premises are located.

6. The granting of this consent does not in any way subordinate the United States prior easement rights.

7. The United States shall not be responsible for damages to the property or injuries to persons which may arise from or be incident to the exercise of the privileges herein granted, or for damages to the property of the grantee, or for damages to the property or injuries to the person of

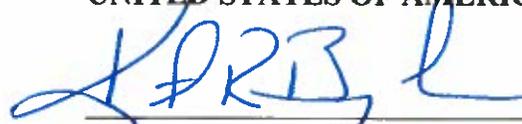
the grantee, or the persons of the grantee's officers, agents, servants, or employees or others who may be on said premises at their invitation or the invitation of any one of them arising from governmental activities on or in the vicinity of the said premises, and the grantee shall hold the United States harmless from any and all such claims.

8. The United States shall in no case be liable for any damage or injury to the structure herein authorized which may be caused by any action of the Government, under the rights obtained in its easements, either hidden or known, or that may result from future operations undertaken by the Government, and no claim or right to compensation shall accrue from such damage or injury.

9. It is understood that this Consent is effective only insofar as the property rights of the United States created by the flowage easement referenced herein are concerned. It does not relieve the grantee from the duty of obtaining the consent of the owner(s) of other interests in the premises; nor from obtaining any other permission required by Federal, state, or local laws, regulations, or ordinances, including, but not limited to, any Federal permits that may be required by Section 10 of the River and Harbors Act of 1899 or Section 404 of the Clean Water Act.

WITNESS the following signature this 28TH day of February, 2018.

UNITED STATES OF AMERICA



KENNETH R. BUMGARDNER

Real Estate Contracting Officer

Chief, Real Estate Division

U. S. Army Corps of Engineers

Huntington District

The above conditions are hereby accepted this 21st day of December, 2017.

MOUNTAIN VALLEY PIPELINE, LLC

TO: Ralph O. Deer

ITS: Ralph O. Deer
Vice President

ACKNOWLEDGMENT

STATE OF Allegheny)
 : ss
COUNTY OF Perry

On this 21st day of December, 2017, before me, the undersigned Notary Public, personally appeared Ralph D. Deek, known to me to be the person described in the foregoing instrument, who acknowledged that he executed the same in the capacity therein stated and for the purposes therein contained.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal.

Loriann K. Houck
Notary Public

My Commission Expires: 11/4/2021

Commonwealth of Pennsylvania - Notary Seal
Loriann K. Houck, Notary Public
Allegheny County
My commission expires November 4, 2021
Commission number 1083536
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Commonwealth of Pennsylvania - Notary Seal
Loriann K. Houck, Notary Public
Allegheny County
My commission expires November 4, 2021
Commission number 1083536
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

EQM Gathering Opco, LLC

625 Liberty Avenue
Suite 1700
Pittsburgh, PA 15222

SECRETARY'S CERTIFICATE

I, **NICOLE H. KING YOHE**, Secretary of **EQM GATHERING OPCO, LLC** a Delaware limited liability company (the "Company"), do hereby certify that **MOUNTAIN VALLEY PIPELINE, LLC**, a Delaware limited liability company, with its principal office located at 625 Liberty Avenue, Suite 1700, Pittsburgh, Pennsylvania 15222, has entered into a Consent to Easement with the Secretary of the Army for the installation of a natural gas pipeline forty-two (42) inches in diameter, on property identified as Tract Nos. 723E at Burnsville Lake; and

I further certify that the Secretary of the Army acting through his authorized representative, **KENNETH R. BUMGARDNER**, has agreed to consent to the above described property to **MOUNTAIN VALLEY PIPELINE, LLC** subject to the terms and conditions set out in an instrument identified as a "Department of Army Consent to Easement"; and

I further certify that the Company is the **OPERATOR** of **MOUNTAIN VALLEY PIPELINE, LLC**, and has been granted authority to, among other items, enter into land agreements and other similar instruments on behalf of **MOUNTAIN VALLEY PIPELINE, LLC**; and

I further certify that **RALPH D. DEER** was elected Vice President of the Company, effective March 1, 2017, to serve until his successor is duly elected and qualified and that said resolution continues in full force and effect as of this date; and

I further certify that, so long as he is Vice President of the Company, **RALPH D. DEER** has full power and authority to execute and deliver the "Department of the Army Consent to Easement" and any and all other documents necessary or required to complete the transaction affecting Tract Nos. 723E at Burnsville Lake on behalf of **MOUNTAIN VALLEY PIPELINE, LLC**; and

I further certify that any and all prior acts of **RALPH D. DEER** in his capacity as Vice President of the Company, the **OPERATOR** of **MOUNTAIN VALLEY PIPELINE, LLC** or his successor in office, directly or indirectly related to and in connection with the Consent to Easement at Burnsville Lake be and hereby are, ratified and affirmed by the Board of Managers of the Company.

WITNESS the hand of the undersigned and the corporate seal of EQM Gathering Opco, LLC this 15th day of February, 2018.



Nicole H. King Yohe
Secretary





Mountain Valley Pipeline Burnsville Dam Exhibit Map 2 of 2

EXHIBIT A



Legend

- - - Mountain Valley Pipeline
- Burnsville Land Tracts

Attachment E

PUBLISHEDUNITED STATES COURT OF APPEALS
FOR THE FOURTH CIRCUIT

No. 21-1039

WILD VIRGINIA; SIERRA CLUB; APPALACHIAN VOICES; WILDERNESS SOCIETY; PRESERVE CRAIG; SAVE MONROE; INDIAN CREEK WATERSHED ASSOCIATION,

Petitioners,

v.

UNITED STATES FOREST SERVICE, an agency of the U.S. Department of Agriculture; JIM HUBBARD, in his official capacity as Under Secretary for Natural Resources and Environment, United States Department of Agriculture; KEN ARNEY, in his official capacity as Regional Forester of the Southern Region,

Respondents,

MOUNTAIN VALLEY PIPELINE, LLC,

Intervenor.

CHEROKEE FOREST VOICES; GEORGIA FORESTWATCH;
MOUNTAINTRUE; THE CLINCH COALITION; VIRGINIA WILDERNESS
COMMITTEE,

Amici Supporting Petitioner.

AMERICAN FOREST RESOURCE COUNCIL; BLACK HILLS FOREST RESOURCE ASSOCIATION; COLORADO TIMBER INDUSTRY ASSOCIATION; FEDERAL FOREST RESOURCE COALITION; INTERMOUNTAIN FOREST ASSOCIATION; MONTANA WOOD PRODUCTS ASSOCIATION,

Amici Supporting Respondent.

On Petition for Review of an Order of the Department of Agriculture. (AGRI-1).

No. 21-1082

WILD VIRGINIA; SIERRA CLUB; APPALACHIAN VOICES; THE WILDERNESS SOCIETY; PRESERVE CRAIG; SAVE MONROE; INDIAN CREEK WATERSHED ASSOCIATION,

Petitioners,

v.

UNITED STATES BUREAU OF LAND MANAGEMENT, an agency of the U.S. Department of Interior; DEB HAALAND, in her official capacity as Secretary of the Interior; MITCHELL LEVERETTE, in his official capacity as State Director, Bureau of Land Management, Eastern States,

Respondents,

MOUNTAIN VALLEY PIPELINE, LLC,

Intervenor.

CHEROKEE FOREST VOICES; GEORGIA FORESTWATCH; MOUNTAINTRUE; THE CLINCH COALITION; VIRGINIA WILDERNESS COMMITTEE,

Amici Supporting Petitioner,

AMERICAN FOREST RESOURCE COUNCIL; BLACK HILLS FOREST RESOURCE ASSOCIATION; COLORADO TIMBER INDUSTRY ASSOCIATION; FEDERAL FOREST RESOURCE COALITION; INTERMOUNTAIN FOREST ASSOCIATION; MONTANA WOOD PRODUCTS ASSOCIATION,

Amici Supporting Respondent.

On Petition for Review of an Order of the Department of Interior. (DOI-1).

Argued: October 29, 2021

Decided: January 25, 2022

Before GREGORY, Chief Judge, and WYNN and THACKER, Circuit Judges.

Petitions granted in part and denied in part, vacated and remanded by published opinion. Judge Thacker wrote the opinion, in which Chief Judge Gregory and Judge Wynn joined.

ARGUED: Nathan Matthews, SIERRA CLUB, Oakland, California, for Petitioners. Brian C. Toth, UNITED STATES DEPARTMENT OF JUSTICE, Washington, D.C., for Respondents. Donald B. Verrilli, Jr., MUNGER, TOLLES & OLSON LLP, Washington, D.C., for Intervenor. **ON BRIEF:** Ankit Jain, SIERRA CLUB, Washington, D.C.; Derek O. Teaney, Benjamin Luckett, APPALACHIAN MOUNTAIN ADVOCATES, INC., Lewisburg, West Virginia, for Petitioners Wild Virginia, Sierra Club, Appalachian Voices, The Wilderness Society, Preserve Craig, Save Monroe, and Indian Creek Watershed Association. William J. Cook, Special Counsel, CULTURAL HERITAGE PARTNERS, PLLC, Washington, D.C., for Petitioner Monacan Indian Nation. Jean E. Williams, Acting Assistant Attorney General, Todd Kim, Acting Assistant Attorney General, Justin D. Hemminger, Environment and Natural Resources Division, UNITED STATES DEPARTMENT OF JUSTICE, Washington, D.C.; Michael D. Smith, Office of the Solicitor, UNITED STATES DEPARTMENT OF THE INTERIOR, Washington, D.C.; Sarah Kathmann, Office of the General Counsel, UNITED STATES DEPARTMENT OF AGRICULTURE, Washington, D.C., for Respondents. George P. Sibley, III, J. Pierce Lamberson, Brian R. Levey, HUNTON ANDREWS KURTH LLP, Richmond, Virginia; Sandra A. Snodgrass, HOLLAND & HART LLP, Denver, Colorado; Thomas C. Jensen, Stacey M. Bosshardt, PERKINS COIE LLP, Washington, D.C., for Intervenor. J. Patrick Hunter, Asheville, North Carolina, Spencer Gall, Kristin Davis, Gregory Buppert, SOUTHERN ENVIRONMENTAL LAW CENTER, Charlottesville, Virginia, for Amici Cherokee Forest Voices, Georgia ForestWatch, MountainTrue, The Clinch Coalition, and Virginia Wilderness Committee. Lawson E. Fite, AMERICAN FOREST RESOURCE COUNCIL, Portland, Oregon, for Amici American Forest Resource Council, Black Hills Forest Resource Association, Colorado Timber Industry Association, Federal Forest Resource Coalition, Intermountain Forest Association, and Montana Wood Products Association.

THACKER, Circuit Judge:

In these two consolidated cases, several environmental advocacy organizations -- Wild Virginia, the Sierra Club, Appalachian Voices, the Wilderness Society, Preserve Craig, Save Monroe, and the Indian Creek Watershed Association (collectively, “Petitioners”) -- seek review of the renewed decisions of the United States Forest Service (the “Forest Service”) and the Bureau of Land Management (the “BLM”) to allow the Mountain Valley Pipeline (the “Pipeline”), an interstate natural gas pipeline system, to cross three and a half miles of the Jefferson National Forest in Virginia and West Virginia. This is the second time Petitioners have challenged the agencies’ approval of the Pipeline. We previously vacated the agencies’ records of decision (“RODs”) because the Forest Service and the BLM failed to comply with the National Environmental Policy Act (“NEPA”), the National Forest Management Act (the “NFMA”), and the Mineral Leasing Act (the “MLA”). We directed the agencies to re-evaluate certain aspects of the Pipeline’s potential environmental impact. *Sierra Club, Inc. v. U.S. Forest Serv.*, 897 F.3d 582 (4th Cir. 2018).

Petitioners contend that the agencies’ renewed RODs after remand also violate NEPA, the NFMA, and the MLA. As more fully explained below, we agree with Petitioners in part, so we grant their petitions as to three errors, deny the petitions with regard to Petitioners’ remaining arguments, vacate the RODs of the Forest Service and the BLM, and remand for further proceedings consistent with this opinion.

I.

A.

Governing Statutory and Regulatory Framework

1.

NEPA

NEPA is a federal environmental protection statute that “declares a national policy of protecting and promoting environmental quality” and requires federal agencies to scrutinize the potential environmental impacts of their projects. *Hughes River Watershed Conservancy v. Glickman*, 81 F.3d 437, 443 (4th Cir. 1996); *see* 42 U.S.C. § 4331. Notably, NEPA does not require the agencies to reach particular substantive results. *Hughes River*, 81 F.3d at 443. Rather, NEPA imposes procedural requirements that obligate federal agencies “to undertake analyses of the environmental impact of their proposals and actions.” *Dep’t of Transp. v. Pub. Citizen*, 541 U.S. 752, 756–57 (2004) (citing *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349–50 (1989)). In order to accomplish this objective, NEPA mandates that federal agencies prepare an environmental impact statement (“EIS”) as part of “every recommendation or report on proposals for . . . major Federal actions significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(2)(C). The primary purpose of an EIS is “to ensure agencies consider the environmental impacts of their actions in decision making.” 40 C.F.R. § 1502.1. Accordingly, the EIS must analyze the proposed project’s “significant environmental impacts” and discuss “reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment.” *Id.* Of

note, “if significant new information or environmental changes come to light after the agency prepares an EIS,” the agency must prepare a supplemental EIS to address them. *Save Our Sound OBX, Inc. v. N.C. Dep’t of Transp.*, 914 F.3d 213, 218 (4th Cir. 2019) (citing 40 C.F.R. § 1502.9).

“Multiple agencies may cooperate to issue an EIS, but a ‘lead agency’ is usually designated.” *Sierra Club, Inc. v. U.S. Forest Serv.*, 897 F.3d 582, 588 (4th Cir. 2018) (citing 7 C.F.R. § 3407.11(a)). The Federal Energy Regulatory Commission (“FERC”) is the lead NEPA agency when the proposed project involves an interstate gas pipeline. *Id.* (citing 15 U.S.C. § 717n(b)(1); *EarthReports, Inc. v. FERC*, 828 F.3d 949, 953 (D.C. Cir. 2016)).

“[A]fter the agency makes a decision regarding the action [based on its consideration of the proposal’s environmental impacts laid out in the EIS], it must publish a [ROD], at which point it may then finalize its action.” *Webster v. U.S. Dep’t of Agric.*, 685 F.3d 411, 418 (4th Cir. 2012) (citing *Nat’l Audubon Soc’y v. Dep’t of the Navy*, 422 F.3d 174, 185 (4th Cir. 2005)); *see* 40 C.F.R. § 1505.2.

2.

The NFMA

The NFMA provides substantive and procedural guidance to the Forest Service for the management of National Forest System lands. Pursuant to the NFMA, the Forest Service “develops land and resource management plans” -- known as forest plans -- “and uses [them] to ‘guide all natural resource management activities’” within the national forests. *Ohio Forestry Ass’n v. Sierra Club*, 523 U.S. 726, 729 (1998). To that end, “the

Forest Service must ensure that all resource plans and permits, contracts, and other instruments for the use and occupancy of National Forest System lands . . . are consistent with the Forest Plans.” *Sierra Club*, 897 F.3d at 600 (alteration and internal quotation marks omitted); *see* 16 U.S.C. § 1604(i). When a proposed project is not consistent with the applicable forest plan, the Forest Service must decide whether to modify the project to ensure consistency with the forest plan, reject the proposal or terminate the project, or amend the forest plan to accommodate the project. 36 C.F.R. § 219.15(c).

In 2012, pursuant to the NFMA, the Forest Service promulgated a rule governing amendments to forest plans (the “2012 Planning Rule”). *See* National Forest System Land Management Planning, 77 Fed. Reg. 21,162 (Apr. 9, 2012) (to be codified at 36 C.F.R. pt. 219). The 2012 Planning Rule imposes “substantive requirements” for sustainability, diversity of plant and animal communities, multiple land uses, and timbering that are intended to “maintain or restore” ecological integrity and ecosystem diversity in national forests while preserving those forests for multiple uses. *Id.*; *see* 36 C.F.R. §§ 219.8–219.11. The 2012 Planning Rule further provides that a forest plan “may be amended at any time,” 36 C.F.R. § 219.13(a), but it requires that any such amendment be “consistent with Forest Service NEPA procedures,” *id.* § 219.13(b)(3).

Due to confusion about how to apply the 2012 Planning Rule’s substantive requirements to forest plans developed pursuant to a 1982 forest planning rule with

different requirements,¹ the Forest Service revised its 2012 Planning Rule in 2016 (the “2016 Revised Rule”). *See* National Forest System Land Management Planning, 81 Fed. Reg. 90,723 (Dec. 16, 2016) (to be codified at 36 C.F.R. pt. 219). The 2016 Revised Rule requires the Forest Service, when amending a forest plan, to determine which “substantive requirements” of the 2012 Planning Rule are “directly related” to the forest plan amendment and “apply” those requirements “within the scope and scale of the amendment.” 36 C.F.R. § 219.13(b)(5).

3.

The MLA

The MLA “authorizes the Secretary of the Interior to lease public-domain lands to private parties for the production of oil and gas.” *BP Am. Prod. Co. v. Burton*, 549 U.S. 84, 87 (2006); *see* 30 U.S.C. § 185(a). “The MLA regulates the location of interstate pipelines across most federal lands,” which “includes approving rights of way and easements for the siting of those pipelines.” *Sierra Club*, 897 F.3d at 604 (emphasis deleted). “In order to minimize adverse environmental impacts and the proliferation of

¹ Forest plans developed pursuant to the 1982 forest planning rule are guided by fourteen overarching “principles,” and in addition to procedural standards, the rule includes substantive standards for timbering, wilderness management, and resource preservation. 36 C.F.R. §§ 219.1–219.29 (1982), <https://www.fs.fed.us/emc/nfma/includes/nfmareg.html>. When proposing the 2012 Planning Rule, the Forest Service acknowledged that “most 1982 rule [forest] plans will not be consistent with all of the [substantive] requirements of the 2012 [P]lanning [R]ule.” National Forest System Land Management Planning, 81 Fed. Reg. 70,373, 70,376 (proposed Oct. 12, 2016) (to be codified at 36 C.F.R. pt. 219).

separate rights-of-way across Federal lands,” the MLA requires that rights of way in common be utilized “to the extent practical.” 30 U.S.C. § 185(p).

When multiple federal agencies administer the federal lands traversed by an interstate pipeline, the MLA authorizes the Secretary of the Interior, “after consultation with the agencies involved, to grant or renew rights-of-way or permits through the Federal lands involved.” 30 U.S.C. § 185(c)(2). The Secretary of the Interior has delegated her authority to the BLM. 36 C.F.R. § 251.54(b)(3) (“Proposals for oil and gas pipeline rights-of-way crossing Federal lands under the jurisdiction of two or more Federal agencies must be filed with the [BLM]”); 43 C.F.R. § 2884.26 (“If the application involves lands managed by two or more Federal agencies, BLM will not issue or renew [a right of way or temporary use permit] until the heads of the agencies administering the lands involved have concurred.”).

B.

The Pipeline Project

The Pipeline, a project of Mountain Valley Pipeline, LLC (“MVP”), is planned to extend for more than 300 miles from Wetzel County, West Virginia, to Pittsylvania County, Virginia, upon its completion. On October 13, 2017, FERC issued a Certificate of Public Convenience and Necessity² (the “FERC Certificate”) authorizing MVP to

² Pursuant to the Natural Gas Act, a natural gas company is prohibited from “engag[ing] in the transportation or sale of natural gas . . . or undertak[ing] the construction or extension of any facilities therefor, or acquir[ing] or operat[ing] any such facilities or extensions thereof, unless there is in force with respect to such natural-gas (Continued)

construct, operate, and maintain the Pipeline, new compressor stations, and new regulation stations and interconnections. Per NEPA, FERC also prepared an EIS for the Pipeline. The EIS purportedly considered the Pipeline's projected impact on geology and soils; groundwater, surface waters, and wetlands; vegetation and wildlife; land use and visual resources; socioeconomics and transportation; cultural resources; air quality and noise; and reliability and safety. It also purportedly analyzed the Pipeline's cumulative impacts and considered alternatives. Ultimately, FERC concluded that "construction and operation of the [Pipeline] would result in limited adverse environmental impacts, with the exception of impacts on forest" and that "approval of the [Pipeline] would result in some adverse environmental impacts, but the majority of these impacts would be reduced to less-than-significant levels." J.A. 2015.³

The Pipeline's projected route crosses a 3.5-mile swath of the Jefferson National Forest in Giles and Montgomery Counties in Virginia and Monroe County in West Virginia. This section of the projected route includes four stream crossings. In order to construct the Pipeline on these lands, MVP must obtain rights of way and temporary use permits from the BLM, in consultation with the Forest Service. The Pipeline must also be consistent with the forest plan developed by the Forest Service for the Jefferson

company a certificate of public convenience and necessity issued by [FERC] authorizing such acts or operations." 15 U.S.C. § 717f(c)(1)(A).

³ Citations to the "J.A." refer to the Joint Appendix filed by the parties in this appeal.

National Forest (the “Jefferson Forest Plan”). The Jefferson Forest Plan “[e]stablishes the management direction and associated long-range goals and objectives of the Jefferson National Forest” and “[s]pecifies [certain] standards, which set the sideboards for achieving the goals, objectives and desired conditions, as well as provide meaningful direction when implementing projects” within the Jefferson National Forest. J.A. 1937. The Pipeline, as proposed, and as detailed more specifically below, would be inconsistent with 11 standards from five categories -- utility corridors, soil and riparian resources, old growth management areas, Appalachian National Scenic Trail areas, and scenery integrity objectives -- in the Jefferson Forest Plan.

C.

Prior Proceedings

In December 2017, the Forest Service, using FERC’s EIS, initially decided to amend the Jefferson Forest Plan to accommodate the Pipeline but limit the amendments’ applicability only to the Pipeline project. Consequently, the Forest Service’s ROD modified 11 standards in the Jefferson Forest Plan that were inconsistent with the Pipeline project and waived 3 of those 11 standards. For example, the ROD relaxed one of the standards for soil and riparian resources as follows (with the modification in bold):

Standard FW-5: On all soils dedicated to growing vegetation, the organic layers, topsoil and root mat will be left in place over at least 85% of the activity area and revegetation is accomplished within 5 years, **with the exception of the operational right-of-way and the construction zone for the Mountain Valley Pipeline, for which the applicable mitigation measures [MVP proposed] must be implemented.**

J.A. 2231 (emphasis in original). However, we vacated the Forest Service's ROD because the Forest Service did not conduct an "independent review" of the EIS's sedimentation analysis.⁴ *Sierra Club*, 897 F.3d at 594. In addition, we rejected the Forest Service's conclusion that the soil and riparian resources requirements set forth in the 2012 Planning Rule were not "directly related" to the amendments to the Jefferson Forest Plan to accommodate the Pipeline, principally because the Forest Service itself acknowledged that those requirements could not be met absent the amendments. *Id.* at 603.

The BLM also initially adopted FERC's EIS and, "with the concurrence of the Forest Service and the [United States Army] Corps of Engineers . . . issued a [ROD] granting a 30 year, 50-foot operational right of way and associated temporary use permits" for the Pipeline's projected route through the Jefferson National Forest. *Sierra Club*, 897 F.3d at 589. But, we held that the BLM failed to determine whether "the

⁴ "Sedimentation is defined as the 'process of deposition of a solid material,' or sediment, 'from a state of suspension or solution in a fluid'" *Sierra Club*, 897 F.3d at 590 n.5. Specifically, in rejecting the EIS's sedimentation analysis, we took issue with the Forest Service's acceptance of the EIS's estimation that sedimentation control measures would result in 79% containment of sediment -- a figure derived from a hydrological analysis MVP provided to FERC -- despite the Forest Service's estimation in comments on a draft of the hydrological analysis that 48% containment was a more appropriate figure. *See id.* at 595. We also questioned the Forest Service's acceptance of the EIS's conclusion that the Pipeline would increase sedimentation to levels in excess of 10% above the baseline, despite its earlier concerns -- again in comments on a draft of the hydrological analysis -- that such levels could negatively affect sensitive aquatic species. *See id.* at 595-96.

utilization of an existing right of way would be impractical,” in violation of the MLA. *Id.* at 605 (emphasis deleted).

Therefore, we vacated the RODs of the Forest Service and the BLM and remanded this matter to the agencies. We directed the Forest Service to more thoroughly analyze the Pipeline’s sedimentation impacts and apply the 2012 Planning Rule’s soil and riparian resources requirements to the proposed Jefferson Forest Plan amendments for the Pipeline. *Sierra Club*, 897 F.3d at 596, 603. And we instructed the BLM to make a specific finding about the practicality of utilizing an existing right of way for the Pipeline. *Id.* at 605.

D.

Proceedings Since Remand

1.

The Forest Service

On remand, the Forest Service and the BLM prepared a supplemental EIS which sought to address the Pipeline’s sedimentation impacts utilizing two hydrological analyses provided by MVP. But neither of these hydrological analyses, nor the supplemental EIS, considered water quality monitoring data from the United States Geological Survey (“USGS”) monitoring stations fifteen miles outside the Jefferson National Forest, where construction of the Pipeline has occurred near the Roanoke River.

The USGS data showed water turbidity⁵ values that were 20% higher downstream from the Pipeline's construction than upstream -- a significant difference from the 2.1% increase in sedimentation the hydrologic analyses predicted for the Roanoke River.

The Forest Service also elaborated on its analysis of the 2012 Planning Rule's application to the Pipeline. In particular, it determined that 10 of the 2012 Planning Rule's substantive requirements were directly related to the amendments to the Jefferson Forest Plan for the Pipeline:

§ 219.8(a)(2)(ii) – Soils and soil productivity; § 219.8(a)(2)(iii) – Water quality; § 219.8(a)(2)(iv) – Water resources in the plan area; § 219.8(a)(3)(i) – Ecological integrity of riparian areas; § 219.8(b)(3) – Multiple uses that contribute to local, regional, and national economies; § 219.9(a)(2) – Ecosystem diversity of terrestrial and aquatic ecosystems; § 219.10(a)(3) – Appropriate placement and sustainable management of infrastructure, such as recreational facilities and transportation and utility corridors; § 219.10(b)(1)(i) – Sustainable recreation, including recreation setting, opportunities, access, and scenic character; § 219.10(b)(1)(iv) – Other designated areas or recommended designated areas; and § 219.11(c) – Timber harvest for purposes other than timber production.

J.A. 582. The supplemental EIS provides that the amendments to accommodate the Pipeline are “in full compliance with the [2012] Planning Rule because all applicable substantive requirements are applied to provide protection to resources without

⁵ “Turbidity refers to cloudiness caused by very small particles of silt, clay, and other substances suspended in water.” Water Supply System: Health Concerns, *Encyclopaedia Britannica – Technology*, <https://www.britannica.com/technology/water-supply-system/Health-concerns#ref1084761>.

substantial lessening of protections for those resources across the [Jefferson National Forest].” *Id.*

2.

The BLM

As part of the supplemental EIS it prepared in conjunction with the Forest Service, the BLM evaluated whether existing rights of way on federal lands could accommodate the Pipeline without issuing a new right of way. In doing so, the BLM considered alternative routes collocating the Pipeline with the proposed route of the since-cancelled Atlantic Coast Pipeline,⁶ with existing public roads, and with electric transmission lines. The BLM also considered several route variations. The BLM made specific findings about whether each alternative route or route variation was practical and concluded that “none . . . would [both] result in greater collocation on federal lands and be practical.” J.A. 819. It determined that those alternative routes that would increase collocation

⁶ On July 5, 2020, the energy companies behind the Atlantic Coast Pipeline announced that they would no longer move forward “due to ongoing delays and increasing cost uncertainty which threaten the economic viability of the project.” Press Release, Dominion Energy, Dominion Energy and Duke Energy Cancel the Atlantic Coast Pipeline (July 5, 2020), <https://news.dominionenergy.com/2020-07-05-Dominion-Energy-and-Duke-Energy-Cancel-the-Atlantic-Coast-Pipeline>. The companies’ decision came after we vacated several decisions of state and federal agencies approving the project. *See, e.g., Friends of Buckingham v. State Air Pollution Control Bd.*, 947 F.3d 68 (4th Cir. 2020) (vacating Virginia environmental regulator’s decision issuing permit to construct Atlantic Coast Pipeline compressor station); *Defs. of Wildlife v. U.S. Dep’t of the Interior*, 931 F.3d 339 (4th Cir. 2019) (vacating Fish and Wildlife Service’s biological opinion for Atlantic Coast Pipeline); *Sierra Club v. U.S. Dep’t of the Interior*, 899 F.3d 260 (4th Cir. 2018) (vacating Fish and Wildlife Service’s and National Park Service’s approval of Atlantic Coast Pipeline).

“would be impractical due to a combination of constructability and safety challenges, increased environmental impacts, increased length and footprint, increased cost, and inability to serve the purposes of the [Pipeline] or the specific purpose of the route alternative in question.” *Id.* at 819–20 (footnote omitted).

3.

FERC

In the meantime, FERC partially authorized MVP to use the “conventional bore method” to cross under the bodies of water along the Pipeline’s projected route, including the four streams in the Jefferson National Forest, pending FERC’s evaluation of the potential environmental impact of that method.

4.

Renewed RODs

Ultimately, on January 11, 2021, the Forest Service, via the United States Department of Agriculture’s Under Secretary for Natural Resources and Environment, issued a second ROD approving the Pipeline. The renewed ROD adopted the Forest Service’s environmental analysis in the supplemental EIS and again amended the Jefferson Forest Plan by modifying 11 plan standards to accommodate the Pipeline and limited the amendments only to the Pipeline. Petitioners sought review of the ROD in this court the same day it was issued.

Three days later, on January 14, 2021, the Secretary of the Interior issued a ROD granting the Pipeline a right of way in the Jefferson National Forest. The BLM’s renewed ROD also adopted the supplemental EIS and again authorized a 30-year right of

way and associated temporary use permits for the Pipeline's proposed route through the Jefferson National Forest. Petitioners also filed a petition for review of that decision in this court on January 20, 2021. We consolidated the cases on appeal.

II.

“We may hold unlawful and set aside a federal agency action for certain specified reasons, including whenever the challenged act is arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law.” *Sierra Club, Inc. v. U.S. Forest Serv.*, 897 F.3d 582, 589–90 (4th Cir. 2018) (alteration and internal quotation marks omitted); *see* 5 U.S.C. § 706(2).

An agency's decision is arbitrary and capricious if the agency relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.

Id. at 590 (quoting *Defs. of Wildlife v. N.C. Dep't of Transp.*, 762 F.3d 374, 396 (4th Cir. 2014)). “[O]ur oversight [of agency action is] ‘highly deferential, with a presumption in favor of finding the agency action valid,’ yet the arbitrary-and-capricious standard does not ‘reduce judicial review to a rubber stamp of agency action.’” *Friends of Back Bay v. U.S. Army Corps of Eng'rs*, 681 F.3d 581, 587 (4th Cir. 2012) (quoting *Ohio Valley Env't Coal. v. Aracoma Coal Co.*, 556 F.3d 177, 192 (4th Cir. 2009)).

III.

Petitioners once again argue that the Forest Service and the BLM violated NEPA, the NFMA, and the MLA in permitting MVP to construct the Pipeline in the Jefferson National Forest. We address each of Petitioners' arguments in turn.

A.

Predecisional Review

Petitioners first argue that the Forest Service violated its own regulations by failing to undertake the administrative "predecisional review" process before authorizing the Pipeline's route through the Jefferson National Forest. On this point, we disagree with Petitioners.

The predecisional review process effectually prohibits the Forest Service from issuing a final decision on a matter without first offering an opportunity for eligible parties to object to the draft ROD and responding to each objection in writing. *See* 36 C.F.R. §§ 218.7, 218.12. It applies to "proposed actions of the Forest Service concerning projects and activities implementing [forest plans] documented with a [ROD]." *Id.* § 218.1. The "reviewing officer" charged with responding to the objections is a Forest Service or Department of Agriculture official with more authority than the official responsible for making the decision. *See id.* §§ 218.3(a), 218.11. But, significantly, "[p]rojects and activities proposed by the Secretary of Agriculture or the Under Secretary, Natural Resources and Environment, are not subject to" the predecisional review process. *Id.* § 218.13(b). This exception applies in this case.

In an attempt to evade this exception to the predecisional process, Petitioners assert that MVP, not the Under Secretary for Natural Resources and Environment, “proposed” the Pipeline project. But Petitioners’ interpretation of the term “proposed” as it is used in the exception is too narrow and ignores the broader regulatory scheme. The regulations governing the predecisional review process make clear that a proposal, for purposes of the exception, does not mean the application triggering action by the Forest Service but, rather, how the Forest Service decides to act in response to that application.

The structure of the predecisional review process -- which essentially provides for an additional level of scrutiny of a decision by an official of higher rank than the decisionmaking official -- and the language of the regulation defining “reviewing officer” presume that officers within the agency make proposals. 36 C.F.R. § 218.3(a). There is no distinction based on the source of the project’s application. The Forest Service’s internal guidance reinforces this interpretation: “A proposed action is a proposal by the Forest Service to authorize, recommend, or implement an action to meet a specific purpose and need. . . . When the Forest Service accepts an external proponent’s proposal (like a powerline or ski resort) it becomes an Agency proposal to authorize the action.” U.S. Forest Serv., FSH 1909.15 – National Environmental Policy Act Handbook, ch. 10, § 11.2 (2012), https://www.fs.fed.us/emc/nepa/nepa_procedures/index.shtml.

The Under Secretary for Natural Resources and Environment signed the ROD amending the Jefferson Forest Plan to accommodate the Pipeline. The Under Secretary’s approval “constitutes the final administrative determination of the U.S. Department of Agriculture.” 36 C.F.R. § 218.13(b). Therefore, the proposal was not subject to the

predecisional review process. *See* Project-Level Predecisional Administrative Review Process, 77 Fed. Reg. 47,337, 47,341 (proposed Aug. 8, 2012) (to be codified at 36 C.F.R. pt. 218) (“[36 C.F.R. § 218.13(b)] identifies that projects and activities authorized by the Secretary or Under Secretary of Agriculture are not subject to [the predecisional review] procedures.”).

B.

Actual Sediment and Erosion Impacts

Next, Petitioners contend that the Forest Service and the BLM violated NEPA, the NFMA, and the MLA by inadequately considering the Pipeline’s sediment and erosion impacts. Specifically, Petitioners assert that 1) the sediment modeling MVP used in its hydrological analyses relied on unsupported and implausible assumptions; 2) evidence of the Pipeline’s actual impacts indicates the modeling is unreasonable, and the Forest Service and the BLM did not address such evidence; and 3) the agencies failed to address whether erosion and sedimentation caused by the Pipeline would violate water quality standards. We agree with Petitioners only as to the second of these assertions.

The Forest Service and the BLM erroneously failed to account for real-world data suggesting increased sedimentation along the Pipeline route. There is no evidence that the agencies reviewed the USGS water quality monitoring data from the Roanoke River, which may indicate a significant increase in sedimentation beyond that predicted in the modeling used for the supplemental EIS. At the very least, the supplemental EIS should have acknowledged this disparity and explained its impact on the agencies’ reliance on the sedimentation data in the hydrological analyses.

But the Forest Service and the BLM suggest that the USGS data is not useful to their analysis for two reasons. First, they argue that the sediment modeling utilized in the supplemental EIS is not designed for site-specific comparisons. This argument begs the question -- how is the modeling useful to predict the Pipeline's environmental impact if it does not somehow reflect real-world data and scenarios demonstrating that impact?

Second, the agencies assert that Petitioners have not demonstrated how the USGS data is "relevant to the choice among alternatives with different environmental effects," which is the key consideration for their NEPA cost-benefit analysis. 40 C.F.R. § 1502.22. But this is an improper effort to shift the agencies' burden onto Petitioners. The Forest Service and the BLM, not Petitioners, are charged with fully considering the Pipeline's potential environmental impact before approving it.

The same is true of the agencies' argument that the USGS data should be discounted because it derives from locations outside the Jefferson National Forest. The Forest Service and the BLM suggest that the USGS data is unreliable because Petitioners "do not suggest that the land use [in the areas outside the forest where the USGS monitoring stations are located] is identical to the Forest sites," nor do Petitioners account for soil-loss mitigation measures or "the corresponding climactic conditions during the stream-gauge measurements." Resp'ts' Br. at 28. Again, the Forest Service and the BLM attempt to place the burden on Petitioners to demonstrate the similarities between the areas outside and inside the forest, rather than recognizing MVP's shortcomings. There is no reason to think (and the agencies have provided none) that the factors that could affect sedimentation in the four streams inside the forest that the Pipeline's

proposed route will cross will be any different inside the Jefferson National Forest than outside it, such that data from nearby locations outside the forest would not reflect the conditions within the forest.

By creating a false dichotomy between the impacts of construction inside and outside the Jefferson National Forest, placing the burden on Petitioners to explain the similarities between these two areas, and failing to address the USGS modeling that occurred nearby in the Roanoke River, the Forest Service and the BLM “entirely failed to consider an important aspect of the problem.” *Sierra Club, Inc. v. U.S. Forest Serv.*, 897 F.3d 582, 590 (4th Cir. 2018) (quoting *Defrs. of Wildlife v. N.C. Dep’t of Transp.*, 762 F.3d 374, 396 (4th Cir. 2014)). Therefore, we remand for the agencies to consider the USGS data and any other relevant information indicating that the modeling used in the EIS may not be consistent with data about the actual impacts of the Pipeline and its construction.

C.

Conventional Bore Method

Third, Petitioners argue that the Forest Service and the BLM violated NEPA by approving the use of the conventional bore method to cross the four streams within the Jefferson National Forest without first analyzing the method’s environmental effects. Here again, we agree with Petitioners. “It would be one thing if the Forest Service had adopted a new alternative that was actually within the range of previously considered alternatives It is quite another thing to adopt a proposal that is configured

differently” *Dubois v. U.S. Dep’t of Agric.*, 102 F.3d 1273, 1292–93 (1st Cir. 1996). The Forest Service and the BLM have done the latter here.

Although the supplemental EIS includes information about method, impact, safety, and environmental concerns related to conventional boring, the agencies’ assent to MVP’s use of conventional boring to construct the stream crossings is premature. Because MVP originally planned to use dry-ditch open cutting and wet cutting to construct the stream crossings, FERC’s initial EIS considered the environmental impact of these methods. It did not extensively consider the conventional bore method because no stream crossings were to be constructed using that method.

Since then, MVP received authorization from FERC to modify how it would construct the stream crossings in the Jefferson National Forest. Specifically, FERC conducted a cursory review of MVP’s request to switch to the conventional bore method and, after “informally consult[ing]” with the Fish and Wildlife Service, concluded that the change “is feasible and . . . will reduce [environmental] impacts on aquatic resources.” J.A. 1200. However, FERC did not authorize MVP to construct any of the stream crossings using the conventional bore method because at the time, the Forest Service and the BLM had not yet approved the Pipeline’s crossing through the Jefferson National Forest.

MVP has also requested to use the conventional bore method to construct other stream crossings outside the Jefferson National Forest. In response, FERC issued a notice indicating that it “will prepare an environmental document[] that will discuss the environmental impacts of” the requested change in the construction method for the

stream crossings. Mountain Valley Pipeline, LLC; Notice of Scoping Period and Requesting Comments on Environmental Issues for the Proposed Amendment to the Certificate of Public Convenience and Necessity for the Mountain Valley Pipeline Project, 86 Fed. Reg. 15,215, 15,215 (Mar. 22, 2021).

FERC characterizes MVP's request to switch to the conventional bore method as a request to amend the FERC Certificate for the Pipeline. *Id.* Without a FERC Certificate authorizing it to do so, MVP cannot "engage in the transportation or sale of natural gas . . . or undertake the construction or extension of any facilities therefor, or acquire or operate any such facilities or extensions thereof." 15 U.S.C. § 717f(c)(1)(A). Therefore, it follows that MVP cannot construct the stream crossings outside the Jefferson National Forest using the conventional bore method until FERC actually fully approves the amendment to the FERC Certificate to authorize that method.

In this regard, although FERC has given notice that it will issue a document assessing the environmental impacts of the change in the stream crossing construction method, it has not yet done so. Despite FERC's approval of the use of the conventional bore method for the stream crossings inside the Jefferson National Forest, the Forest Service and the BLM, in deciding whether to approve the Pipeline's route over those lands, would surely benefit from FERC's environmental analysis of the use of the conventional bore method for other stream crossings outside the Jefferson National Forest. As a result, the Forest Service and the BLM improperly approved the use of the conventional bore method for the four streams in the Jefferson National Forest without first considering FERC's analysis.

D.

Alternative Routes

Petitioners also argue that the Forest Service and the BLM insufficiently evaluated alternative routes for the Pipeline that do not pass through national forests, in violation of the MLA. We reject this argument for essentially the same reason we rejected it in the prior iteration of this case. *See Sierra Club*, 897 F.3d at 599–600. The supplemental EIS amply demonstrates that the agencies did, in fact, consider alternative routes but concluded that the environmental impacts would simply be shifted to other lands and the increased length of the Pipeline’s route would affect more acreage, incorporate additional privately owned parcels, and increase the number of residences in close proximity to the Pipeline. Therefore, the record reveals that the BLM and the Forest Service complied with their obligations to assess alternative routes.

E.

Increased Collocation of Rights of Way

Relatedly, Petitioners assert that the BLM violated the MLA because it did not demonstrate that route alternatives that would increase collocation within the Jefferson National Forest were impractical. This argument likewise fails.

Pipeline routes crossing national forest lands must indeed be collocated with existing rights of way “to the extent practical.” 30 U.S.C. § 185(p). But the BLM’s interpretation of this standard is reasonable, and its framework for evaluating whether collocation is “practical” is sound.

Because neither the MLA nor its accompanying regulations define the meaning of “practical” as it is used in this provision, the BLM has interpreted it to mean “the suitability of a route alternative for achieving [the project’s] purpose” -- here, “construct[ing] a pipeline to deliver natural gas from the [Pipeline’s] beginning point to its endpoint, via its mid-route delivery points, in a safe, environmentally responsible, and cost-effective manner.” J.A. 806. The BLM justified this interpretation by considering the term’s common usage and legal definition, the MLA’s implementing regulations,⁷ the only decision applying the term,⁸ and interpretations of the term “practicable” in other environmental regulations.⁹ The BLM also enumerated and explained six factors for

⁷ Specifically, the supplemental EIS reasons, “The BLM’s regulations note that one of the objectives of the BLM’s pipeline [right of way] program is to ‘[p]romote[] the use of rights-of-way in common considering engineering and technological compatibility,’ and that the use of [rights of way] in common may be required ‘where safety and other considerations allow.’” J.A. 805 (quoting 43 C.F.R. §§ 2881.2(c), 2882.10(b)).

⁸ *Wyo. Indep. Producers Ass’n*, 133 IBLA 65, 82 (1995).

⁹ Citing 40 C.F.R. §§ 230.3(l) and 230.10(a), the supplemental EIS states, “[A] regulation issued to implement section 404 of the Clean Water Act prohibits the issuance of a . . . permit ‘if there is a practicable alternative to the proposed discharge’ that is environmentally preferable, and defines ‘practicable’ as including ‘consideration [of] cost, existing technology, and logistics in light of overall project purposes.’” J.A. 806. The supplemental EIS continues, “In reviewing decisions made under this regulation by the U.S. Army Corps of Engineers . . . courts have deferred to the agency’s practicability determinations, and upheld its consideration of factors including cost, construction delays, logistical feasibility, and ‘the objectives of the applicant’s project.’” *Id.* (citing *Friends of Santa Clara River v. U.S Army Corps of Eng’rs*, 887 F.3d 906, 912, 921–22 (9th Cir. 2018); *Friends of the Earth v. Hintz*, 800 F.2d 822, 833–34 (9th Cir. 1986); *Nat’l Parks Conservation Ass’n v. Semonite*, 311 F. Supp. 3d 350, 377–78 (D.D.C. 2018), *rev’d*, 916 F.3d 1075 (D.C. Cir. 2019)).

assessing “practicality”: 1) “construction challenges and potential safety hazards”; 2) “environmental consequences”; 3) “increase[s] in the pipeline’s length and footprint”; 4) “the ability . . . to serve MVP’s mid-route delivery points”; 5) “additional costs”; and 6) “the likelihood that the route would achieve any specific purpose.” *Id.* at 806–07.

At its core, Petitioners’ assertion that the BLM failed to apply the test it developed to the Pipeline boils down to no more than their disagreement with the outcome of the BLM’s analysis. But, for the reasons outlined, we conclude the BLM did not err when assessing the Pipeline route’s collocation with existing rights of way in the Jefferson National Forest.

F.

2012 Planning Rule

Finally, Petitioners argue that the Forest Service again failed to apply its 2012 Planning Rule’s directly related substantive requirements within the scope and scale of the amendments to the Jefferson Forest Plan to accommodate the Pipeline, as the 2016 Revised Rule requires. Petitioners assert that the amendments do not actually comply with any of the corresponding substantive requirements set forth in the 2012 Planning Rule and that the Forest Service applied an incorrect legal standard when it determined that the amendments did comply with the substantive requirements. We agree.

We previously concluded that the 2012 Planning Rule’s soil and riparian resources requirements apply to the proposed amendments for the Pipeline. *Sierra Club*, 897 F.3d at 603. In its renewed ROD, the Forest Service acknowledges that the amendments are “directly related” to these requirements, but it maintains that it has complied with the

requirements because it “applied [them] to provide protection to resources without substantial lessening of protections for these resources.” J.A. 582.

This conclusion is not sound. First, the 2012 Planning Rule does not demand that the amendments protect forest resources without substantial lessening of protections. Rather, a forest plan “must include . . . components . . . to *maintain or restore* the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area.” 36 C.F.R. § 219.8(a)(1) (emphasis supplied). Because the Forest Service did not sufficiently consider the Pipeline’s actual sediment and erosion impacts, as we have already explained, the amendments to the Jefferson Forest Plan may not “maintain” soil and riparian resources within the scope of the 2012 Planning Rule. And because the Forest Service does not have a clear indication from FERC about the environmental impacts of the use of the conventional bore method to cross the four streams within the Jefferson National Forest, it is unclear whether the amendments to the Jefferson Forest Plan for the Pipeline will even “maintain” the forest’s resources, as the 2012 Planning Rule intended.

Further, the Forest Service cannot rely on the notion that because the Pipeline will affect only a minimal fraction of the entire Jefferson National Forest, application of the existing forest plan (*i.e.*, without Pipeline-related amendments) outside this area will continue to provide adequate protections. “If the Forest Service could circumvent the requirements of the 2012 Planning Rule simply by passing project-specific amendments on an ad hoc basis . . . the substantive requirements in the 2012 Planning Rule . . . would be meaningless.” *Cowpasture River Pres. Ass’n v. Forest Serv.*, 911 F.3d 150, 164 (4th

Cir. 2018), *rev'd and remanded on other grounds*, 140 S. Ct. 1837 (2020). In any event, the Forest Service has not provided an analysis of whether application of the existing Jefferson Forest Plan is adequately protecting these resources elsewhere in the Jefferson National Forest.

As a result, we are compelled to once again remand so that the Forest Service can properly apply the 2012 Planning Rule's soil and riparian resources requirements to the Pipeline amendments.

IV.

Conclusion

In sum, we conclude that the Forest Service and the BLM 1) inadequately considered the actual sedimentation and erosion impacts of the Pipeline; 2) prematurely authorized the use of the conventional bore method to construct stream crossings; and 3) failed to comply with the Forest Service's 2012 Planning Rule. Therefore, we grant the petitions for review as to those errors; deny the petitions with regard to Petitioners' remaining arguments about the predecisional review process, alternative routes, and increased collocation; vacate the decisions of the Forest Service and the BLM; and remand this matter to the agencies for further proceedings consistent with this opinion.

*PETITIONS FOR REVIEW GRANTED IN PART AND DENIED IN PART,
VACATED AND REMANDED*

Attachment F
MVP Plan of Development
(Submitted Under Separate Cover)

Attachment G

161 FERC ¶ 61,043
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Neil Chatterjee, Chairman;
Cheryl A. LaFleur, and Robert F. Powelson.

Mountain Valley Pipeline, LLC
Equitrans, L.P.

Docket Nos. CP16-10-000
CP16-13-000

ORDER ISSUING CERTIFICATES AND GRANTING ABANDONMENT
AUTHORITY

(Issued October 13, 2017)

1. On October 23, 2015, Mountain Valley Pipeline, LLC (Mountain Valley) filed an application in Docket No. CP16-10-000, pursuant to section 7(c) of the Natural Gas Act (NGA)¹ and Part 157 of the Commission's regulations,² for authorization to construct and operate its proposed Mountain Valley Pipeline Project in West Virginia and Virginia (MVP Project). The project is designed to provide up to 2,000,000 dekatherms (Dth) per day of firm transportation service from Wetzel County, West Virginia to Transcontinental Pipe Line Company, LLC's (Transco) Compressor Station 165 in Pittsylvania County, Virginia. Mountain Valley also requests a blanket certificate under Part 157, Subpart F of the Commission's regulations to perform certain routine construction activities and operations and a blanket certificate under Part 284, Subpart G of the Commission's regulations to provide open-access transportation services.

2. On October 27, 2015, Equitrans, L.P. (Equitrans) filed an application in Docket No. CP16-13-000, pursuant to section 7(c) of the NGA and Part 157 of the Commission's regulations, for authorization to construct and operate the system modifications necessary to enable Equitrans to provide an additional 600,000 Dth per day of north-to-south firm transportation service from western Pennsylvania to an interconnect with the MVP

¹ 15 U.S.C. § 717f(c) (2012).

² 18 C.F.R. pt. 157 (2017).

Project in Wetzel County, West Virginia (Equitrans Expansion Project). As part of the project, Equitrans also proposes to abandon, pursuant to section 7(b) of the NGA,³ its existing 4,800-horsepower (hp) Pratt Compressor Station in Greene County, Pennsylvania.

3. For the reasons discussed in this order, the Commission grants the requested certificate authorizations, subject to conditions.

I. Background

4. Mountain Valley,⁴ a Delaware limited liability company, does not currently own or operate any interstate pipeline facilities and does not provide any services subject to the Commission's jurisdiction. Upon commencement of operations proposed in its application, Mountain Valley will become a natural gas company within the meaning of section 2(6) of the NGA,⁵ and, as such, will be subject to the jurisdiction of the Commission.

5. Equitrans,⁶ a Pennsylvania limited partnership, is a natural gas company, engaged in the transportation and storage of natural gas in interstate commerce subject to the Commission's jurisdiction. Equitrans' interstate natural gas system is located in northern West Virginia and southwestern Pennsylvania.

³ 15 U.S.C. § 717f(b) (2012).

⁴ Five companies own Mountain Valley: (1) MVP Holdco, LLC, a subsidiary of EQT Corporation; (2) US Marcellus Gas Infrastructure, LLC, a subsidiary of NextEra Energy Capital Holdings, Inc.; (3) WGL Midstream, Inc., a subsidiary of WGL Holdings, Inc.; (4) RGC Midstream, LLC, a subsidiary of RGC Resources, Inc.; and (5) Con Edison Gas Midstream, LLC, a subsidiary of Consolidated Edison, Inc. See Exhibit A to the Joinder Agreement filed on January 27, 2016; see also Appalachian Mountain Advocates' December 22, 2016 Comment on the Draft EIS at 12-13 (stating that Vega Energy Partners, Ltd., an original owner of Mountain Valley, sold its shares to WGL Midstream, Inc. in late October 2016).

⁵ 15 U.S.C. § 717(a)(6) (2012).

⁶ Two subsidiaries of EQT Midstream Partners, LLC (Equitrans Investments, LLC and Equitrans Services, LLC) own Equitrans. EQT Midstream Partners, LLC is a subsidiary of EQT Corporation.

II. Proposals

A. Mountain Valley Pipeline Project

6. Mountain Valley proposes to construct and operate its project to provide up to 2,000,000 Dth per day of firm transportation service from Wetzel County, West Virginia to Transco's Compressor Station 165 in Pittsylvania, Virginia, enabling its shippers to access markets in the Northeast, Mid-Atlantic, and Southeast regions.

7. Specifically, Mountain Valley proposes to construct the following facilities:

- A 303.5-mile-long, 42-inch-diameter greenfield natural gas pipeline (the Mountain Valley pipeline) with a maximum allowable operating pressure (MAOP) of 1,480 pounds per square inch gauge (psig), extending from Equitrans' existing H-302 pipeline near MarkWest Liberty Midstream & Resources, L.L.C.'s (MarkWest) Mobley processing facility in Wetzel County, West Virginia at milepost (MP) 0.0, to an interconnection with Columbia Gas Transmission, LLC's (Columbia) WB System in Braxton County, West Virginia, at MP 77.6, and then to an interconnection with Transco's mainline system near Transco's existing Zone 5 Compressor Station 165 at MP 303.5 in Pittsylvania County, Virginia;⁷
- Three new compressor stations in West Virginia, totaling 171,600 nominal hp of compression:⁸
 - Bradshaw Compressor Station, located at MP 2.7 in Wetzel County, comprising four gas-driven turbine units totaling 89,600 hp;
 - Harris Compressor Station, located at MP 77.4 in Braxton County, comprising two gas-driven turbine units totaling 41,000 hp; and
 - Stallworth Compressor Station, located at MP 154.5 in Fayette County, comprising two gas-driven turbine units totaling 41,000 hp;
- Four new interconnections:

⁷ See Mountain Valley's October 14, 2016 Filing (revised pipeline route).

⁸ Mountain Valley also proposes to install ancillary facilities at each compressor station, such as a storage/maintenance building, gas and utility piping, separators, and safety equipment.

- Mobley Interconnect, located at MP 0.0 in Wetzel County, West Virginia, receiving natural gas from Equitrans' existing H-302 pipeline via Equitrans' proposed H-316 pipeline;⁹
- Sherwood Interconnect, located at MP 23.6 in Harrison County, West Virginia, receiving natural gas from MarkWest's existing upstream non-jurisdictional system at the discharge side of the Sherwood Gas Processing Plant;
- WB Interconnect, located at MP 77.6 in Braxton County, West Virginia, delivering gas from the MVP Project into Columbia's system; and
- Transco Interconnect, located at MP 303.5 in Pittsylvania County, Virginia, delivering natural gas from the MVP Project to Transco pipeline system at Transco's Compressor Station 165;
- Four new meter and regulating stations, one at each of the new interconnects;
- Three new taps:
 - Webster Tap at Equitrans' Webster Interconnect at MP 0.8 on the Mountain Valley pipeline in Wetzel County, West Virginia;
 - Lafayette Tap at Roanoke Gas Company's (Roanoke Gas) Lafayette Interconnect at MP 235.7 on the Mountain Valley pipeline in Montgomery County, Virginia; and
 - Franklin Tap at Roanoke Gas' Franklin Interconnect at MP 261.4 on the Mountain Valley pipeline in Franklin County, Virginia; and
- Related appurtenant facilities, such as eight pig launchers and receivers; 36 mainline block valves, cathodic protection, and communication towers.

8. EQT Midstream Partners, LP, a subsidiary of EQT Corporation and a parent of Mountain Valley, will operate the project.

⁹ The MVP Project will receive gas from Equitrans at two points: Mountain Valley's proposed Mobley Interconnect and Equitrans' proposed Webster Interconnect in Wetzel County, West Virginia.

9. Mountain Valley conducted a non-binding open season for firm transportation service from June 12, 2014 through July 10, 2014 and a binding open season from September 2, 2014 through October 21, 2014, resulting in the execution of binding precedent agreements on October 21, 2014 with EQT Energy, LLC (EQT Energy) and USG Properties Marcellus Holdings, LLC (USG) for 1,790,000 Dth per day of firm transportation on the project. Later, Mountain Valley executed binding precedent agreements with WGL Midstream, Inc. (WGL Midstream) on March 10, 2015, and Roanoke Gas Company on October 1, 2015, for the remaining capacity available on the system. Accordingly, the project is fully subscribed.

10. On January 27, 2016, Consolidated Edison of New York, Inc. (ConEd) executed a binding precedent agreement for 250,000 Dth per day of transportation service made available by USG reducing its firm transportation capacity commitment from 500,000 Dth per day to 250,000 Dth per day.¹⁰ In addition, Con Edison Gas Midstream, LLC, the parent company of ConEd, has become a part owner of Mountain Valley.¹¹ Currently, the project has five shippers for the contracted volumes below:

Shipper	Contracted Volumes
EQT Energy, LLC ¹²	1.29 million Dth per day
Roanoke Gas Company ¹³	10,000 Dth per day

¹⁰ See Mountain Valley's January 27, 2016 Supplemental Information at 1.

¹¹ See *id.* at 1-2.

¹² EQT Energy, LLC is a gas marketing subsidiary of EQT Corporation (an indirect owner of Mountain Valley), providing optimization of capacity and storage assets, natural gas liquids sales and natural gas sales to commercial and industrial customers.

¹³ Roanoke Gas Company, a subsidiary of RGC Resources, Inc. (as is Mountain Valley owner, RGC Midstream, LLC), is a utility that provides local natural gas distribution services in Virginia.

USG Properties Marcellus Holdings, LLC ¹⁴	250,000 Dth per day
WGL Midstream, Inc. ¹⁵	200,000 Dth per day
Consolidated Edison of New York, Inc. ¹⁶	250,000 Dth per day

The precedent agreements require the project shippers to execute 20-year term firm transportation service agreements.

11. Mountain Valley also conducted a non-binding open season from September 17, 2015 to October 1, 2015, for short-term firm transportation service between various receipt points in the Appalachian Basin area to the new WB Interconnect in Braxton County, West Virginia, during the interim period between when the WB Interconnect with Columbia is placed into service and when the Transco Interconnect is placed into service. No precedent agreements have yet been executed for the offered short-term firm service.

12. Mountain Valley estimates that the MVP Project will cost approximately \$3.7 billion. The project shippers each agreed to pay negotiated rates.

13. Mountain Valley also requests approval of its proposed *pro forma* tariff. Mountain Valley proposes initial maximum and minimum recourse reservation and usage rates set forth under Rate Schedules FTS (Firm Transportation Service), ITS (Interruptible Transportation Service), and ILPS (Interruptible Lending and Parking Service). Mountain Valley also proposes an Interim Service Period, during which it will provide firm and IT service to the WB Interconnect prior to the completion of the entire project.

¹⁴ USG Properties Marcellus Holdings, LLC, a subsidiary of NextEra Energy, Inc., and affiliate of Mountain Valley-owner US Marcellus Gas Infrastructure, LLC, is a natural gas production and distribution company.

¹⁵ WGL Midstream, Inc., which is also an owner of Mountain Valley, engages in developing, acquiring, investing in, managing and optimizing natural gas storage and transportation assets.

¹⁶ ConEd, an affiliate of Mountain Valley-owner Con Edison Gas Midstream, LLC, is a public utility that provides electric and natural gas distribution services.

14. Mountain Valley requests a Part 284, Subpart G blanket certificate of public convenience and necessity pursuant to section 284.221 of the Commission's regulations authorizing it to provide transportation service to customers requesting and qualifying for transportation service under its proposed FERC Gas Tariff, with pre-granted abandonment authority.¹⁷

15. Mountain Valley also requests a blanket certificate of public convenience and necessity pursuant to section 157.204 of the Commission's regulations authorizing future facility construction, operation, and abandonment as set forth in Part 157, Subpart F of the Commission's regulations.¹⁸

B. Equitrans Expansion Project

16. Equitrans proposes to construct and operate its Equitrans Expansion Project to provide up to 600,000 Dth per day of firm transportation service from southern Pennsylvania and northern West Virginia to proposed interconnections with the MVP Project in West Virginia.

17. Specifically, Equitrans proposes to construct the following facilities:

- Six new segments of natural gas pipelines, totaling about 7.87 miles, on Equitrans' existing mainline system:
 - H-318, a new 3.8-mile-long, 20-inch-diameter pipeline with an MAOP of 1,200 psig in Allegheny and Washington Counties, Pennsylvania, which will transport natural gas from EQT Gathering, LLC's¹⁹ Applegate Gathering System to Equitrans' existing H-148 pipeline;
 - H-316, a new 3.0-mile long, 20-inch-diameter pipeline with an MAOP of 1,200 psig in Greene County, Pennsylvania, extending from the new Redhook Compressor Station to Equitrans' existing H-302 pipeline;
 - H-305, a new 550-foot-long, 24-inch-diameter pipeline with an MAOP of 1,200 psig in Greene County, Pennsylvania, extending from the new Redhook Compressor Station to Equitrans' existing

¹⁷ 18 C.F.R. § 284.221 (2017).

¹⁸ *Id.* § 157.204.

¹⁹ EQT Gathering, LLC is a gathering subsidiary of EQT Corporation.

Braden Run Interconnect with Texas Eastern Transmission, L.P. (Texas Eastern);

- H-319, a new 200-foot-long, 16-inch-diameter pipeline with an MAOP of 1,200 psig in Wetzel County, West Virginia, extending from Equitrans' existing H-306 pipeline to its new Webster Interconnect;
- An 0.2-mile extension of Equitrans' existing 1.38-mile-long, 6-inch-diameter M-80 pipeline with an MAOP of 1,000 psig in Greene County, Pennsylvania, to the new Redhook Compressor Station; and
- An 0.2-mile extension of Equitrans' existing 1.42-mile-long, 12-inch-diameter H-158 pipeline with an MAOP of 1,000 psig in Greene County, Pennsylvania, to the new Redhook Compressor Station;
- The new Redhook Compressor Station, located at MP 0.0 in Greene County, Pennsylvania, which is comprised of two gas-fired reciprocating engines and two gas-fired turbine engines totaling 31,300 hp;
- Four new taps:
 - Mobley Tap at MP 0.6 on H-302 in Wetzel County, West Virginia, connecting with the Mountain Valley pipeline;
 - H-302 Tap at MP 3.0 on H-316 in Greene County, Pennsylvania;
 - H-306 Tap at MP 0.0 on H-319 in Wetzel County, West Virginia; and
 - H-148 Tap at MP 3.8 on H-318 in Washington County, Pennsylvania;
- The new Webster Interconnect, located around MP 0.1 in Wetzel County, West Virginia, which would deliver gas from Equitrans' H-306 to the new H-319 to the Mountain Valley pipeline;
- Six new tie-ins; and
- Related appurtenant facilities, such as three pig launchers and receivers, cathodic protection, and communication towers.

18. Additionally, Equitrans also requests authorization to abandon its existing 4,800-hp Pratt Compressor Station in Greene County, Pennsylvania, which will no longer be needed to provide service after construction of the new Redhook Compressor Station. Equitrans will use the abandoned site of the Pratt Compressor Station as a storage yard during operation of the Expansion Project. Specifically, Equitrans proposes to abandon two 1,080-hp compressor units, three 880-hp compressor units, the station building, coolers, storage tanks, auxiliary equipment and related piping, and a small portion of Equitrans' M-80 and H-158 pipelines.

19. Equitrans conducted a non-binding open season for firm transportation capacity from March 5, 2015, through March 20, 2015, for potential deliveries to existing and future interconnects, including interconnects with Texas Eastern, Dominion Transmission, Inc., and the MVP Project. As a result of the open season, Equitrans executed a precedent agreement with EQT Energy for 400,000 Dth of firm transportation service on the Expansion Project. Equitrans also conducted a reverse open season but did not receive any offers to turn back capacity. Equitrans states that it will enter into a 20-year firm transportation service agreement under Equitrans' existing Rate Schedule FTS for the subscribed capacity prior to the in-service date of its project.

20. Equitrans estimates the total cost of the project is approximately \$172 million. Equitrans proposes to use its existing mainline system rates as the initial recourse rates for firm transportation service. Equitrans and EQT Energy have entered into a negotiated rate agreement for firm transportation service on the Expansion Project.

III. Procedural

A. Notice, Interventions, Protests, and Comments

21. Notice of Mountain Valley's and Equitrans' applications was published in the *Federal Register* on November 13, 2015 (80 Fed. Reg. 70,196), with interventions, comments, and protests due by November 27, 2015.²⁰ The parties listed in Appendix A filed timely, unopposed motions to intervene, which were granted by operation of Rules 214(a)(2) and 214(c) of the Commission's Rules of Practice and Procedure.²¹ Late

²⁰ The Commission's Rules of Practice and Procedure provide that, if a filing deadline falls on a Saturday, Sunday, holiday, or other day when the Commission is not open for business, the filing deadline does not end until the close of business on the next business day. 18 C.F.R. § 385.2007(a)(2) (2017). The filing deadline fell on November 26, 2015, which was Thanksgiving Day. Thus, the filing deadline was the close of business on Friday, November 27, 2015.

²¹ *Id.* §§ 385.214(a)(2) and 385.214(c).

interventions were granted by notice issued on June 9, 2017, and this order, and are listed in Appendix B of this order.²² ICG Eastern, LLC (ICG Eastern) filed a late, opposed motion to intervene, which we grant, as discuss below.

22. ICG Eastern, the owner of coal mines that may be affected by the MVP Project, filed a late motion to intervene in the MVP Project proceeding on July 20, 2017. Mountain Valley filed a motion to oppose the late intervention on August 11, 2017, arguing that ICG Eastern was notified of the application on October 25, 2015, but sat on its right to intervene. To date, the Commission's practice in certificate proceedings has generally been to grant motions to intervene filed prior to issuance of the Commission's order on the merits.²³ While ICG Eastern's motion pushes this practice, we find that ICG Eastern has demonstrated a sufficient interest in the proceeding and under the circumstances here, we will grant its late motion to intervene.

23. Numerous entities and individuals filed comments and protests regarding various issues, including project purpose and need; project alternatives; geological hazards; water resources; wetlands; forested habitat; wildlife and threatened, endangered, and other special status species; land use, recreational areas, and visual resources; cultural resources; air quality and noise impacts; and safety. These concerns are addressed in the final Environmental Impact Statement (EIS) and/or below.

B. Answers

24. Mountain Valley; Coronado Coal, LLC (Coronado Coal); Roanoke County, Virginia; ConEd, NextEra Energy Resources, LLC (NextEra), WGL Midstream, Newport Rural Historic District Committee (Greater Newport); Louisa Gay; Four Corners Farm; and Appalachian Mountain Advocates filed answers. Some submitted multiple answers in response to other's answers.

25. Separately, in Docket No. CP16-13-000, Equitrans filed an answer to Peoples Natural Gas Company LLC's (Peoples) protest of Equitrans' application, which led Peoples to file a responsive answer. Peoples subsequently withdrew its protest.

26. Although the Commission's Rules of Practice and Procedure do not permit answers to protests or answers to answers, we find good cause to waive our rules and

²² See *id.* § 385.214(d).

²³ See *Dominion Transmission, Inc.*, 155 FERC ¶ 61,106, at P 9 (2016) (finding that granting the untimely motions to intervene filed prior to the issuance of the certificate order generally does not delay, disrupt, or unfairly prejudice other parties to the proceeding).

accept the answers because they provide information that has assisted in our decision making process.²⁴

C. Requests for a Formal Hearing

27. Several entities, including the Blue Ridge Environmental Defense League (Blue Ridge); jointly, the Shenandoah Valley Network, Highlanders for Responsible Development, Virginia Wilderness Committee, Shenandoah Valley Battlefields Foundation, and Natural Resources Defense Council (collectively Shenandoah Valley Network); Preserve Giles County; and Greater Newport request a formal hearing for both projects.

28. Although our regulations provide for a hearing, neither section 7 of the NGA nor our regulations require that such hearing be a formal, trial-type evidentiary hearing.²⁵ When, as is usually the case, the written record provides a sufficient basis for resolving the relevant issues, it is our practice to provide for a hearing based on the written record.²⁶ That is the case here. We have reviewed the requests for an evidentiary hearing and conclude that all issues of material fact relating to Mountain Valley's and Equitrans' proposals are capable of being resolved on the basis of the written record. Accordingly, we will deny the requests for a formal hearing.

IV. Discussion

29. Since the proposed facilities will be used to transport natural gas in interstate commerce and the facilities to be abandoned have been used to transport natural gas in interstate commerce subject to the jurisdiction of the Commission, the proposed

²⁴ See 18 C.F.R. § 385.213(a)(2) (2017).

²⁵ See *Minisink Residents for Environmental Preservation and Safety v. FERC*, 762 F.3d 97, 114 (D.C. Cir. 2014) (*Minisink Residents*) (stating “FERC’s choice whether to hold an evidentiary hearing is generally discretionary.”).

²⁶ See *NE Hub Partners, L.P.*, 83 FERC ¶ 61,043, at 61,192 (1998), *reh’g denied*, 90 FERC ¶ 61,142 (2000); *Pine Needle LNG Co., LLC*, 77 FERC ¶ 61,229, at 61,916 (1996). Moreover, courts have recognized that even where there are disputed issues, the Commission need not conduct an evidentiary hearing if the disputed issues “may be adequately resolved on the written record.” *Minisink Residents*, 762 F.3d at 114 (quoting *Cajun Elec. Power Coop., Inc. v. FERC*, 28 F.3d 173, 177 (D.C. Cir. 1994)).

abandonment, construction, and operation of the facilities are subject to subsections (b), (c), and (e) of section 7 of the NGA.²⁷

A. Certificate Policy Statement

30. The Certificate Policy Statement provides guidance for evaluating proposals to certificate new construction.²⁸ The Certificate Policy Statement establishes criteria for determining whether there is a need for a proposed project and whether the proposed project will serve the public interest. The Certificate Policy Statement explains, that in deciding whether to authorize the construction of major new natural gas facilities, the Commission balances the public benefits against the potential adverse consequences. The Commission's goal is to give appropriate consideration to the enhancement of competitive transportation alternatives, the possibility of overbuilding, subsidization by existing customers, the applicant's responsibility for unsubscribed capacity, the avoidance of unnecessary disruptions of the environment, and the unneeded exercise of eminent domain in evaluating new pipeline construction.

31. Under this policy, the threshold requirement for pipelines proposing new projects is that the pipeline must be prepared to financially support the project without relying on subsidization from existing customers. The next step is to determine whether the applicant has made efforts to eliminate or minimize any adverse effects the project might have on the applicant's existing customers, existing pipelines in the market and their captive customers, or landowners and communities affected by the construction. If residual adverse effects on these interest groups are identified after efforts have been made to minimize them, the Commission will evaluate the project by balancing the evidence of public benefits to be achieved against the residual adverse effects. This is essentially an economic test. Only when the benefits outweigh the adverse effects on economic interests will the Commission proceed to complete the environmental analysis where other interests are considered.

1. Mountain Valley Pipeline Project

a. Subsidization and Impacts on Existing Customers

32. As stated, the threshold requirement is that the applicant must be prepared to financially support the project without relying on subsidization from its existing customers. Mountain Valley is a new pipeline entrant with no existing customers. Thus,

²⁷ 15 U.S.C. §§ 717f(b), 717f(c), and 717f(e) (2012).

²⁸ *Certification of New Interstate Natural Gas Pipeline Facilities*, 88 FERC ¶ 61,227 (1999), *clarified*, 90 FERC ¶ 61,128, *further clarified*, 92 FERC ¶ 61,094 (2000) (Certificate Policy Statement).

there is no potential for subsidization on Mountain Valley's system or degradation of service to existing customers.

b. Need for the Project

33. Several parties and commenters challenged the need for the proposed MVP Project on several grounds, including: (1) the availability of existing infrastructure to serve demand for natural gas in Virginia, North Carolina, and South Carolina; (2) compliance with the Clean Power Plan or a shift in power generation could render the project's capacity unnecessary; (3) need for heightened scrutiny of precedent agreements with Mountain Valley affiliates; (4) potential of shifting of costs to captive ratepayers; (5) unreliability of Mountain Valley's market demand study; and (6) Mountain Valley's open seasons were not legitimate.

i. Ability of Existing Infrastructure to Meet Demand

34. Several commenters, such as Shenandoah Valley Network, argue that the MVP Project, Atlantic Coast Project,²⁹ Transco's Appalachian Connector,³⁰ and Columbia's WB Xpress Project,³¹ are redundant because they all are designed to deliver gas from the Marcellus and Utica production area³² to Transco's mainline system. They argue that

²⁹ The Atlantic Coast Pipeline Project is designed to increase firm transportation service by 1.5 billion Dth per day in West Virginia, Virginia, and North Carolina. The project is currently pending before the Commission in Docket Nos. CP15-554, CP15-555, and CP15-556.

³⁰ Transco has not filed an application, nor has it initiated a pre-filing process, with the Commission for its Appalachian Connector Project.

³¹ Columbia's proposed WB Xpress Project is designed to provide up to an additional 1.3 million Dth per day of bi-directional firm transportation service on Columbia's system. The WB Xpress Project is currently pending before the Commission in Docket No. CP16-38-000.

³² The Marcellus shale formation extends deep underground from Ohio and West Virginia, northeast through Pennsylvania and southern New York. The Utica shale formation lies a few thousand feet below Marcellus shale formation in primarily the same, but slightly larger area as the Marcellus shale formation. *See Beardslee v. Inflection Energy, LLC*, 761 F.3d 221, 224 (2d Cir. 2014).

Transco's Atlantic Sunrise Project³³ and utilization of unused capacity on existing interstate natural gas transmission systems would accommodate the growth in market demand in the Mid-Atlantic and Southeast, specifically Virginia and the Carolinas.³⁴ For that reason, they contend approving the MVP Project would result in the overbuilding of natural gas infrastructure.

35. Commenters, such as Shenandoah Valley Network, also argue that a state's compliance with the Environmental Protection Agency's Clean Power Plan³⁵ or potential switch to renewable fuel for power generation may render the capacity on the Mountain Valley system unnecessary. They argue that this potential should be considered in assessing project need.

36. In support of their positions, commenters rely on several studies. First, they cite a U.S. Department of Energy (DOE) study for the proposition that increasing utilization

³³ The Atlantic Sunrise Project will enable Transco to flow gas bidirectionally on its mainline system in order to provide up to 1.7 million Dth per day of firm transportation service from northern Pennsylvania to Alabama. The Commission issued a certificate for the fully-subscribed project on February 3, 2017. *Transcontinental Gas Pipe Line Company, LLC*, 158 FERC ¶ 61,125 (2017) (*Transo*).

³⁴ In addition to this argument, in its November 25, 2015 Motion to Intervene, Blue Ridge also asserts that the U.S. Department of Energy's estimates of recoverable shale gas supply is overly optimistic and has created a "bubble" for the commodity, which will ultimately harm the economy. Blue Ridge's argument is beyond the scope of this order because the Commission has no jurisdiction to regulate the production or gathering of natural gas. *See* 15 U.S.C. § 717(b) (2012). States, not the Commission, regulate production activities and are most likely to have the information necessary to foresee future production. The Commission can only act on the application before us.

³⁵ *See* EPA, *Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units*, 80 Fed. Reg. 64,662 (2015). *See also* *West Virginia v. Environmental Protection Agency*, 136 S.Ct. 1000 (2016) (staying the final rule).

rates of existing interstate gas pipelines, re-routing gas flows, and expanding existing pipeline capacity are potentially lower-cost alternatives to building new infrastructure.³⁶

37. Commenters also cite to a study by Synapse Energy Economics, Inc. (Synapse) that Southern Environmental Law Center and Appalachian Mountain Advocates commissioned, which asserts that existing gas pipeline capacity, existing storage in Virginia and the Carolinas, and the future operation of Transco's Atlantic Sunrise Project and Columbia's WB Xpress Project can satisfy the growing peak demand in that region.³⁷ The study concludes that the natural gas infrastructure capacity of the Virginia and the Carolinas region is more than sufficient to meet expected future peak demand.³⁸

38. Appalachian Mountain Advocates and others also cite to a study by the Institute for Energy Economics and Financial Analysis (IEEFA), which argues, in part, that interstate pipeline infrastructure to ship natural gas from the Marcellus and Utica region is overbuilt.³⁹

³⁶ See Shenandoah Valley Network's November 27, 2015 Motion to Intervene and Protest at 12-13 (quoting U.S. DEP'T OF ENERGY, *NATURAL GAS INFRASTRUCTURE IMPLICATIONS OF INCREASED DEMAND FROM THE ELECTRIC POWER SECTOR* at 31 <http://energy.gov/epsa/downloads/report-natural-gas-infrastructure-implications-increased-demand-electric-power-sector> (DOE Study)).

³⁷ SYNAPSE ENERGY ECONOMICS, INC., ARE THE ATLANTIC COAST PIPELINE AND THE MOUNTAIN VALLEY PIPELINE NECESSARY? (2016) (filed as Exhibit B of Appalachian Mountain Advocates' December 22, 2016 Comment on the Draft Environmental Impact Study) (Synapse Study).

³⁸ Specifically, the Synapse Study analyzes the winter peak hour gas usage under various scenarios, and finds that even under the highest gas usage scenario modeled, natural gas supply exceeds demand by approximately 100 million cubic feet per day (which is equivalent to about 100,000,000 Dth per day) through 2030. Synapse Study at Figure ES-2.

³⁹ INSTITUTE FOR ENERGY ECONOMICS AND FINANCIAL ANALYSIS, RISKS ASSOCIATED WITH NATURAL GAS EXPANSION IN APPALACHIA (April 2016) (attached to Friends of Nelson's December 9, 2016 Comment on the Draft EIS) (IEEFA Study).

39. In response to commenters, Mountain Valley filed its own market demand study.⁴⁰ The Wood Mackenzie Study estimates that demand growth for natural gas capacity in the Southeast will reach 8.3 billion cubic feet (Bcf) per day⁴¹ by 2030.⁴² Much of the gas needed to meet this demand would be from the Marcellus and Utica shale regions, which would require additional pipeline capacity.⁴³ Mountain Valley points out the other new projects, which the commenters argue make its project unnecessary, are being constructed to serve different, specific customers/markets and are themselves nearly fully subscribed. In turn, Appalachian Mountain Advocates and other commenters counter that the Wood Mackenzie Study is unreliable because it relies on data from an unusually cold winter and assumes gas will be flexible to meet the variable needs of generators.

40. The Certificate Policy Statement established a policy under which the Commission would allow an applicant to rely on a variety of relevant factors to demonstrate need, rather than continuing to require that a percentage of the proposed capacity be subscribed under long-term precedent or service agreements.⁴⁴ These factors might include, but are not limited to, precedent agreements, demand projections, potential cost savings to consumers, or a comparison of projected demand with the amount of capacity currently serving the market.⁴⁵ The Commission stated that it would consider all such evidence submitted by the applicant regarding project need. However, although the Certificate Policy Statement broadened the types of evidence certificate applicants may present to show the public benefits of a project, it did not compel an additional showing. The policy

⁴⁰ WOOD MACKENZIE, INC., SOUTHEAST U.S. NATURAL GAS MARKET DEMAND IN SUPPORT OF THE MOUNTAIN VALLEY PIPELINE PROJECT (Jan. 2016) (filed as Exhibit A of Mountain Valley's January 27, 2016 Answer) (Wood Mackenzie Study).

⁴¹ A volumetric capacity of 8.3 Bcf per day is equivalent to 8,300,000,000 Dth per day.

⁴² Wood Mackenzie Study at 6.

⁴³ *See id.* at 20-21.

⁴⁴ Certificate Policy Statement, 88 FERC at 61,747. Prior to the Certificate Policy Statement, the Commission required a new pipeline project to have contractual commitments for at least 25 percent of the proposed project's capacity. *See id.* at 61,743. The fully subscribed MVP Project and the two-thirds subscribed Equitrans Expansion Project would both have satisfied this prior, more stringent, requirement.

⁴⁵ Certificate Policy Statement, 88 FERC at 61,747.

statement made clear that, although precedent agreements are no longer required to be submitted, they are still significant evidence of project need or demand.⁴⁶

41. Mountain Valley has entered into long-term, firm precedent agreements with five shippers for 2,000,000 Dth per day of firm transportation service – the project’s full design capacity. Equitrans has entered into a precedent agreement for 66 percent of the design capacity of its project. Further, Ordering Paragraph (C)(4) of this order requires that Mountain Valley and Equitrans file a written statement affirming that they have executed final contracts for service at the levels provided for in their precedent agreements prior to commencing construction. The shippers on the MVP and Equitrans Expansion Projects will supply gas to a variety of end users and those shippers have determined that there is a market for their gas and the MVP and Equitrans Expansion Projects are the preferred means of delivering or receiving that gas. We find that the contracts entered into by the shippers are the best evidence that additional gas will be needed in the markets that the MVP and Equitrans Expansion Projects are intended to serve.⁴⁷ We find that Mountain Valley has sufficiently demonstrated that there is market demand for its project. We also find that end users will generally benefit from the projects because they will develop gas infrastructure that will serve to ensure future

⁴⁶ *Id.* at 61,748.

⁴⁷ While, as discussed above, we have relied on the existence of precedent agreements to find there is a need for the proposed projects, we will note that the findings of the studies may have been somewhat over stated by their filers. For example, rather than demonstrating that the current pipeline network is overbuilt, the DOE Study explains that the reason far less pipeline capacity is projected to be added between 2015 and 2030 (34 to 38 Bcf per day) than in the past (127 Bcf per day between 1998 and 2013) [*See* DOE Study at 20-21, 31] is that natural gas production and natural gas demand are now geographically dispersed; instead of pipelines stretching over a thousand miles, e.g., from the Rockies to the East Coast, the Marcellus shale supply is located much closer to the East Coast markets. [*See* DOE Study at 2-3.] Similarly, while the study notes that natural gas companies are increasingly using underutilized capacity on existing pipelines, re-routing natural gas flows, and expanding existing pipeline capacity, it does not contend that this supplants the need to build new infrastructure. [*See* DOE Study at n.51 (acknowledging that in some cases unsubscribed capacity is not available on existing pipelines and expanding existing pipeline capacity is not a viable option)]. The Synapse Study makes an unlikely assumption that all gas is flowed by primary customers along their contracted paths, failing to take into consideration the use of regional pipeline capacity by shippers outside of Virginia and the Carolinas by means of interruptible service or capacity release.

domestic energy supplies and enhance the pipeline grid by connecting sources of natural gas to markets in the Northeast, Mid-Atlantic, and Southeast regions.⁴⁸

42. We disagree with commenters' assertion that the Commission should examine the need for pipeline infrastructure on a region-wide basis. Commission policy is to examine the merits of individual projects and each project must demonstrate a specific need.⁴⁹ While the Certificate Policy Statement permits the applicant to show need in a variety of ways, it does not suggest that the Commission should examine a group of projects together and pick which projects best serve an estimated future regional demand. In fact, projections regarding future demand often change and are influenced by a variety of factors including economic growth, the cost of natural gas, environmental regulations, and legislative and regulatory decisions by the federal government and individual states. Given this uncertainty associated with long-term demand projections, such as those in the various studies noted by the applicants and commenters above, where an applicant has precedent agreements for long-term firm service, the Commission deems the precedent agreements to be the better evidence of demand. Thus, the Commission primarily relies – as it does here – on evaluating individual projects based on demonstrated need from specific shippers in the form of precedent agreements. We also note that neither any existing or proposed pipeline nor any pipeline customers have suggested that the MVP Project would have negative impacts on them, as one would expect them to do if they anticipated being burdened with the cost of unused capacity.

43. The final EIS considers the availability of capacity on other pipelines to serve as alternatives to the MVP and Equitrans Expansion Projects and determines that sufficient capacity to and from the necessary receipt and delivery points was not available.⁵⁰ Similarly, the final EIS concludes that renewable energy is not a comparable replacement for the transportation of natural gas to be provided by the projects.⁵¹ It is speculative and outside of the scope of this proceeding to consider whether a state would comply with the EPA's Clean Power Plan regulations (which regulations are subject to a judicial stay and

⁴⁸ See *ETC Tiger Pipeline, LLC*, 131 FERC ¶ 61,010, at P 20 (2010).

⁴⁹ With respect to comments requesting the Commission assess the market demand for gas to be transported by other proposed interstate pipeline projects, we note that the Commission will evaluate the proposals in those proceedings in accordance with the criteria established in the policy statement.

⁵⁰ See Final EIS at 3-1 to 3-4.

⁵¹ *Id.* at 3-1.

a notice of proposed rulemaking to repeal⁵²) and how a state would manage its electric-power fuel source for the next 20 years.

ii. **Precedent Agreements with Affiliate Shippers**

44. Commenters, such as Appalachian Mountain Advocates, argue that because shippers are affiliated with Mountain Valley, we should exercise heightened scrutiny in reviewing whether there is actual market demand for the project.⁵³ They also rely on former Commission Chairman Bay's statement that the Commission should look behind precedent agreements and reevaluate its test for need⁵⁴ to argue that the Commission's approval of affiliate-backed projects have resulted in the overbuilding of interstate gas infrastructure.

⁵² EPA, Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units (Oct. 10, 2017), https://www.epa.gov/sites/production/files/2017-10/documents/frn_cpp_repeal_2060-at55_proposal_20171010disclaimer.pdf.

⁵³ Appalachian Mountain Advocates and other commenters cite to *Millennium Pipeline Co., L.P.*, 100 FERC ¶ 61,277, at P 58 (2002) (*Millennium*), as an example of when the Commission exercised a heightened standard of review to prevent affiliate abuse of our regulation of interstate gas pipelines. However, the Commission did not exercise any heightened standard of review in the cited proceeding. Rather, in the referenced discussion, the Commission explained that it can exercise control over a non-jurisdictional affiliate of a pipeline when there is evidence that that affiliate is acting in concert with its pipeline in connection with interstate transport of natural gas in a manner that frustrates the Commission's effective regulation of the interstate pipeline. *See id.* (citing *Arkla Gathering Services Co.*, 67 FERC ¶ 61,257 (1994)). However, in *Millennium*, as here, the Commission stated that we do not distinguish between pipelines' precedent agreements with affiliates or independent marketers in establishing the market need for a proposed project. *Id.* at P 57.

⁵⁴ *National Fuel Gas Supply Corp.*, 158 FERC ¶ 61,145 (2017) (*National Fuel*).

45. We disagree. The fact that the project shippers are affiliated with Mountain Valley does not require the Commission to look behind the precedent agreements to evaluate project need.⁵⁵ As the court affirmed in *Minisink Residents for Environmental Preservation & Safety v. FERC*, the Commission may reasonably accept the market need reflected by the applicant's existing contracts with shippers.⁵⁶ An affiliated shipper's need for new capacity and its obligation to pay for such service under a binding contract are not lessened just because it is affiliated with the project sponsor.⁵⁷ When considering applications for new certificates, the Commission's primary concern regarding affiliates of the pipeline as shippers is whether there may have been undue discrimination against a non-affiliate shipper.⁵⁸ Here, no such allegations have been made, nor have we found that the project sponsors have engaged in any anticompetitive behavior. As discussed above, Mountain Valley and Equitrans held both non-binding and binding open seasons for capacity on their projects and all potential shippers had the opportunity to contract for service.

46. Former Chairman Bay's separate statement in *National Fuel* summarizes recent arguments that appear in our natural gas certificate proceedings. In particular, Chairman Bay encouraged the Commission to not focus exclusively on precedent agreements but to also take into account all the public benefit considerations listed in the Certificate Policy

⁵⁵ *Millennium*, 100 FERC ¶ 61,277 at P 57 (“as long as the precedent agreements are long-term and binding, we do not distinguish between pipelines’ precedent agreements with affiliates or independent marketers in establishing the market need for a proposed project”). *See also* Certificate Policy Statement, 88 FERC at 61,748 (explaining that the Commission’s policy is less focused on whether the contracts are with affiliated or unaffiliated shippers and more focused on whether existing ratepayers would subsidize the project); *see also id.* at 61,744 (the Commission does not look behind precedent agreements to question the individual shippers’ business decisions to enter into contracts) (citing *Transcontinental Gas Pipe Line Corp.*, 82 FERC ¶ 61,084, at 61,316 (1998)).

⁵⁶ *Minisink Residents*, 762 F.3d at 110 n.10; *see also Sierra Club v. FERC*, 867 F.3d 1357, 1379 (D.C. Cir. 2017) (Sabal Trail) (finding that pipeline project proponent satisfied Commission’s “market need” where 93 percent of the pipeline project’s capacity has already been contracted for).

⁵⁷ *See, e.g., Greenbrier Pipeline Company, LLC*, 101 FERC ¶ 61,122, at P 59 (2002), *reh’g denied*, 103 FERC ¶ 61,024 (2003).

⁵⁸ *See* 18 C.F.R. § 284.7(b) (2017) (requiring transportation service to be provided on a non-discriminatory basis).

Statement. Indeed, on a case-by-case basis, the Commission examines all evidence of public benefits and weighs them against adverse project impacts.

47. Appalachian Mountain Advocates also argue that we should treat ConEd as an “overnight” affiliate shipper because it was formed months after Mountain Valley filed its application.⁵⁹ Citing *Independence Pipeline Company*,⁶⁰ it argues that we should be dubious of the demand created by an overnight affiliate of an owner.

48. *Independence* is distinguishable from the facts here. *Independence* was a pre-Certificate Policy Statement proceeding. Thus, as discussed above,⁶¹ under the then-applicable policy the pipeline was required to demonstrate contractual commitments for at least 25 percent of the proposed project’s capacity. However, *Independence* had provided no contractual evidence of market support when it filed its application. After repeated statements by *Independence* that eleven shippers had expressed interest in the project, followed by its failure to provide precedent agreements to support those statements, Commission staff informed *Independence* that it would dismiss *Independence*’s application by September 24, 1997, if the precedent agreements were not submitted.⁶² On the eve of the deadline, *Independence* created an affiliate marketer with whom it signed a precedent agreement.⁶³ The Commission rejected the precedent agreement as evidence of market support for the project finding *Independence* had created an affiliate “virtually overnight” to falsely evidence market need for the project.⁶⁴

49. Here, Mountain Valley’s binding open season conducted in 2014 resulted in commitments from USG and EQT. By the time Mountain Valley filed its application in October 2015, it had signed binding precedent agreements with two additional shippers. Three months after it filed its application, ConEd both became an affiliate of Mountain Valley and a shipper on the project, taking, as described above, capacity previously subscribed by USG, another Mountain Valley affiliate. However, while a new affiliate of

⁵⁹ See Appalachian Mountain Advocates’ December 22, 2016 Comments on the Draft EIS at 12-13.

⁶⁰ 89 FERC ¶ 61,283 (1999) (*Independence*).

⁶¹ See *supra* note 44.

⁶² See 89 FERC at 61,820.

⁶³ See *id.* at 61,840.

⁶⁴ See *id.*

Mountain Valley, ConEd is a longstanding company, created many years prior to the filing date of Mountain Valley's application.⁶⁵

iii. Shifting Costs to Captive Ratepayers

50. Appalachian Mountain Advocates and other commenters argue that two project shippers, Roanoke Gas and ConEd, will pass the cost of the firm transportation service on the MVP Project through to their captive ratepayers through annual gas adjustment mechanisms. Appalachian Mountain Advocates also argue that because neither the Virginia nor New York public utility regulators have approved the precedent agreements, it is important for the Commission to scrutinize the proposal to determine whether the project is needed. Similarly, they argue that because USG and WGL Midstream, both owners of Mountain Valley, signed precedent agreements with Mountain Valley, they are able to bypass state public utility commission regulatory review when they pass the cost of the project through to their affiliate utility companies (i.e., Florida Power & Light Company (FPL) and Washington Gas Light Company (WGL)). Because state regulatory review of the precedent agreements have been lacking, customers of the affiliate utilities do not have a forum to contest rates.

51. In response to Appalachian Mountain Advocates' comment, ConEd states that it filed its precedent agreement with the New York State Public Service Commission and has been transparent with the New York regulators about its subscription to capacity on the MVP Project. It asks that the Commission not substitute its judgment for the judgement of New York regulators.

52. NextEra and WGL Midstream also filed an answer to Appalachian Mountain Advocates' comment, in which they deny the allegation that USG and WGL Midstream are attempting to avoid state regulatory oversight. They assert that both FPL and WGL contract for gas transportation on their own behalf and operate largely independently from their affiliates; thus neither USG nor WGL Midstream can pass along their costs from the MVP Project through to FPL or WGL. NextEra and WGL Midstream also contend that in the event either FPL or WGL enter into gas supply arrangements with any MVP Project shipper, or become project shippers themselves, those actions would be subject to state regulatory prudence review.

⁶⁵ In its December 22, 2016 Comment on the Draft EIS, Appalachian Mountain Advocates specifically identifies Con Edison Gas Midstream, LLC as an "overnight affiliate," but Appalachian Mountain Advocates' argument is misdirected. Its argument is centered on alleged false demand created by an "overnight" affiliate shipper. In this case, ConEd is the affiliate shipper, not Con Edison Gas Midstream, LLC, and has been an active corporation in the state of New York since 1884.

53. We find Appalachian Mountain Advocates' arguments unavailing. State utility regulators must approve any expenditures by state-regulated utilities. We disagree with commenters who suggest that once the Commission has made a determination in this proceeding, state regulators cannot effectively review the expenditures of utilities that they regulate. In fact, any attempt by the Commission to look behind the precedent agreements in this proceeding might infringe upon the role of state regulators in determining the prudence of expenditures by the utilities that they regulate. The Commission's policy of not looking beyond precedent agreements includes not limiting our reliance on such agreements to those which have been previously approved by a state public service commission. Further, Appalachian Mountain Advocates' reliance on *Guardian Pipeline, L.L.C.*⁶⁶ is misplaced. In that order, we stated that it is the Commission's "preference not to second guess the business decisions of end users or challenge the business decisions of an end user on whether it is economic to undertake direct service from a pipeline supplier, particularly when that decision has been approved by the appropriate regulatory body."⁶⁷ *Guardian* follows a long line of orders in which we have stated that we are reluctant to second guess the business decisions of pipeline shippers.⁶⁸ Issues related to a utility's ability to recover costs associated with its decision to subscribe for service on the MVP and Equitrans Expansion Projects involve matters to be determined by the relevant state utility commissions; those concerns are beyond the Commission's jurisdiction.

iv. Mountain Valley's Open Seasons

54. Appalachian Mountain Advocates and other commenters argue that the precedent agreements are not a result of the open season process. They contend that Mountain Valley had to extend its binding open seasons five times because no shipper subscribed to service in the prior open seasons. They assert that these extensions—along with the fact that the project is subscribed by only affiliates—suggest that the market does not support the project. Our open season policy for new interstate pipeline construction only requires that a pipeline applicant conduct a fair and transparent open season, prior to filing its application, for potential shippers to seek and obtain firm capacity rights.⁶⁹ One purpose of an open season is to provide the project sponsor with valuable information about

⁶⁶ 91 FERC ¶ 61,285 (2000) (*Guardian*).

⁶⁷ *Id.* at 61,966-67.

⁶⁸ See, e.g., *Southern Natural Gas Co.*, 76 FERC ¶ 61,122, at 61,635 (1996); *Williams Natural Gas Co.*, 70 FERC ¶ 61,306, at 61,924 (1995); *Tennessee Gas Pipeline Co.*, 69 FERC ¶ 61,239, at 61,901 (1994).

⁶⁹ See *Pine Prairie Energy Center, LLC*, 135 FERC ¶ 61,168, at P 30 (2011).

market interest that it can utilize to properly design and size its project.⁷⁰ Our policy does not limit the number of open seasons a project sponsor can hold. The significant fact is that the project is fully subscribed, not how long it took this to occur. The fact that no project was proposed before the Commission until market participants had indicated, by signing precedent agreements, that the ultimate proposal would indeed meet their needs, is indicative of the validity of the Commission's process and policy.

55. In conclusion, we find that the MVP Project will make reliable natural gas service available to end use customers and the market. Precedent agreements signed by multiple shippers for 100 percent of the project's capacity adequately demonstrate that the project is needed.

c. Existing Pipelines and Their Customers

56. The MVP Project is designed to transport domestically-sourced natural gas from the Marcellus and Utica supply areas to markets in the Northeast, Mid-Atlantic, and Southeast regions. No transportation service provider or captive customer has protested this project. Therefore, we find that the MVP Project will have no adverse impact on existing pipelines or their captive customers.

d. Landowners and Communities

57. Regarding impacts on landowners and communities along the project route, Mountain Valley proposes to locate its pipeline within or parallel to existing rights-of-way, where feasible. Approximately 30 percent of the MVP Project's rights-of-way will be collocated or adjacent to existing pipeline, roadway, railway, or utility rights-of-way.⁷¹ The new compressor stations will be constructed on land owned by Mountain Valley. Mountain Valley participated in the Commission's pre-filing process⁷² and has been working to address landowner and community concerns and input. Specifically, in order to address landowner requests, avoid sensitive environmental resources, such as archaeological sites and wetlands, and avoid steep terrain or side slopes, Mountain Valley incorporated over 11 route variations and 571 minor route variations (during pre-filing), and another 2 route variations and 130 additional minor variations (post-application filing) into its proposal.⁷³ Additionally, Mountain Valley has stated that it will make

⁷⁰ *Id.*

⁷¹ Final EIS at 2-10.

⁷² Docket No. PF15-3-000.

⁷³ Final EIS at ES-3 and 3-17.

good faith efforts to negotiate with landowners for any needed rights, and will resort only when necessary to the use of the eminent domain. Accordingly, while we are mindful that Mountain Valley has been unable to reach easement agreements with many landowners, for purposes of our consideration under the Certificate Policy Statement, we find that Mountain Valley has generally taken sufficient steps to minimize adverse impacts on landowners and surrounding communities.

58. Several commenters argue that the use of eminent domain in connection to the project would be unconstitutional because the project would only benefit private entities, not the public.⁷⁴ Several landowners, many of whom are intervenors in this proceeding, filed a complaint and petition for injunctive relief in U.S. District Court for the Western District of Virginia (Berkley Complaint) arguing that the Commission's issuance of a certificate to Mountain Valley, which effectuates eminent domain authority under NGA section 7(h), would result in the unlawful and unconstitutional takings of the plaintiffs' property.⁷⁵ Similarly, Bold Alliance, Bold Education Fund, Friends of Nelson, and individual landowners (collectively, Bold Alliance) filed a petition for declaratory order and injunctive relief in Federal District Court for the District of Columbia.⁷⁶ Bold Alliance alleges that the eminent domain provisions of the NGA and the Commission's Certificate Policy Statement do not further a public use, and therefore, violate the Due Process Clause and Takings Clause of the Fifth Amendment.

59. The Commission itself does not confer eminent domain powers. Under NGA section 7, the Commission has jurisdiction to determine if the construction and operation of proposed interstate pipeline facilities are in the public convenience and necessity. Once the Commission makes that determination and issues a natural gas company a certificate of public convenience and necessity, it is NGA section 7(h) that authorizes that certificate holder to acquire the necessary land or property to construct the approved facilities by exercising the right of eminent domain if it cannot acquire the easement by an agreement with the landowner.⁷⁷

⁷⁴ See, e.g., David and Judith Rauchle's November 25, 2015 Comment at 1; Helena Teekell's July 4, 2016 Comment at 1; and Anthony Novitzki's December 13, 2016 Comment at 1.

⁷⁵ See *Orus Ashby Berkley v. Mountain Valley Pipeline, LLC*, No. 7:17-cv-00357, Plaintiffs' Complaint and Memorandum of Law in Support of Plaintiffs' Motion for a Preliminary Injunction (July 27, 2017).

⁷⁶ The petition was filed with the Commission on September 6, 2017.

⁷⁷ 15 U.S.C. § 717f(h) (2012).

60. While this matter is currently before the court, we note that both the Berkley Complaint's and Bold Alliance's legal theory is unfounded. Both sets of plaintiffs generally argue that the Commission's certification process falls short of the standard required by the Constitution for a taking: that the exercise of eminent domain is for a "public use." As noted above, Congress provided in NGA section 7(h) that a certificate holder was entitled to use eminent domain. Congress did not suggest that there was a further test, beyond the Commission's determination under NGA section 7(c)(e),⁷⁸ that a proposed pipeline was required by the public convenience and necessity, such that certain certificated pipelines furthered a public use, and thus were entitled to use eminent domain, while others did not. The Commission has interpreted the section 7(c)(e) public convenience and necessity determination as requiring the Commission to weigh the public benefit of the proposed project against the project's adverse effects.⁷⁹ We undertake this balancing through our application of the Certificate Policy Statement criteria, under which we balance the public benefits of a project against the residual adverse effects.⁸⁰ Thus, through this balancing process we make findings that support our ultimate conclusion that the public interest is served by the construction of the proposed project.⁸¹ Accordingly, once a natural gas company obtains a certificate of

⁷⁸ 15 U.S.C. § 717f(e) (2012).

⁷⁹ As the agency that administers the Natural Gas Act, and in particular as the agency with expertise in addressing the public convenience and necessity standard in the Act, the Commission's interpretation and implementation of that standard is accorded deference. *See Chevron, USA, Inc. v. Natural. Res. Def. Council, Inc.*, 467 U.S. 837, 842-43 (1984); *Delaware Riverkeeper Network v. FERC*, 857 F.3d 388, 392 (D.C. Cir. 2017); *Office of Consumers' Counsel v. FERC*, 655 F.2d 1132, 1141 (D.C. Cir. 1980); *See Total Gas & Power N. Am., Inc. v. FERC*, No. 4:16-1250, 2016 WL 3855865, at *21 (S.D. Tex. July 15, 2016), *aff'd*, 859 F.3d 325 (5th Cir. 2017); *see also MetroPCS Cal., LLC v. FCC*, 644 F.3d 410, 412 (D.C. Cir. 2011) (under *Chevron*, the Court "giv[es] effect to clear statutory text and defer[s] to an agency's reasonable interpretation of any ambiguity").

⁸⁰ Certificate Policy Statement, 88 FERC at 61,747-49.

⁸¹ *Midcoast Interstate Transmission, Inc. v. FERC*, 198 F.3d 960, 973 (D.C. Cir. 2000) (because the Commission declared that the subject pipeline would serve the public convenience and necessity, the takings complained of did serve a public purpose); *see also Guardian Pipeline, L.L.C. v. 529.42 Acres of Land*, 210 F. Supp. 2d 971, 974 (N.D. Ill. 2002) (no evidence of public necessity other than the Commission's determination is required).

public convenience and necessity, it may exercise the right of eminent domain in a U.S. District Court or a state court.

61. The Commission, having determined that the MVP Project is in the public convenience and necessity, need not make a separate finding that the project serves a “public use” to allow the certificate holder to exercise eminent domain. In short, the Commission’s public convenience and necessity finding is equivalent to a “public use” determination.⁸² In enacting the NGA, Congress clearly articulated that the transportation and sales of natural gas in interstate commerce for ultimate distribution to the public is in the public interest.⁸³ This congressional recognition that natural gas transportation furthers the public interest is consistent with the Supreme Court’s emphasis on legislative declarations of public purpose in upholding the power of eminent domain.⁸⁴

62. Bold Alliance erroneously cites to *Transco*,⁸⁵ where the Commission, after evaluating record evidence of need for the project at issue, found that there was a need

⁸² See *Midcoast Interstate Transmission, Inc. v. FERC*, 198 F.3d at 973; see also *Troy Ltd. v. Renna*, 727 F.2d 287, 301 (3rd Cir. 1984) (“authoriz[ing] an occupation of private property by a common carrier . . . engaged in a classic public utility function” is an “exemplar of a public use”); *E. Tenn. Natural Gas Co. v. Sage*, 361 F.3d 808 (4th Cir. 2004) (“Congress may, as it did in the [Natural Gas Act], grant condemnation power to ‘private corporations . . . execut[ing] works in which the public is interested.’”) (quoting *Miss. & Rum River Boom Co. v. Patterson*, 98 U.S. 403, 406 (1878)).

⁸³ 15 U.S.C. § 717(a) (2012) (declaring that the “business of transporting and selling natural gas for ultimate distribution to the public is affected with a public interest”). See also *Thatcher v. Tennessee Gas Transmission Co.*, 180 F.2d 644, 647 (5th Cir. 1950) (*Thatcher*), cert. denied, 340 U.S. 829 (1950) (explaining that Congress, in enacting the NGA, recognized that “vast reserves of natural gas are located in States of our nation distant from other States which have no similar supply, but do have a vital need of the product; and that the only way this natural gas can be feasibly transported from one State to another is by means of a pipe line.”).

⁸⁴ *Kelo v. City of New London, Conn.*, 545 U.S. 469, 479-80 (2005) (upholding a state statute that authorized the use of eminent domain to promote economic development); see also *id.* at 480 (noting that without exception the Court has defined the concept of “public purpose” broadly, reflecting the Court’s longstanding policy of deference to the legislative judgments in this field).

⁸⁵ *Transcontinental Gas Pipe Line Co., LLC*, 158 FERC ¶ 61,125 (2017).

for the project for purposes of section 7(c) of the NGA⁸⁶ and that the project served a public purpose sufficient to satisfy the Takings Clause.⁸⁷ We have done the same here. The proposed projects in this proceeding, are designed to primarily serve natural gas demand in the Northeast, Mid-Atlantic, and Southeast regions. Through the transportation of natural gas from the projects, the public at large will benefit from increased reliability of natural gas supplies. Furthermore, upstream natural gas producers will benefit from the project by being able to access additional markets for their product. Therefore, we conclude that the proposed project is required by the public convenience and necessity.

63. Notwithstanding the fact that we addressed a takings argument raised in *Transco* and here, such a question is beyond our jurisdiction: only the courts can determine whether Congress' action in passing section 7(h) of the NGA conflicts with the Constitution. We note, however, that courts have found eminent domain authority in section 7(h) of the NGA to be constitutional.⁸⁸

e. Conclusion

64. We find that the benefits that the MVP Project will provide to the market outweigh any adverse effects on existing shippers, other pipelines and their captive customers, and landowners or surrounding communities. Consistent with the criteria discussed in the Certificate Policy Statement and NGA section 7(e), and subject to the environmental discussion below, we find that the public convenience and necessity requires approval of Mountain Valley's proposal, as conditioned in this order.

⁸⁶ *Id.* PP 20-33.

⁸⁷ *Id.* PP 66-67.

⁸⁸ *See Thatcher*, 180 F.2d at 647. In addition, the eminent domain authority in many federal statutes mirror the authority in section 7(h) of the NGA. For instance, section 21 of the Federal Power Act (FPA), 16 U.S.C. § 814 (2012), provides that when a licensee cannot acquire by contract lands or property necessary to construct, maintain, or operate a licensed hydropower project, it may acquire the same by the exercise of the right of eminent domain in a U.S. District Court or a state court. The U.S. Supreme Court has not questioned the constitutionality of section 21 of the FPA. *See FPC v. Tuscarora Indian Nation*, 362 U.S. 99, 123-24 (1960). Similarly, Congress included the same eminent domain authority for permit holders for electric transmission facilities when it enacted the Energy Policy Act of 2005. 16 U.S.C. § 824p(e)(1) (2012).

2. Equitrans Expansion Project

65. As stated, the threshold requirement for pipelines proposing new projects is that the applicant must be prepared to financially support the project without relying on subsidization from its existing customers. The Commission has determined, in general, that where a pipeline proposes to charge incremental rates for new construction that are higher than the company's existing system rates, the pipeline satisfies the threshold requirement that the project will not be subsidized by existing shippers.⁸⁹ Here, Equitrans calculated the incremental firm transportation base reservation rate, which was lower than its existing system-wide rate. Equitrans therefore proposes to charge its existing mainline system rates as the initial recourse rates, which will recover the costs of the project. Accordingly, we find that the Equitrans Expansion Project will not be subsidized by existing customers and satisfies the threshold no-subsidy requirement under the Certificate Policy Statement.

66. Peoples, a shipper on Equitrans' existing system, protested Equitrans' application because it was concerned that the proposed change of gas-flow direction on Equitrans' system (i.e., from south-to-north to north-to-south) could disrupt service to Peoples in the northern portion of Equitrans' existing system. Subsequently, Equitrans negotiated with Peoples to address Peoples' concerns and conducted additional modeling and flow analysis, resulting in an agreed upon statement concerning how operation of the proposed project would not negatively impact Peoples' existing service.⁹⁰ Later, Peoples withdrew its protest, conditioned on the Commission's acceptance and incorporation of specific language agreed to by the parties explaining how Equitrans would operate its system to ensure that Peoples' service was not affected.⁹¹

67. Commission staff's review of the engineering data submitted in the proceeding confirms that the Equitrans Expansion Project would not adversely affect Equitrans'

⁸⁹ See *Transcontinental Gas Pipe Line Corp.*, 98 FERC ¶ 61,155, at 61,552 (2002) (noting that the Commission has previously determined that where a pipeline proposes to charge an incremental rate for new construction, the pipeline satisfies the threshold requirement that the project will not be subsidized by existing shippers) (citations omitted); see also *Dominion Transmission, Inc.*, 155 FERC ¶ 61,106 (2016) (same).

⁹⁰ See Equitrans' February 24, 2017 Data Request Response at 1; Peoples' April 18, 2017 Notice of Withdrawal of Protest at 2.

⁹¹ Peoples' April 18, 2017 Notice of Withdrawal of Protest at n.3 (Equitrans and Peoples agreed that if the MVP Project shippers nominate natural gas flows less than levels assumed in Equitrans' flow models, then flows to Mountain Valley and the use of the Redhook Compressor Station will be reduced accordingly in order to transport gas to Peoples' delivery points "in the same manner as it is today").

ability to meet its firm contractual obligations to Peoples and other existing customers. We appreciate that the parties have negotiated an understanding that reinforces Equitrans' certificate obligation to operate its system in a manner that will meet all of its contractual obligations. However, based on Commission staff's finding that operation of the Equitrans Expansion Project would not adversely affect Peoples' service on Equitrans' existing system, we find that the inclusion of the requested language in this order is unnecessary and therefore, we decline to include it. In the unanticipated event service on the Equitrans Expansion Project causes service disruptions to Peoples under its firm transportation service contract, Peoples may file a complaint with the Commission, seek reservation charge credits, or seek damages under its contract in court. Thus, we find that the proposal will not adversely affect Equitrans' existing customers because there will be no degradation of existing service. In addition, other pipelines and their captive customers will not be adversely impacted because the proposal is not intended to replace service on other pipelines. Rather, the project would allow Equitrans to provide additional transportation services to EQT Energy on its system. Further, no pipeline or their captive customers have protested the application.

68. We also find that the Equitrans Expansion Project will have minimal adverse impacts on landowners and communities. Approximately 32 percent of the right-of-way for the proposed project will be collocated or adjacent to existing pipeline, roadway, railway, or utility rights-of-way.⁹² Additionally, the Redhook Compressor Station will be located on land owned by Equitrans.

69. We find that Equitrans' proposed abandonment of facilities is permitted by the present or future public convenience or necessity.⁹³ Once construction is complete, the Redhook Compressor Station will replace the Pratt Compressor Station. In addition, small portions of Equitrans' existing M-80 and H-158 pipelines, which currently connect to the Pratt Compressor Station, will be rerouted from the Pratt Compressor Station to the Redhook Compressor Station in order to continue service. Thus, the proposed abandonment of the Pratt Compressor Station, its appurtenant facilities, and portions of the M-80 and H-158 pipelines will not affect existing customers on Equitrans' system. Last, no shipper affected by the proposed abandonment has filed comments in opposition to Equitrans' proposal.

70. We find that the benefits that the Equitrans Expansion Project will provide to the market outweigh any adverse effects on existing shippers, other pipelines and their captive customers, and on landowners and surrounding communities. Consistent with the criteria discussed in the Certificate Policy Statement and subject to the environmental

⁹² Final EIS at ES-7.

⁹³ 15 U.S.C. § 717f(b) (2012).

discussion below, we find that the public convenience and necessity requires approval of Equitrans' proposal, as conditioned in this order.

B. Blanket Certificates

71. Mountain Valley requests a Part 284, Subpart G blanket certificate in order to provide open-access transportation services. Under a Part 284 blanket certificate, Mountain Valley will not require individual authorizations to provide transportation services to particular customers. Mountain Valley filed a *pro forma* Part 284 tariff to provide open-access transportation services. Since a Part 284 blanket certificate is required for Mountain Valley to offer these services, we will grant Mountain Valley a Part 284 blanket certificate, subject to the conditions imposed herein.

72. Mountain Valley also requests a Part 157, Subpart F blanket certificate. A Part 157 blanket certificate gives an interstate pipeline NGA section 7 authority to automatically, or after prior notice, perform certain activities related to the construction, acquisition, abandonment, and replacement and operation of pipeline facilities.

73. Roanoke County, Virginia (Roanoke County) objects to Mountain Valley's request for pre-granted abandonment or acquisition authority under a Part 157 blanket certificate. Roanoke County contends that the Commission must determine the public convenience and necessity of Mountain Valley's request at the time of any proposal to abandon or acquire facilities.

74. Roanoke County presents no arguments why Mountain Valley's specific request for a blanket certificate should be denied; rather it seems to take general issue with the Commission's blanket certificate program. Part 157, Subpart F of the Commission's regulations authorizes a certificate holder to engage in a limited number of routine activities under a blanket certificate, subject to certain reporting, notice, and protest requirements.⁹⁴ The blanket certificate procedures are intended to increase flexibility and reduce regulatory and administrative burdens. Because the eligible activities permitted under a blanket certificate regulations can satisfy our environmental requirements and meet the blanket certificate cost limits, they will have minimal impacts, such that the close scrutiny involved in considering applications for case-specific certificate authorization is not necessary to ensure compatibility with the public convenience and necessity. For almost all eligible activities, a certificate holder seeking to engage in such activities must notify landowners prior to commencing the activity.⁹⁵ For activities that require prior notice, an opportunity to protest is afforded once notice of the certificate

⁹⁴ See 18 C.F.R. § 157.203 (2017).

⁹⁵ See *id.* § 157.203(d).

holder's request is issued to the public.⁹⁶ If a protest cannot be resolved, then the certificate holder may not perform the requested activity under a blanket certificate.⁹⁷ Thus, because Mountain Valley will be operating a jurisdictional pipeline facility for which this order grants certificate authorization, we will also grant the requested Part 157, Subpart F blanket construction certificate authorizing Mountain Valley's performance of certain routine activities in conjunction with its operation of the pipeline.

C. Rates

1. Mountain Valley Pipeline Project

a. Mountain Valley's Initial Recourse Transportation Rates

75. Under the proposed *pro forma* tariff, Mountain Valley proposes to provide firm transportation service under its Rate Schedule FTS, interruptible transportation service under its Rate Schedule ITS, and interruptible lending and parking service under its Rate Schedule ILPS, all pursuant to Part 284 of the Commission's regulations. Instead of paying cost-based recourse rates, the project shippers have elected to pay negotiated rates for transportation service on the project.⁹⁸ Mountain Valley states that it will file the negotiated rate agreements, as specified by the Commission's regulations.

76. To derive its firm recourse transportation charges, Mountain Valley states that it utilized a straight-fixed variable rate design methodology and designed its rates on a postage-stamp basis. For firm transportation service under Rate Schedule FTS, Mountain Valley proposes a monthly reservation recourse charge of \$29.5967 per Dth and a commodity charge of \$0.0035 per Dth based on annual reservation determinants of 730,000,000 Dth and an annual cost of service of \$712,903,260.⁹⁹ Mountain Valley proposes to charge a maximum daily IT recourse rate of \$0.9766 per Dth, based on the maximum daily FTS reservation charge plus the FTS commodity charge. Mountain

⁹⁶ *See id.* § 157.205.

⁹⁷ *See id.* § 157.205(f).

⁹⁸ Details of the negotiated rate authority are contained in Mountain Valley's General Terms & Conditions (GT&C) section 6.27.

⁹⁹ Exhibit P, Schedule 1, Page 2 of Mountain Valley's Application. Mountain Valley breaks down the annual cost of service into \$710,320,684 for fixed costs and \$2,582,576 for variable costs.

Valley also proposes to charge a maximum rate of \$0.9755 per Dth for lending and parking under its Rate Schedule ILPS.

77. In addition, Mountain Valley proposes to offer Interim Period Service, from Wetzel County to the WB Interconnect, prior to the in-service date of the entire project.¹⁰⁰ Mountain Valley's proposed Interim Period Service rates under Rate Schedule FTS consist of a \$15.9014 per Dth monthly reservation recourse charge and a \$0.0032 per Dth commodity charge based on annual reservation determinants of 377,651,265 Dth and an annual cost of service of \$198,628,658.¹⁰¹ The Interim Period Service IT recourse rate of \$0.5260 per Dth is based on the maximum daily FTS reservation rate plus the FTS commodity charge.

78. The Commission has reviewed Mountain Valley's proposed cost of service and initial rates and finds that they generally reflect current Commission policy, except for Mountain Valley's proposed return on equity (ROE), which we discuss below. The Commission accepts Mountain Valley's proposed recourse rates as the initial rates for service on its project, subject to the revisions discussed below.

b. Return on Equity and Capital Structure

79. Mountain Valley developed its proposed initial rates based on a capital structure of 40 percent debt and 60 percent equity, with a debt cost of 6 percent and a ROE of 14 percent. Mountain Valley states that its expected capital structure is reflective of the large capital expenditure necessary to construct the project, which it alleges will result in a large non-recourse placement of debt in the debt markets. Mountain Valley's weighted average cost of capital under its proposed capital structure is 10.8 percent.

80. Mountain Valley's combined return on equity and capital structure proposal does not reflect current Commission policy. For new pipelines, the Commission has approved an ROE of 14 percent, but only where the equity component of the capitalization is no

¹⁰⁰ See Mountain Valley's Application, Exhibit P, Part II – Pro Forma Tariff, Mountain Valley Pipeline, LLC, FERC Gas Tariff, Volume No. 1, Section 4.1 Statement of Rates – FTS.

¹⁰¹ Exhibit P, Schedule 2, Page 2 of Mountain Valley's Application. Mountain Valley breaks down the annual cost of service into \$197,431,290 for fixed costs and \$1,197,368 for variable costs.

more than 50 percent.¹⁰² In *Florida Southeast Connection, LLC*, the Commission approved a greenfield pipeline's proposed 14 percent ROE but rejected its capital structure of 60-percent equity and 40-percent debt. The Commission found that imputing a capitalization containing such a large equity ratio is more costly to ratepayers, because equity financing is typically more costly than debt financing and the interest incurred on debt is tax deductible.¹⁰³ Consequently, the Commission required that the greenfield pipeline design its cost-based rates on a capital structure that included at least 50-percent debt.¹⁰⁴

81. Appalachian Mountain Advocates argue that Mountain Valley's requested 14-percent ROE is higher than the ROE in other utility sectors. It also contends that the high ROE motivates the project shippers to become owners of Mountain Valley because the shipper/owner can then recover the "generous" return on equity.¹⁰⁵

82. The Commission's policy of approving equity returns of up to 14 percent with an equity capitalization of no more than 50 percent provides an appropriate incentive for new pipeline companies to enter the market and reflects the fact that greenfield pipelines undertaken by a new entrant in the market face higher business risks than existing pipelines proposing incremental expansion projects.¹⁰⁶ Thus, approving Mountain Valley's requested 14-percent return on equity in this instance is in response to the risk Mountain Valley faces as a new market entrant, constructing a new greenfield pipeline system. Moreover, the returns approved for other utilities, such as electric utilities and LDCs are not relevant because there is no showing that these companies face the same level of risk as faced by greenfield projects proposed by a new natural gas pipeline

¹⁰² *Florida Southeast Connection, LLC*, 154 FERC ¶ 61,080, *order on reh'g*, 156 FERC ¶ 61,160 (2016), *vacated and remanded sub nom. Sabal Trail*, 867 F.3d 1357 (affirming the Commission's approval of a 14-percent ROE based on a 50-50 debt-equity capital structure); *MarkWest Pioneer, L.L.C.*, 125 FERC ¶ 61,165 (2008).

¹⁰³ *See Florida Southeast Connection*, 154 FERC ¶ 61,080 at P 117.

¹⁰⁴ *See id.*

¹⁰⁵ Appalachian Mountain Advocates' Dec. 22, 2016 Comments on Draft EIS at 11, 17-18.

¹⁰⁶ *See, e.g., Rate Regulation of Certain Natural Gas Storage Facilities*, Order No. 678, FERC Stats & Regs. 31,220, at P 127 (2006) (explaining that existing pipelines who need only acquire financing for incremental expansions face less risk than "a greenfield project undertaken by a new entrant in the market").

company.¹⁰⁷ Appalachian Mountain Advocates' second argument is inapposite where, as here, the bulk of the shippers are producers or marketers who will be competing against other producers/marketers in the interstate market for the sale of their gas. These parties have no guarantee that they will recover the costs of their capacity commitment and are fully at risk for the cost of that capacity.

83. Further, as explained below, we are requiring Mountain Valley to file a cost and revenue study at the end of its first three years of actual operation to justify its existing cost-based rates. The three-year report will provide an opportunity for the Commission and the public to review Mountain Valley's original estimates, upon which its initial rates are based, to determine whether Mountain Valley is over-recovering its cost of service with its approved initial rates, and whether the Commission should exercise its authority under section 5 of the NGA to establish just and reasonable rates. Alternatively, Mountain Valley may elect to make a NGA section 4 filing to revise its initial rates. In such section 4 proceeding, the public would have an opportunity to review Mountain Valley's proposed return on equity and other cost of service components at that time and would have an opportunity to raise issues relating to the rate of return, as well as all other cost components. Accordingly, we find that Mountain Valley's proposed rates will "ensure that the consuming public may be protected" until just and reasonable rates can be determined through the more thorough and time-consuming ratemaking sections of the NGA.¹⁰⁸

84. For the foregoing reasons we approve Mountain Valley's proposed 14 percent ROE as reflective of current Commission policy for a new pipeline entity. However, Mountain Valley must design its cost-based rates on a capital structure that includes at least 50 percent debt. Mountain Valley is directed to recalculate its recourse rates in its compliance filing.

c. Fuel Charge

85. Mountain Valley states that it will implement a retainage factor to track and recover actual experienced fuel and lost and unaccounted for gas. Mountain Valley states that the initial posted retainage factor will be 1.36 percent based on the fuel study submitted as Exhibit Z-3 of its application. The Commission finds the fuel study

¹⁰⁷ The Commission has previously concluded that distribution companies are less risky than a pipeline company. *See, e.g., Trailblazer Pipeline Co.*, 106 FERC ¶ 63,005, at P 94 (2004) (rejecting inclusion of local distribution companies in a proxy group because they face less risk than a pipeline company).

¹⁰⁸ *Id.* at 392.

acceptable and approves the proposed 1.36 percent retainage factor as Mountain Valley's initial retainage rate.

86. As previously mentioned, Mountain Valley will enter into negotiated rate agreements with the project shippers on its system. Such agreements include provisions regarding fuel retention. The Commission prohibits a pipeline from shifting costs associated with negotiated rate shippers to recourse rate shippers.¹⁰⁹ Consistent with this policy, the Commission has held that when a pipeline negotiates fuel retainage percentage factors with a negotiated rate shipper, the pipeline must bear the risk of under-recovery of its fuel costs and cannot shift unrecovered fuel costs to its recourse rate shippers.¹¹⁰ Accordingly, in any fuel proceeding, Mountain Valley will have the burden of showing that its proposal does not shift any unrecovered fuel costs from negotiated rate shippers to recourse rate shippers.

d. Three-Year Filing Requirement

87. Consistent with Commission precedent, Mountain Valley is required to file a cost and revenue study at the end of its first three years of actual operation to justify its existing cost-based firm and interruptible recourse rates.¹¹¹ In its filing, the projected units of service should be no lower than those upon which Mountain Valley's approved initial rates are based. The filing must include a cost and revenue study in the form specified in section 154.313 of the Commission's regulations to update cost of service data.¹¹² Mountain Valley's cost and revenue study should be filed through the eTariff portal using a Type of Filing Code 580. In addition, Mountain Valley is advised to include as part of the eFiling description, a reference to Docket No. CP16-10-000 and the cost and revenue study.¹¹³ After reviewing the data, the Commission will determine whether to exercise its authority under NGA section 5 to investigate whether the rates remain just and reasonable. In the alternative, in lieu of this filing, Mountain Valley may make a NGA general section 4 rate filing to propose alternative rates to be effective no later than three years after the in-service date for its proposed facilities.

¹⁰⁹ See *Ruby Pipeline, L.L.C.*, 128 FERC ¶ 61,224, at P 62 (2009).

¹¹⁰ *Id.*

¹¹¹ *Rover Pipeline LLC*, 158 FERC ¶ 61,109, at P 82 (2017); *Bison Pipeline LLC*, 131 FERC ¶ 61,013, at P 29 (2010); *Ruby Pipeline*, 128 FERC ¶ 61,224 at P 57.

¹¹² 18 C.F.R. § 154.313 (2017).

¹¹³ *Electronic Tariff Filings*, 130 FERC ¶ 61,047, at P 17 (2010).

2. Equitrans Expansion Project

a. Equitrans' Initial Recourse Transportation Rate

88. Equitrans proposes to use its existing mainline system rates as the initial recourse rates for firm transportation service on the Expansion Project. Equitrans calculated an illustrative monthly incremental reservation charge for the project of \$4.2408 per Dth.¹¹⁴ This illustrative charge is lower than Equitrans' currently effective reservation charge for Rate Schedule FTS of \$6.1206 per Dth for Winter (November 1 to March 31) and \$7.5189 per Dth for Non-Winter (April 1 to October 31).¹¹⁵ In addition, Equitrans' illustrative incremental commodity charge is lower than its currently-effective commodity charge.¹¹⁶ Commission policy requires that when an incremental rate is lower than the system rate, the system rate is used as the initial recourse rate for providing service on the expansion project.¹¹⁷ Therefore, we will approve the use of Equitrans' existing system rates as the initial recourse rates for services utilizing the new capacity created by the expansion facilities.

b. Fuel

89. Equitrans states that the expected fuel usage for the new project facilities is approximately 0.98 percent per Dth, which is less than its Mainline System Retainage Factor of 2.72 percent. Therefore, it maintains that existing customers will not subsidize the project. In addition to the lower fuel percentage, Equitrans has a fixed fuel rate set forth in its Commission-approved tariff. Thus, in the event service under the project causes Equitrans to use more fuel than it recovered from its project shipper, Equitrans will bear the risk of any under recovery of fuel as its fuel rates are fixed and it is unable

¹¹⁴ Exhibit N, page 2 of Equitrans' Application. $\$30,522,569$ (Cost of Service) \div $219,000,000$ (annual billing determinants [$600,000 \times 365$]) = $\$0.1394$ per Dth. $\$0.1394 \times 365 \div 12 = \4.2408 per Dth per month.

¹¹⁵ Equitrans, L.P., FERC NGA Gas Tariff, Equitrans Tariff, [Section 4.1, Transportation Rates NOFT, FTS, STS-1 & FTSS, 15.1.0.](#)

¹¹⁶ Equitrans calculates a commodity rate of $\$0.0071$, compared to the mainline commodity rate of $\$0.1481$ for winter, and $\$0.1466$ for base, based on total first-year operation and maintenance expense of $\$1,562,448$.

¹¹⁷ See, e.g., *Tennessee Gas Pipeline Company, L.L.C.*, 157 FERC ¶ 61,208, at P 19 (2016); *Eastern Shore Natural Gas Company*, 156 FERC ¶ 61,054, at P 21 (2016) (*Eastern Shore*).

to pass through any underrecovery of fuel costs.¹¹⁸ Therefore, existing customers will not subsidize the fuel recovery of the project.

c. Predetermination of Rolled-in Rate Treatment

90. Equitrans requests a predetermination that it may roll the costs associated with the project into its system-wide rates in a future NGA section 4 rate case. In considering a request for a predetermination that a pipeline may roll the costs of a project into its system-wide rates in its next NGA general section 4 rate proceeding, a pipeline must demonstrate that rolling in the costs associated with the construction and operation of new facilities will not result in existing customers subsidizing the expansion.¹¹⁹ In general, this means that a pipeline must show that the revenues to be generated by an expansion project will exceed the cost of the project. For purposes of making such a determination, we compare the cost of the project to the revenues generated utilizing actual contract volumes and the maximum recourse rate (or the actual negotiated rate if the negotiated rate is lower than the recourse rate).¹²⁰

91. Here, EQT Energy has elected to pay a negotiated rate that is less than the system rate. We find that the projected revenues from actual contract volumes are greater than the expected cost of service. Equitrans' Exhibit N estimates a total cost of service of \$30,533,569 for the first year of service, \$29,447,151 for the second year, and \$28,200,111 for the third year, and revenues of \$45,397,640 for each year.¹²¹ The revenues are derived from multiplying the contract quantity by Equitrans' maximum rate for the appropriate season. Therefore, we will grant a predetermination of rolled-in rate treatment for the costs associated with the project in its next NGA general section 4 rate proceeding, barring a significant change in circumstances.

3. Negotiated Rates

92. Mountain Valley and Equitrans propose to provide service to their project shippers under negotiated rate agreements. Mountain Valley and Equitrans must file their negotiated rate agreements or tariff records setting forth the essential elements of the agreements in accordance with the Commission's Alternative Rate Policy Statement and the Commission's negotiated rate policy. Consistent with Commission policy, Mountain Valley and Equitrans must either file the negotiated rate agreements or a tariff record

¹¹⁸ See, e.g., *Gulf Crossing Pipeline Company LLC*, 139 FERC ¶ 61,082 (2012).

¹¹⁹ See Certificate Policy Statement, 88 FERC at 61,746.

¹²⁰ See *Eastern Shore*, 156 FERC ¶ 61,219 at P 24.

¹²¹ Exhibit N of Equitrans' Application.

setting forth the essential terms of these agreements at least 30 days, but not more than 60 days, before the proposed effective date for such rates.

D. Non-Conforming Contract Provisions

93. Mountain Valley and Equitrans entered into precedent agreements that contained certain contractual rights not available to other customers, which they state may be viewed as material deviations, but are necessary incentives to secure the level of contractual commitments to develop the projects. Mountain Valley and Equitrans request that the Commission approve these non-conforming contract provisions.

1. Mountain Valley

94. Mountain Valley states that the service agreements will grant the project shippers certain contractual rights not available to other customers, which could be viewed as material deviations, but were necessary to obtain the capacity commitments to advance the project and are provided in recognition of the shippers' financial commitments to the project. Mountain Valley states that all prospective customers were given the opportunity to become an initial shipper through the open season process and requests that the Commission approve its service provisions as permissible deviations.

95. In its April 28, 2016 data response, Mountain Valley provided unexecuted firm transportation agreements and identified the following three non-conforming provisions:

- Most Favored Nations (MFN) clause. The agreement with EQT Energy includes an MFN clause.
- Reservation Charge Crediting. The agreement with EQT Energy includes a provision stating that Mountain Valley will provide full reservation charge credits after the first 30 days of an outage. The agreements with USG, WGL Midstream, and Roanoke Gas provide that the customer is not entitled to reservation charge credits in the event of an outage.
- Credit Agreement. Mountain Valley states the Credit Agreement attached as Exhibit 2 to each of the Precedent Agreements will be incorporated by reference in the firm transportation service agreements.

96. In addition to the these three provisions, we identified two additional nonconforming provisions:

- Contractual Right of First Refusal (ROFR).¹²² The agreements with EGT Energy, USG, WGL Midstream, and Roanoke Gas provide the customer with a ROFR at

¹²² See Mountain Valley's April 28, 2016 Response to Data Request.

the expiration of the Primary Term, for a renewal term of no less than five years, in accordance with Mountain Valley's tariff.

- Meter Rights. The agreement with EQT Energy provides the customer with in-path meter capacity of at least 1.5 times the Contract MDQ.¹²³

97. In *Columbia Gas Transmission Corporation*, the Commission clarified that a material deviation is any provision in a service agreement that: (a) goes beyond filling in the blank spaces with the appropriate information allowed by the tariff; and (b) affects the substantive rights of the parties.¹²⁴ The Commission prohibits negotiated terms and conditions of service that result in a shipper receiving a different quality of service than that offered other shippers under the pipeline's generally applicable tariff or that affect the quality of service received by others.¹²⁵ However, not all material deviations are impermissible. As the Commission explained in *Columbia Gas*, provisions that materially deviate from the corresponding *pro forma* agreement fall into two general categories: (a) provisions the Commission must prohibit because they present a significant potential for undue discrimination among shippers; and (b) provisions the Commission can permit without a substantial risk of undue discrimination.¹²⁶ In other proceedings, we have also found that non-conforming provisions may be necessary to reflect the unique circumstances involved with constructing new infrastructure and to provide the needed security to ensure the viability of a project.¹²⁷

98. We find that the above described non-conforming provisions constitute material deviations from Mountain Valley's *pro forma* service agreement for Rate Schedule FTS. However, with the exception of the contractual ROFR provision, these non-conforming provisions are permissible because they do not present a risk of undue discrimination, do not adversely affect the operational conditions of providing service to other shippers, and do not result in any shipper receiving a different quality of service.

¹²³ Mountain Valley's January 6, 2017 Response to Data Request.

¹²⁴ See *Columbia Gas Transmission Corp.*, 97 FERC ¶ 61,221, at 62,002 (2001) (*Columbia Gas*).

¹²⁵ *Monroe Gas Storage Co., LLC*, 130 FERC ¶ 61,113, at P 28 (2010).

¹²⁶ *Columbia Gas*, 97 FERC at 62,003-04.

¹²⁷ *Midcontinent Express Pipeline LLC*, 124 FERC ¶ 61,089, at P 82 (2008); *Rockies Express Pipeline LLC*, 116 FERC ¶ 61,272, at P 78 (2006).

99. With regard to the contractual ROFR provision, the provision states that the shipper may apply for a renewal term of “no less than five years.” In contrast, Mountain Valley’s tariff has no term requirement for executing a ROFR. While the negotiation of a contractual ROFR with a shipper is permissible, Commission policy states that it is not permissible for a negotiated contractual ROFR to “supersede” the provisions of the pipeline’s ROFR as stated in its tariff.¹²⁸ A contractual ROFR is equivalent to the tariff ROFR and is subject to the ROFR process set forth in the tariff.¹²⁹ For this reason, we find Mountain Valley’s contractual ROFR provision an impermissible non-conforming provision that violates the Commission’s policy. Therefore, any revised contractual ROFR provision that Mountain Valley files in compliance with this order must in all respects conform to the ROFR open season provisions in revised General Terms and Conditions (GT&C) section 6.21.

100. Mountain Valley is required to file its non-conforming service agreements associated with this project with the Commission at least 30 days, but not more than 60 days, before the proposed effective date for such agreements.¹³⁰ Pipelines are required to file any service agreement containing non-conforming provisions and to disclose and identify any transportation term or agreement in a precedent agreement that survives the execution of the service agreement.

2. Equitrans

101. Equitrans states that EQT Energy, its anchor shipper, has been granted certain contractual rights as an anchor shipper not available to other customers. Equitrans states it offered these incentives to obtain the capacity commitments required to advance the project and to recognize the shipper’s financial commitments to the project. Equitrans requests that the Commission approve the following non-conforming service provisions as permissible pursuant to these standards:

- The firm transportation agreement includes a MFN clause.

¹²⁸ *Kinder Morgan Interstate Gas Transmission LLC*, 119 FERC ¶ 61,225, at P 8 (2007).

¹²⁹ *Id.*

¹³⁰ Our determination of non-conforming provisions in this certificate proceeding does not waive our right to review such provisions in the future, when the executed copies of the non-conforming agreements and a tariff record identifying the agreements as non-conforming are filed with the Commission, consistent with section 154.112 of the Commission’s regulations. See *Tennessee Gas Pipeline Co., L.L.C.*, 150 FERC ¶ 61,160, at P 44, n.33 (2015).

- Reservation Charge Crediting. The firm transportation agreement includes a provision stating that Equitrans will provide full reservation charge credits after the first 30 days of an outage.
- Credit Agreement. Equitrans states the Credit Agreement attached as Exhibit 2 to the Precedent Agreement will be incorporated by reference in the Firm Transportation Service Agreement.

102. In addition to the three provisions described by Equitrans above, Commission review of the nonconforming provisions identified an additional provision:

- Contractual ROFR.¹³¹ The firm transportation agreement provides the customer with a ROFR at the expiration of the Primary Term, for a renewal term of no less than five years, in accordance with Equitrans' tariff.

103. Following the Commission's policy in *Columbia Gas*,¹³² as discussed above,¹³³ we find that the above described non-conforming provisions constitute material deviations from Equitrans' *pro forma* service agreement for Rate Schedule FTS. However, we find that, with the exception of the contractual ROFR provision, these non-conforming provisions are permissible because they do not present a risk of undue discrimination, do not adversely affect the operational conditions of providing service to other shippers, and do not result in any shipper receiving a different quality of service.¹³⁴

104. Equitrans' contractual ROFR provision states that it will apply for a renewal term of "no less than five years." Equitrans' tariff, however, has no term requirement for executing a ROFR. As discussed above, while a contractual ROFR is permissible, Commission policy states it is not permissible for a negotiated contractual ROFR to "supersede" the provisions of the pipeline's ROFR as stated in its tariff. A contractual ROFR must be equivalent to the tariff ROFR and is subject to the ROFR process set forth in the tariff.¹³⁵ For this reason, Equitrans' contractual ROFR provision is an impermissible non-conforming provision.

¹³¹ Equitrans identified this provision in its initial application.

¹³² *Columbia Gas*, 97 FERC at 62,002.

¹³³ See *supra* P 97.

¹³⁴ See, e.g., *Tennessee Gas Pipeline Co. L.L.C.*, 156 FERC ¶ 61,156 (2016).

¹³⁵ *Wyoming Interstate Co. L.L.C.*, 145 FERC ¶ 61,289, at P 6 (2013).

105. Equitrans is required to file any non-conforming service agreements associated with this project with the Commission at least 30 days, but not more than 60 days, before the proposed effective date for such agreements.¹³⁶ Pipelines are required to file any service agreement containing non-conforming provisions and to disclose and identify any transportation term or agreement in a precedent agreement that survives the execution of the service agreement.

E. Mountain Valley's Pro Forma Tariff

106. As part of its application, Mountain Valley has included a *pro forma* FERC gas tariff. We approve the *pro forma* tariff subject to the revisions discussed below. Mountain Valley is directed to file tariff records 30 to 60 days prior to its in-service date that incorporate the Commission directed revisions

1. Section 6.8(1)(f) – Curtailment

107. Section 6.8(1)(f) of the GT&C of Mountain Valley's *pro forma* tariff states: "To the extent that the desired delivery point is an electricity generation facility, Customer *must* also separately provide the hourly quantity profile for each day's nomination."¹³⁷ In its November 2, 2016 data response, Mountain Valley explained that obtaining hourly quantity profiles for gas-fired electric generation facilities will assist it in planning system flows throughout the day. However, if the hourly quantity is not provided, Mountain Valley states that it will assume that gas will flow at a uniform hourly rate consistent with Daily Rates of Flow detailed in Rate Schedules FTS of its tariff.

108. While the Commission acknowledges the need for pipelines and generators to cooperate and share information, we are concerned about the tariff's requirement that a customer nominating a delivery point to serve an electric generation facility "must" provide the hourly quantity profile. A marketer might not have direct access to hourly quantity profile information when making a nomination to the delivery point and could thus potentially be unduly discriminated against by Mountain Valley. Therefore,

¹³⁶ Our determination of non-conforming provisions in this certificate proceeding does not waive our right to review such provisions in the future, when the executed copy of the non-conforming agreement and a tariff record identifying the agreement as non-conforming are filed with the Commission, consistent with section 154.112 of the Commission's regulations. *See, e.g., Tennessee Gas Pipeline Co., L.L.C.*, 150 FERC ¶ 61,160 at P 44, n.33.

¹³⁷ Section 6.8(1)(f) of Exhibit P, Part II, of Mountain Valley's Application (emphasis added).

Mountain Valley is directed to revise its tariff such that the required information is provided on a “best efforts” or “maximum extent practicable” basis.

2. Section 6.9(3) – Curtailment of Service

109. Section 6.9(3) of the GT&C states that Mountain Valley may request information from a customer in order to implement any curtailment of services. The information requested may include the customer’s monthly requirement by priority service categories, including information for individual industrial customers served by Mountain Valley’s customer. In its November 2, 2016 data response, Mountain Valley states that it does not anticipate utilizing the customer’s monthly requirements by priority service category in a curtailment situation and proposes to eliminate this requirement in its compliance filing. Mountain Valley is directed to revise its tariff accordingly.

3. Section 6.12(9)(a)(i) – Determination of Deliveries and Imbalances

110. Section 6.12(9)(a)(i) of the GT&C sets forth the procedure for calculating the Monthly Index Price for monthly imbalance cashouts. In its November 2, 2016 data response, Mountain Valley notes that it will use the “Columbia Gas, Appalachia” price as published in *Gas Daily* for deliveries to Columbia’s WB System and the “Transco, Zone 5 Delivered” price as published in *Gas Daily* for deliveries to Roanoke Gas and Transco Compressor Station 165.

111. Commission policy requires that pipelines provide supporting liquidity documentation for each price index location to ensure that price index locations are sufficiently liquid.¹³⁸ While Mountain Valley has clarified the indices it will use for the points on its system, it has not provided sufficient supporting documentation regarding the liquidity of the price index locations as required by the Commission’s Price Index Policy Statement. Therefore, Mountain Valley is directed to provide this information in its compliance filing.

4. Section 6.21 – Right of First Refusal

112. GT&C section 6.21 provides a regulatory right of first refusal (ROFR) to shippers whose contracts meet the requirements provided in section 284.221(d)(2) of the Commission’s regulations, and a contractual ROFR to shippers whose contracts do not

¹³⁸ *Policy Statement on Natural Gas and Electric Price Indices*, 104 FERC ¶ 61,121, at P 41 (2003), *Order on Clarification of Policy Statement on Natural Gas and Electric Price Indices*, 105 FERC ¶ 61,282, *Order Further Clarifying Policy Statement on Natural Gas and Electric Price Indices*, 112 FERC ¶ 61,040 (2005) (Price Index Policy Statement).

otherwise qualify for the regulatory ROFR. We will require Mountain Valley to revise the following aspects of GT&C section 6.21 to be consistent with Commission policy and precedent.

113. GT&C section 6.21(2)(b) states that a “Customer shall be permitted to designate a quantity of gas less than its existing [Maximum Daily Quantity (MDQ)] which Customer wishes to retain under the Right of First Refusal.” While this language is permissible, we note that Commission policy entitles the ROFR shipper to decide how much capacity it wishes to retain,¹³⁹ and that the decision to retain only a volumetric portion of its capacity does not have to be made until after the pipeline presents the ROFR shipper with the best bid for the purpose of matching.¹⁴⁰ Although GT&C section 6.21(2)(b) provides that a customer may elect to retain only a portion of its capacity at the start of ROFR process, it does not provide the customer that option after the bids have been received. Therefore, Mountain Valley is directed to clarify GT&C section 6.21 to provide that a shipper is not required to elect how much capacity it will seek to retain through the ROFR process until after receiving notification from Mountain Valley as to the best offer(s) for its expiring capacity, and may then notify Mountain Valley of its intent to match the best offer(s) for all or a volumetric portion of its capacity.

114. GT&C section 6.21(2)(e) states:

If, during the Posting Period, [Mountain Valley] receives an acceptable offer for all or a portion of the service rights under Customer’s Long-Term Agreement, [Mountain Valley] shall notify Customer in writing of the offer having the greatest economic value; provided, that *for purposes of value comparisons under this section the rate utilized shall be limited to the maximum rate that can be charged to the existing Customer*. If Customer elects to match the offer, Customer shall notify [Mountain Valley] of such election in writing within 30 days after receiving notice from [Mountain Valley] and shall execute a new Service Agreement matching the offer within 30 days after [Mountain Valley] has tendered the Service Agreement. If Customer elects not to match the offer or does not execute the Service Agreement within 30 days, [Mountain

¹³⁹ See *Dominion Transmission, Inc.*, 111 FERC ¶ 61,135, at PP 18-22 (2005).

¹⁴⁰ See *Sierrita Gas Pipeline, LLC*, 147 FERC ¶ 61,192, at P 78 (2014); *Transcontinental Gas Pipe Line Corp.*, 101 FERC ¶ 61,267, at P 26 (2002).

Valley] will tender a Service Agreement to the prospective Customer submitting *the offer having the greatest economic value*.¹⁴¹

115. The phrase “the offer having the greatest economic value” in GT&C section 6.21(2)(e) does not clearly describe the methodology to be used. The tariff should clearly state the methodology that the pipeline will use to determine the best third-party bids in a ROFR open season.¹⁴² Mountain Valley is directed to revise this language in its compliance filing to articulate how it intends to evaluate bids in a ROFR open season.

5. Section 6.22(3)(f) – Capacity Release

116. Section 6.22(3)(f) of the GT&C states that a releasing customer may “release capacity on a firm or interruptible basis.” In its November 2, 2016 data response, Mountain Valley proposes to eliminate the “or interruptible” reference from its tariff. Mountain Valley is directed to make the proposed revision in its tariff compliance filing.

6. Section 6.27 – Negotiated Rates

117. Section 6.27 of the GT&C permits Mountain Valley to charge a negotiated rate for service under any Rate Schedule and addresses certain aspects of its negotiated rate transactions, including the types of rates that may be negotiated, how negotiated rate capacity is treated for purposes of capacity release, and the right to seek discount-type adjustments for negotiated rate transactions in future general rate proceedings.

¹⁴¹ Section 6.21(2)(e) of Exhibit P, Part II, of Mountain Valley’s Application (emphasis added).

¹⁴² See, e.g., Transcontinental Gas Pipe Line Company, LLC, FERC NGA Gas Tariff, Fifth Revised Volume No. 1, [Section 48, Right of First Refusal Procedures, 0.0.0](#). Commission policy also requires that the same methodology should be used to determine the best bid and whether the ROFR shipper has matched the bid. See *Transcontinental Gas Pipe Line Corp.*, 105 FERC ¶ 61,365, at P 19 (2003).

118. We find that section 6.27 lacks key provisions required by the Alternative Rate Policy Statement¹⁴³ and the Commission's negotiated rate policy.¹⁴⁴ Commission policy requires pipelines to file with the Commission all negotiated rate service agreements or a tariff record stating the name of the shipper, the rate schedule, the receipt and delivery points, the contract quantity, and, where applicable, the exact formula underlying a negotiated rate.¹⁴⁵ Pipelines with negotiated rate authority are also required to maintain separate records for all revenues associated with negotiated rate agreements and maintain and provide separately identified and totaled volume, billing determinant, rate or surcharge component, and revenue accounting information for their negotiated rate arrangements in any general or limited rate change filing that it makes.¹⁴⁶ Therefore, Mountain Valley is directed to revise section 6.27 to be consistent with the Commission's negotiated rate policy and include these provisions in its tariff.

7. Section 6.28 – Transportation Retainage

119. Mountain Valley is proposing to recover its actual fuel gas, and lost and unaccounted for gas in-kind from shippers pursuant to section 6.28 of its GT&C. Section 6.28(2) describes how Mountain Valley proposes to determine its retainage factor. This section simply states that “[Mountain Valley] shall adjust the Retainage Factor on a quarterly basis to more accurately reflect actual experienced fuel and lost and unaccounted for gas” and, further, “[Mountain Valley] may file to adjust the Retainage Factor to reflect a material change in the actual experienced fuel and unaccounted for gas.” Section 6.28(3) describes how Mountain Valley proposes to reconcile its actual fuel and lost and unaccounted for volumes versus the volumes actually retained. To

¹⁴³ *Alternatives to Traditional Cost-of-Service Ratemaking for Natural Gas Pipelines; Regulation of Negotiated Transportation Services of Natural Gas Pipelines*, 74 FERC ¶ 61,076, *order granting clarification*, 74 FERC ¶ 61,194, *order on reh'g and clarification*, 75 FERC ¶ 61,024, *reh'g denied*, 75 FERC ¶ 61,066, *reh'g dismissed*, 75 FERC ¶ 61,291 (1996), *petition denied sub nom. Burlington Res. Oil & Gas Co. v. FERC*, 172 F.3d 918 (D.C. Cir. 1998).

¹⁴⁴ *Natural Gas Pipelines Negotiated Rate Policies and Practices; Modification of Negotiated Rate Policy*, 104 FERC ¶ 61,134 (2003), *order on reh'g and clarification*, 114 FERC ¶ 61,042, *dismissing reh'g and denying clarification*, 114 FERC ¶ 61,304 (2006).

¹⁴⁵ *Natural Gas Pipelines Negotiated Rate Policies and Practices; Modification of Negotiated Rate Policy*, 104 FERC ¶ 61,134 at PP 31-34.

¹⁴⁶ *Id.*

accomplish the reconciliation, Mountain Valley proposes a quarterly true-up to determine for each month of the quarter volumes owed to either Mountain Valley or the shipper.

120. Mountain Valley's proposed retainage mechanism fails to comply with the notice and filing requirements of, respectively, sections 154.207¹⁴⁷ and 154.403¹⁴⁸ of the Commission's regulations. Pipelines are not permitted to impose fuel charges on shippers without making a tariff filing and providing notice and the opportunity to participate in the proceedings.¹⁴⁹ As proposed, Mountain Valley's fuel retainage mechanism would allow Mountain Valley to revise its retainage factor without any review or comment by its shippers and without prior Commission approval. Therefore, when Mountain Valley files actual tariff records in accordance with the ordering paragraphs herein, it is required to revise GT&C section 6.28 to conform to the notice and filing requirements of sections 154.207 and 154.403 of the Commission's regulations.

8. Section 6.31 - North American Energy Standards Board (NAESB)

121. GT&C section 6.31 states that Mountain Valley has adopted Version 3.0 of the Business Practices and Electronic Communications Standards adopted by NAESB Wholesale Gas Quadrant (WGQ), which are required by section 284.12(a) of the Commission's regulations.¹⁵⁰ Mountain Valley's *pro forma* tariff generally complies with Version 3.0, but Mountain Valley is directed to make the following ten revisions:

- a. Change the reference from standard 1.3.2(i-v) to 1.3.2(i-vi) in the section titled "Standards not Incorporated by Reference and their Location in Tariff" in GT&C section 6.31;
- b. Remove standard 1.3.2(vi) from the section titled "Standards Incorporated by Reference" in GT&C section 6.31;
- c. Remove standards 0.3.19, 1.3.47, 1.3.49, 1.3.50, 1.3.54, 1.3.57, 1.3.59, 1.3.60, 1.3.61, 1.3.63, 2.3.33, 2.3.34, 2.3.35, 3.3.1, 4.3.5, 4.3.29, 4.3.51, 4.3.56, 4.3.59, 4.3.73, 4.3.74, and 4.3.76 from the section titled "Standards Incorporated by Reference" in GT&C section 6.31;

¹⁴⁷ 18 C.F.R. § 154.207 (2017).

¹⁴⁸ *Id.* § 154.403.

¹⁴⁹ See *MarkWest Pioneer, L.L.C.*, 125 FERC ¶ 61,165 at P 31.

¹⁵⁰ 18 C.F.R. § 284.12(a) (2017).

- d. Remove standard 5.3.73 from the section titled “Standard Incorporated by Reference,” because the text of the standard is included in GT&C section 6.22.11;
- e. Indicate the adoption of standards revised by Minor Corrections MC15003, MC15004, MC15005, MC15009 and MC15012 all marked with an asterisk [*];
- f. Add an asterisk [*] to standards 0.4.2, 1.3.8, 1.3.9, 1.4.1, 1.4.2, 1.4.3, 1.4.4, 1.4.5, 1.4.6, 1.4.7, 2.4.1, 2.4.3, 2.4.4, 2.4.5, 3.4.1, 5.3.56, 5.4.16, 5.4.20, 5.4.21, 5.4.22, 5.4.24, and 5.4.26;
- g. List standards 0.4.1 and 0.4.4 in the section titled “Standards Incorporated by Reference;”
- h. Either list standards 1.3.81, 4.3.104, and 4.3.105 in the section titled “Standards Incorporated by Reference” or include the text of the standards;
- i. Revise the text of the section titled “Timely Nomination Cycle” in GT&C section 6.8, Scheduling of Services, to provide that scheduled quantities should be effective at the start of the next Gas Day; and
- j. Revise the text regarding recall notifications in GT&C section 6.22, Capacity Release, to conform to revised standard 5.3.44.

F. Environmental Analysis

1. Pre-filing Review

122. On October 31, 2014, Commission staff granted Mountain Valley’s request to use the pre-filing process in Docket No. PF15-3-000. As part of the pre-filing review, on April 17, 2015, the Commission issued a *Notice of Intent to Prepare an Environmental Impact Statement for the Planned Mountain Valley Pipeline Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Meetings* (Mountain Valley NOI). The Mountain Valley NOI was published in the *Federal Register* on April 28, 2015,¹⁵¹ and mailed to 2,846 entities, including federal, state, and local government representatives and agencies; elected officials; regional environmental groups and non-governmental organizations; Indian Tribes and Native Americans; affected property owners; other interested entities; and local libraries and newspapers. The Mountain Valley NOI briefly described the project and the Commission’s environmental review process, provided a preliminary list of issues identified by Commission staff, invited

¹⁵¹ 80 Fed. Reg. 23,535 (2015).

written comments on the environmental issues that should be addressed in the draft EIS, listed the date and location of six public scoping meetings¹⁵² to be held in the project area, and established June 16, 2015, as the deadline for comments.

123. A total of 169 people presented oral comments at the pre-filing public scoping meetings. Transcripts of the scoping meeting were placed into the Commission's public record for this proceeding. In addition, during the official scoping period, between April 17 and June 16, 2015, we received well over 1,000 written or electronically filed comment letters.¹⁵³

124. On April 9, 2015, Commission staff granted Equitrans' request to use the pre-filing process in Docket No. PF15-22-000. On August 11, 2015, the Commission issued a *Notice of Intent to Prepare an Environmental Impact Statement for the Planned Equitrans Expansion Project, and Request for Comments on Environmental Issues* (Equitrans NOI). The Equitrans NOI stated that because the Equitrans Expansion Project would interconnect to the MVP Project, it was the intent of the Commission staff to conduct an environmental analysis of both projects combined in a single comprehensive EIS. The Equitrans NOI was sent to 575 entities, and published in the *Federal Register* on August 17, 2015.¹⁵⁴ The comment period closed on September 14, 2015. During that scoping period, we received a total of five comment letters. Because of the low response to the Equitrans NOI, Commission staff did not hold separate public scoping meetings in the Equitrans Expansion Project area.

2. Application Review

125. The pre-filing review period ended when Mountain Valley filed its project application on October 23, 2015 and Equitrans filed its project application on October 27, 2015.

¹⁵² Commission staff held the public scoping meetings between May 4 and 13, 2015, in Pine Grove, Weston, Summersville, and Lindside, West Virginia, and Ellison and Chatham, Virginia.

¹⁵³ Table 1.4-1 of the draft and final EIS provides a list of environmental issues raised during scoping.

¹⁵⁴ 80 Fed. Reg. 49,217 (2015).

126. To satisfy the requirements of the National Environmental Policy Act of 1969 (NEPA),¹⁵⁵ Commission staff evaluated the potential environmental impacts associated with the construction and operation of the MVP and Equitrans Expansion Projects in an EIS. The U.S. Department of Agriculture, Forest Service (Forest Service); U.S. Army Corps of Engineers (Army Corps); U.S. Environmental Protection Agency (EPA); U.S. Department of the Interior, Bureau of Land Management (BLM) and Fish and Wildlife Service (FWS); U.S. Department of Transportation (DOT); West Virginia Department of Environmental Protection (WVDEP), and West Virginia Department of Natural Resources (WVDNR) participated as cooperating agencies.

127. Commission staff issued the draft EIS for the projects on September 16, 2016, addressing the issues raised during the scoping period and up to the point of publication. Notice of the draft EIS was published in the *Federal Register* on September 27, 2016,¹⁵⁶ setting a 90-day comment period ending on December 22, 2016. The draft EIS was mailed to the environmental mailing list for the projects, including additional interested entities that were added since issuance of the NOIs. Commission staff held seven public comment sessions between November 2 and 9, 2016, in the areas of the projects¹⁵⁷ to take comments on the draft EIS. Over 260 speakers provided oral comments at these sessions. Transcripts of the draft EIS comment sessions were placed into the public record for the proceedings.¹⁵⁸ Between the issuance of the draft EIS on September 16 and the end of the comment period on December 22, 2016, we received 1,237 written or electronically filed letters.¹⁵⁹

128. In October 2016, after the issuance of the draft EIS, Mountain Valley filed a number of minor route modifications to address recommendations in the draft EIS, avoid sensitive environmental areas, accommodate landowner requests, or for engineering

¹⁵⁵ 42 U.S.C. §§ 4321 *et seq.* (2012). *See also* 18 C.F.R. pt. 380 (2017) (Commission's regulations implementing NEPA).

¹⁵⁶ 81 Fed. Reg. 66,268 (2016).

¹⁵⁷ Commission staff held public comment sessions in Weston, Summersville, and Peterstown, West Virginia, Roanoke, Rocky Mount, and Chatham, Virginia, and Coal Center, Pennsylvania.

¹⁵⁸ Copies of the transcripts were filed in the Commission's eLibrary system on November 3, 2016 (accession number 20161103-4005) and November 16, 2016 (accession number 20161116-4001).

¹⁵⁹ Table 1.4-2 of the final EIS lists the range of issues raised in comments on the draft EIS.

design reasons. On January 17, 2017, Commission staff mailed letters to 45 newly-affected landowners, requesting comments on the route modifications during a supplemental comment period that ended February 21, 2017. In response, three landowners filed letters in the Commission's public record.

129. Commission staff issued the final EIS on June 23, 2017, notice of which was published in the *Federal Register* on June 29, 2017.¹⁶⁰ The final EIS addressed timely comments received on the draft EIS.¹⁶¹ The final EIS was mailed to the same entities as the draft EIS, as well as to newly-identified landowners and any additional entities that commented on the draft EIS.¹⁶² The final EIS addresses geological hazards such as landslides, earthquakes, and karst terrain; water resources including wells, streams, and wetlands; forested habitat; wildlife and threatened, endangered, and other special status species; land use, recreational areas, and visual resources; socioeconomic issues such as property values, environmental justice, tourism, and housing; cultural resources; air quality and noise impacts; safety; cumulative impacts; and alternatives.

130. The final EIS concludes that construction and operation of the MVP and Equitrans Expansion Projects may result in some adverse environmental impacts on specific resources. The final EIS concludes that impacts on most environmental resources would be temporary or short-term. However, in the case of the clearing of forest, the final EIS concludes that impacts will be long-term and significant. For the other resources, impacts will be reduced to less-than-significant levels with the implementation of mitigation measures proposed by the applicants and other mitigation measures recommended by Commission staff and included as environmental conditions in this order.

131. Between the issuance of the final EIS on June 23, 2017 and September 11, 2017, the Commission received numerous written individual letters or electronic filings commenting on the final EIS or about the projects. These comments letters raise concerns regarding impacts on drinking water sources, surface water, karst, steep slopes, cultural resources, threatened and endangered species, forests, erosion, invasive species, visual resources, and health and safety.

¹⁶⁰ 82 Fed. Reg. 29,539 (2017).

¹⁶¹ Appendix AA of the final EIS includes copies of letters about the draft EIS received through the close of the comment period on December 22, 2016, along with Commission staff responses.

¹⁶² The distribution list is provided in Appendix A of the final EIS.

3. Major Environmental Issues

a. Requests to Supplement or Revise Draft EIS

132. Several commenters, including Allegheny Defense Project and James Workman, argue that the draft EIS was insufficient and the Commission should revise it or issue a supplemental draft EIS. They assert that the draft EIS lacks a discussion of project need under section 7(c) of the NGA and inappropriately postpones submittal of certain information to the end of the draft EIS comment period or before commencement of construction. Commenters argue that they should have an opportunity to comment on this new information.

133. A purpose of a draft EIS is to elicit suggestions for change.¹⁶³ The Council of Environmental Quality (CEQ) regulation that the commenters reply upon calls for a supplemental draft EIS if the agency “makes substantial changes in the proposed action that are relevant to environmental concerns” or “there are significant new circumstances or information relevant to environmental concerns.”¹⁶⁴ The Supreme Court, in *Marsh v. Oregon Natural Resources Council*, stated that under the “rule of reason,” “an agency need not supplement an [EIS] every time new information comes to light after the EIS is finalized.”¹⁶⁵ Further, NEPA only requires agencies to employ proper procedures to ensure that environmental consequences are fully evaluated, not that a complete plan be presented at the outset of environmental review.¹⁶⁶ In *National Committee for New River v. FERC*,¹⁶⁷ the court held that “if every aspect of the project were to be finalized before any part of the project could move forward, it would be difficult, if not impossible, to construct the project.”¹⁶⁸

¹⁶³ See *City of Grapevine v. DOT*, 17 F.3d 1502, 1507 (D.C. Cir. 1994) (“[t]he very purpose of a [draft EIS] is to elicit suggestions for change.”).

¹⁶⁴ 40 C.F.R. § 1502.9(c)(1) (2017).

¹⁶⁵ *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 373 (1989).

¹⁶⁶ See *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989).

¹⁶⁷ *National Committee for New River v. FERC*, 373 F.3d 1323 (D.C. Cir. 2004) (*New River*).

¹⁶⁸ *New River*, 373 F.3d at 1329 (citing *East Tennessee Natural Gas Co.*, 102 FERC ¶ 61,225, at 61,659 (2003)).

134. As shown in the final EIS, the additional information submitted by the applicants between the issuance of the draft EIS and of the final EIS did not cause the Commission to make “substantial changes in the proposed action,” nor did it present “significant new circumstances or information relevant to environmental concerns.” The final EIS analyzed the relevant environmental information and recommended environmental conditions. We adopt most of the recommended environmental conditions in this order. Applicants must satisfy the environmental conditions contained in Appendix C of this order before they may proceed with their projects.

135. Commenters’ argument regarding project need is misplaced. An EIS identifies a project’s purpose and need to define the parameters for the alternatives analysis,¹⁶⁹ not to determine whether the project is in the public interest. It is the Commission, in its order on the certificate application, that evaluates project need under section 7(c) of the NGA.¹⁷⁰

136. Nan Gray states that the final EIS was deficient because it lacked analyses of avoidance areas, no-build zones,¹⁷¹ alternatives, cumulative effects, cultural, visual, aquatic, geological, soil, and biological resources. This is not accurate. The final EIS provides an analysis of alternatives (in section 3), geological resources (section 4.1), soils (section 4.2), biological resources (sections 4.5 and 4.7), aquatic resources (section 4.6), visual resources (section 4.8), cultural resources (section 4.10), and cumulative impacts (section 4.13).

b. Programmatic EIS

137. Nan Gray and other commenters request that the Commission prepare a programmatic EIS. CEQ regulations do not require broad or “programmatic” NEPA reviews. CEQ’s guidance provides that such a review may be appropriate where an agency is: (1) adopting official policy; (2) adopting a formal plan; (3) adopting an agency program; or (4) proceeding with multiple projects that are temporally and

¹⁶⁹ 40 C.F.R. § 1502.13 (2017); *see also National Fuel Gas Supply Corporation*, 158 FERC ¶ 61,145 at P 95 (citing *City of Grapevine, Tex. v. U.S. DOT.*, 17 F.3d at 1506).

¹⁷⁰ *See* section IV.A.1.b. of this order (discussing project need).

¹⁷¹ Nan Gray and others argue that karst terrain should be considered a “no-build” zone although no law provides such a prohibition. Section 4.1 of the final EIS and section IV.F.3.c. of this order discuss project impacts on karst terrain and mitigation measures.

spatially connected.¹⁷² The Supreme Court has held that a NEPA review covering an entire region (that is, a programmatic review) is required only if there has been a report or recommendation on a proposal for major federal action with respect to the region.¹⁷³ Moreover, there is no requirement for a programmatic EIS where the agency cannot identify projects that may be sited within a region because individual permit applications will be filed later.¹⁷⁴

138. We have explained that there is no Commission plan, policy, or program for the development of natural gas infrastructure.¹⁷⁵ Rather, the Commission acts on individual applications filed by entities proposing to construct interstate natural gas pipelines. Under NGA section 7, the Commission is obligated to authorize a project if it finds that the construction and operation of the proposed facilities “is or will be required by the present or future public convenience and necessity.”¹⁷⁶ What is required by NEPA, and what the Commission provides, is a thorough examination of the potential impacts of specific projects. As to projects that have a clear physical, functional, and temporal nexus such that they are connected or cumulative actions,¹⁷⁷ the Commission will prepare

¹⁷² Memorandum from CEQ to Heads of Federal Departments and Agencies, *Effective Use of Programmatic NEPA Reviews* 13-15 (Dec. 24, 2014) (citing 40 C.F.R. § 1508.18(b)), https://www.whitehouse.gov/sites/default/files/docs/effective_use_of_programmatic_nepa_reviews_18dec2014.pdf. We refer to the memorandum as the 2014 Programmatic Guidance.

¹⁷³ *Kleppe v. Sierra Club*, 427 U.S. 390 (1976) (*Kleppe*) (holding that a broad-based environmental document is not required regarding decisions by federal agencies to allow future private activity within a region).

¹⁷⁴ See *Piedmont Environmental Council v. FERC*, 558 F.3d 304, 316-17 (4th Cir. 2009) (*Piedmont Environmental Council*).

¹⁷⁵ See, e.g., *National Fuel Gas Supply Corp.*, 158 FERC ¶ 61,145 at PP 82-88; *National Fuel Gas Supply Corp.*, 154 FERC ¶ 61,180, at P 13 (2016); *Texas Eastern Transmission, LP*, 149 FERC ¶ 61,259, at PP 38-47 (2014); *Columbia Gas Transmission, LLC*, 149 FERC ¶ 61,255 (2014).

¹⁷⁶ 15 U.S.C. § 717f(e) (2012).

¹⁷⁷ 40 C.F.R. § 1508.25(a)(1)-(2) (2017) (defining connected and cumulative actions).

a multiple-project environmental document.¹⁷⁸ Other than the relationship between the MVP and Equitrans Expansion Projects, such is not the case here.

139. The Commission is not engaged in regional planning. Rather, the Commission processes individual pipeline applications in carrying out its statutory responsibilities under the NGA. That there currently are a number of planned, proposed, or approved infrastructure projects to increase infrastructure capacity to transport natural gas from the Marcellus and Utica Shale does not establish that the Commission is engaged in regional development or planning.¹⁷⁹ Instead, this confirms that pipeline projects to transport Marcellus and Utica Shale gas are initiated solely by a number of different companies in private industry. As we have noted previously, a programmatic EIS is not required to evaluate the regional development of a resource by private industry if the development is not part of, or responsive to, a federal plan or program in that region.¹⁸⁰

140. The Commission's siting decisions regarding pending and future natural gas pipeline facilities respond to proposals by private industry, and the Commission has no way to accurately predict the scale, timing, and location of projects, much less the kind of facilities that will be proposed.¹⁸¹ Any broad, regional environmental analysis would "be little more than a study . . . containing estimates of potential development and attendant

¹⁷⁸ See, e.g., EA for the Monroe to Cornwell Project and the Utica Access Project, Docket Nos. CP15-7-000 & CP15-87-000 (filed Aug. 19, 2015); Final Multi-Project Environmental Impact Statement for Hydropower Licenses: Susquehanna River Hydroelectric Projects, Project Nos. 1888-030, 2355-018, and 405-106 (filed Mar. 11, 2015).

¹⁷⁹ See, e.g., *Sierra Club v. FERC*, 827 F.3d 36, 50 (D.C. Cir. 2016) (*Freeport LNG*) (rejecting claim that NEPA requires FERC to undertake a nationwide analysis of all applications for liquefied natural gas export facilities); cf. *Myersville Citizens for a Rural Cmty., Inc. v. FERC*, 783 F.3d 1301, 1326-27 (D.C. Cir. 2015) (*Myersville*) (upholding FERC determination that, although a Dominion Transmission Inc.-owned pipeline project's excess capacity may be used to move gas to the Cove Point terminal for export, the projects are "unrelated" for purposes of NEPA).

¹⁸⁰ See *Kleppe*, 427 U.S. at 401-02 (holding that a regional EIS is not required where there is no overall plan for regional development).

¹⁸¹ Lack of jurisdiction over an action does not necessarily preclude an agency from considering the potential impacts. As explained in the indirect and cumulative impact sections of this order, however, it reinforces our finding that because states, and not the Commission, have jurisdiction over natural gas production and associated development (including siting and permitting), the location, scale, timing, and potential impacts from such development are even more speculative.

environmental consequences,”¹⁸² and could not present “a credible forward look” that would be “a useful tool for basic program planning.”¹⁸³ In these circumstances, the Commission’s longstanding practice to conduct an environmental review for each proposed project, or a number of proposed projects that are interdependent or otherwise interrelated or connected, “facilitate[s], not impede[s], adequate environmental assessment.”¹⁸⁴ Thus, the Commission’s environmental review of only the MVP and Equitrans Expansion Projects together in a single EIS is appropriate under NEPA.

141. In sum, CEQ states that a programmatic EIS can “add value and efficiency to the decision-making process when they inform the scope of decisions,” “facilitate decisions on agency actions that precede site- or project-specific decisions and actions,” or “provide information and analyses that can be incorporated by reference in future NEPA reviews.”¹⁸⁵ The Commission does not believe these benefits can be realized by a programmatic review of natural gas infrastructure projects because the projects subject to our jurisdiction do not share sufficient elements in common to narrow future alternatives or expedite the current detailed assessment of each particular project. Thus we find a programmatic EIS is neither required nor useful under the circumstances here.

c. Geological Resources

i. Steep Slopes and Landslides

142. Several commenters, including Giles and Roanoke Counties, Virginia (Counties), expressed concern that the projects could contribute to unstable slopes and cause landslides or other slope and soil failures.

143. About 32 percent of the MVP Project and 45 percent of the approximately eight-mile long Equitrans Expansion Project will cross topography with steep (greater than a 15 percent grade) slopes.¹⁸⁶ About 67 percent of the MVP Project and all of the Equitrans Expansion Project will cross areas susceptible to landslides.

¹⁸² *Kleppe*, 427 U.S. at 402.

¹⁸³ *Piedmont Environmental Council*, 558 F.3d at 316.

¹⁸⁴ *Id.*

¹⁸⁵ 2014 Programmatic Guidance at 13.

¹⁸⁶ Final EIS at ES-4.

144. The final EIS acknowledges and addresses the projects' landslide potential.¹⁸⁷ Mountain Valley and Equitrans have committed to use specialized construction techniques on steep slopes, including cut-and-fill and two-tone grading, to minimize adverse effects.¹⁸⁸ Mountain Valley will use thicker Class 2 pipe to mitigate hazards to the pipeline from triggered slope displacement, and will employ geotechnical experts to inspect construction in areas of potential subsidence or landslide concern.

145. To prevent landslides, both Mountain Valley and Equitrans developed Landslide Mitigation Plans, which was revised in March 2017. However, because the Mountain Valley's *Landslide Mitigation Plan* does not adopt some industry best management practices to reduce the potential for landslides in steep slope areas, we require, as Environmental Condition No. 19, that Mountain Valley revise its *Landslide Mitigation Plan* to outline construction measures to be used when crossing steep slopes at angles perpendicular to contours and to include a more robust monitoring program. Moreover, to bolster pipeline integrity and safety in landslide hazard areas, we further require that Mountain Valley revise its *Landslide Mitigation Plan* to expand its post-construction monitoring program to cover all potential landslide areas project-wide. The Commission finds that these additional measures would effectively mitigate potential impacts from the projects' constructions in areas of high susceptibility to landslides.

146. The Virginia Department of Game and Inland Fisheries (Virginia Department of Game) expresses concern that slope failures will cause instream sedimentation. The final EIS discusses the potential for landslides and measures to ensure slope stability and prevent instream sedimentation, including the measures outlined in Mountain Valley's *Landslide Mitigation Plan*, to which, as discussed above, we are requiring enhancements. Mountain Valley also agreed to follow the measures outlined in the Commission's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Commission's Plan) and its *Wetland and Waterbody Construction and Mitigation Procedures*, which include erosion controls to prevent sedimentation into waterbodies. The final EIS concludes that these plans cannot fully prevent sedimentation, but would provide adequate protections by reducing sedimentation into streams and reducing the potential for slope failures.

ii. Seismic Activity and Soil Liquefaction Potential

147. Several commenters note the MVP Project is routed through an area with a history of seismic activity and assert that constructing a gas pipeline in such an area poses a danger to the community.

¹⁸⁷ Final EIS at 4-52 to 4-58.

¹⁸⁸ Final EIS at 4-55.

148. The MVP Project will be in close proximity to the active Giles County Seismic Zone.¹⁸⁹ An earthquake in this zone would only be expected to cause generally light damage. In areas where seismic hazards exist, Mountain Valley will install pipeline with Class 2 or Class 3 thickness, under DOT's pipeline safety regulations in 49 C.F.R. Part 192, to withstand a seismic event and mitigate for potential soil liquefaction. Additionally, Mountain Valley has committed to a post-construction monitoring program utilizing sequentially-acquired the Light Imaging Detection and Ranging (LiDAR) imagery to detect slope movement in the area where the pipeline traverses through the seismic zone. Due to the use of thicker pipe and a post-construction monitoring program, we find that Mountain Valley will sufficiently manage the safety issues from seismic activity in the MVP Project area.

149. The Equitrans Expansion Project will not cross any Quaternary faults.¹⁹⁰ It is in an area identified to have a low probability of a significant seismic event. Soil liquefaction is a phenomenon often associated with seismic activity in which saturated, non-cohesive soils temporarily lose their strength and liquefy (i.e., behave like viscous liquid) when subjected to forces such as intense and prolonged ground shaking. Due to the low potential for significant ground shaking, we agree with the final EIS's conclusion that soil liquefaction in the area of the Equitrans Expansion Project is unlikely.

iii. Karst Terrain

150. Commenters expressed concerns regarding subsidence and sinkholes affecting the construction and integrity of the pipeline in areas of karst terrain and potential impacts on karst-related groundwater.

151. Karst features, such as sinkholes and caves, form as a result of the long-term action of groundwater on subsurface soluble carbonate rocks (e.g., limestone and dolostone). The Equitrans Expansion Project will not be located at any areas known to contain karst features. Conversely, the MVP Project will cross about 67 miles of karst terrain. The MVP Project will cross minor karst development from about MPs 172 to 174 and significant karst development from about MPs 191 to 239. As stated in the final EIS, Mountain Valley's Karst Hazard Assessment identified 99 karst features in

¹⁸⁹ The Giles County Seismic Zone is located in the western part of the Valley and Ridge province, south of the Appalachian bend near Roanoke, Virginia. It is considered seismically active, experienced 12 earthquakes that span 4 orders of magnitude and over 2 decades, from 1959 through 1980. *See* Final EIS at 4-23 to 4-24.

¹⁹⁰ A Quaternary fault is a fault that has experienced displacement in the last 2.6 million years and is predicted to most likely demonstrate displacement again. *See* Final EIS at 4-24.

Summers and Monroe Counties, West Virginia, and Giles, Craig, and Montgomery Counties, Virginia.¹⁹¹ Karst features could present a hazard to the MVP Project due to cave or sinkhole collapse.

(a) **Variation 250**

152. To mitigate potential impacts, Mountain Valley adopted the Mount Tabor Variation into its proposed route, as recommended in the draft EIS, to reduce project impacts on karst features within the Mount Tabor Sinkhole Plain in Montgomery County, Virginia. Section 3.5.1 of the final EIS concludes that Variation 250 would reduce the environmental impacts on the Slussers Chapel Conservation Site (e.g., the variation is shorter and has less impact on perennial waterbodies, forest, and karst features) compared to the proposed pipeline route. It also avoids waterbodies that are of concern to the VADCR. We agree with this conclusion.¹⁹² Thus, Environmental Condition No. 16 of this order requires Mountain Valley to adopt Variation 250, which modifies the Mount Tabor Variation, between MPs 221.0 and 222.2, to further reduce impacts on karst terrain and the Slussers Chapel Conservation Site, which is located within the Mount Tabor Sinkhole Plain.

153. Mountain Valley also developed a *Karst Mitigation Plan* and a *Karst-specific Erosion and Sediment Control Plan*. Environmental Condition No. 20 of this order requires Mountain Valley to revise its *Karst Mitigation Plan* to include post-construction monitoring using LiDAR data to further ensure safe operation of the pipeline over its lifetime. We agree with the final EIS's conclusions that, with implementation Mountain Valley's mitigation measures and the conditions included in the Appendix C, impacts on karst resources would be adequately minimized.

154. The Virginia Department of Conservation and Recreation (VADCR) encourages the Commission to require that Mountain Valley submit a route that more closely follows the VADCR's Slussers Chapel Conservation Site Avoidance Variation as submitted to Commission on September 9, 2016. The VADCR's Slussers Chapel Conservation Site Avoidance Variation provides both advantages and disadvantages when compared with the proposed route. The VADCR's Slussers Chapel Conservation Site Avoidance Variation would be slightly (0.2-mile) longer than the corresponding segment of the proposed route, but more collocated with existing corridors by about 1.6 miles and it would cross about 0.7 fewer miles on the Slussers Chapel Conservation Site, nine fewer parcels, eight fewer acres of forested land, two fewer perennial waterbodies, and 14 fewer karst features such as sinkholes. However, the corresponding segment of the proposed

¹⁹¹ Final EIS 4-37.

¹⁹² The Blue Ridge Land Conservancy states that Variation 250 would result in impacts on the Slusser Chapel Conservation Site.

route would affect about 2.5 miles less of National Forest System lands, 1.1 miles less of side slope, about 25 fewer acres of interior forest, and one mile less of shallow bedrock. In balancing the factors evaluated, the final EIS did not find an overall significant environmental advantage for the VADCR alternative when compared to the proposed route. However, as noted above, we are requiring that Mountain Valley adopt Variation 250 into its proposed route to reduce impacts on the Slussers Chapel Conservation Site.

(b) Dye-Tracing Studies

155. The VADCR requests that Mountain Valley conduct additional dye-tracing studies to determine the underground connectivity and relationships between karst features and sinkholes in the vicinity of the MVP Project. As stated in section 4.1.2.5 of the final EIS, Mountain Valley's *Karst Mitigation Plan* outlines inspection criteria for known karst features identified during construction in proximity to the right-of-way. If a karst feature is identified, Mountain Valley will conduct a weekly inspection and document soil subsidence, rock collapse, sediment filling, swallets, springs, seeps, caves, voids, and morphology. If any changes are identified during the weekly inspection, Mountain Valley will then conduct more in-depth additional inspections. Any required in-depth additional inspections will include visual assessment, geophysical survey, track drill probes, infiltration, or dye tracing. If a feature is found to have a direct connection to a subterranean environment or groundwater flow system, Mountain Valley will work with the karst specialist and appropriate state agencies to develop mitigation measures for the karst feature.

156. Section 4.1.1.5 of the final EIS states that surface water will typically flow overland down slope to recharge features, such as swallets (underground streams). Groundwater will flow vertically through the unsaturated zone along interconnected fractures, and conduits, and along preferential paths downslope until reaching the saturated (phreatic) zone where groundwater will flow from areas of high hydraulic head (recharge locations) to areas of low hydraulic head (discharge locations). Mountain Valley's analysis included evaluating recharge features (swallets, sinkholes, and sinking streams), resurgence features (spring and seeps), topography, bedrock structure (strike and dip) as well as the results of the fracture trace-lineament analysis, and the results of previous dye-trace studies. Using these data, groundwater flow paths can be extrapolated and additional dye testing at these locations would not significantly change the understanding of groundwater flow. Performing a dye-trace analysis of every sinkhole or sink point along the pipeline alignment is not feasible or necessary.

157. We conclude that the impacts to geological resources will be adequately minimized with the implementation of the applicants' best management practices and the implementation of the environmental conditions in Appendix C.

d. Mining Operations

158. After issuance of the final EIS, Coronado Coal and Mountain Valley, through multiple filings, disputed whether the project would cross active mines leased by Coronado Coal in Greenbrier and Nicholas Counties, West Virginia (Pocahontas Nos. 6 and 7). Coronado Coal owns and manages Greenbrier Minerals LLC, which owns Matoaka Land Company, LLC (Matoaka). Matoaka leased the mineral rights to the two coal reserves from Coronado, and then leased its mineral rights to MWV Community Development and Land Management, LLC. Highland Mineral Resources LLC and its affiliate Plum Creek Timberlands L.P. lease the surface rights to the land where the coal reserves are located from Weyerhaeuser, the land owner.¹⁹³ Coronado Coal contends that the project would cause subsidence and other impacts on its existing and future mining operations, resulting in a depreciation of its mineral rights and an increase of its coal-mining operating costs. Coronado Coal requests that the order be conditioned on requiring Mountain Valley to compensate it for loss of coal value and increased costs, which was initially recommended in the draft EIS but was subsequently removed in the final EIS.

159. Coronado Coal and Mountain Valley debate the degree of activity that would constitute as “active” mining. Coronado Coal states that it has developed plans for completing permitting and mining within the schedule set forth in its mineral lease, drove entry-ways and constructed shafts for workers to access and supply the mines, and obtained a permit from West Virginia to install a station to access Pocahontas No. 7 seam, which it completed.¹⁹⁴ In response, Mountain Valley argues that Coronado Coal is not actively mining Pocahontas Nos. 6 or 7 because it does not have a current permit or a pending application to mine those seams.¹⁹⁵ Mountain Valley contends that Coronado Coal’s current permits are for mines located over a mile away from the project.¹⁹⁶

160. For the purposes of whether the project would depreciate the value of Coronado Coal’s mineral rights, the specific level of activity that would constitute “active” mining is irrelevant. The heart of this issue is the value of Coronado Coal’s mineral rights,

¹⁹³ See Coronado Coal’s August 4, 2016 Comment at 2-5.

¹⁹⁴ See Coronado Coal’s August 23, 2017 Answer at n.25.

¹⁹⁵ See Mountain Valley’s August 11, 2017 Answer at 10.

¹⁹⁶ *Id.*

which is not a matter for the Commission to adjudicate.¹⁹⁷ Section 7 of the NGA only authorizes the Commission to grant certificates of public convenience and necessity and does not empower us to determine the value of various property interests or to award related damages.¹⁹⁸ Instead appropriate compensation is a matter of negotiation between the property owner and the pipeline and, if an agreement cannot be made, courts are the appropriate venue.¹⁹⁹ Thus, if negotiation fails, Coronado Coal must seek relief from courts in connection to its claim that the MVP Project would result in a loss in value of its coal mines.

161. As for Coronado Coal's concern about the project's potentially disruptive effect on its current and future mining operations, in previous situations where pipeline facilities are proposed to be constructed through active and proposed coal mining areas with known areas of present or potential ground instability resulting from mining operations, the Commission has required a pipeline applicant to establish a site-specific plan addressing specific mining subsidence problems.²⁰⁰ In other instances, where no active or proposed mining activities are occurring near proposed pipeline construction activities, we have refrained from speculating on the details of vague and uncertain potential coal mining activities, their ambiguous effects, and attempts to mitigate such effects through a construction and operation subsidence plan.²⁰¹ We have noted that

¹⁹⁷ 15 U.S.C. § 717f(h) (2012). *American Energy Corp. v. Rockies Express Pipeline LLC*, 622 F.3d 602, 606 (6th Cir. 2010) (*American Energy Corp.*) (holding that the Commission lacks jurisdiction to adjudicate damages to property, including conversion, caused by a certificated gas project).

¹⁹⁸ *American Energy Corp.*, 622 F.3d at 606; *see* 15 U.S.C. § 717f (2012).

¹⁹⁹ *See* 15 U.S.C. § 717f(h) (2012).

²⁰⁰ *See Texas Eastern Transmission, LP*, 131 FERC ¶ 61,164, at PP 18-21 (2010) (*Texas Eastern*) (affirming that pipeline must comply with all applicable safety requirements and resolve any subsidence mitigation issues within the purview of the relevant state agency that might come into play at such time as active mining is authorized to proceed under any of its facilities). *See also Rockies Express Pipeline LLC*, 123 FERC ¶ 61,234, *reh'g denied*, 125 FERC ¶ 61,160 (2008), *reh'g granted and denied*, 128 FERC ¶ 61,045 (2009) (requiring the pipeline applicant to develop, and file with the Commission prior to construction, a construction and operation plan for a portion of the project to ensure the integrity of the pipeline and to ensure that the project does not compromise existing or future mining activities).

²⁰¹ *See, e.g., Texas Eastern*, 131 FERC ¶ 61,164 at P 19.

pipeline applicants must comply with all applicable safety requirements when they conduct active mining operations in the future.²⁰²

162. Here, the facts align most closely with *Texas Eastern*. As in *Texas Eastern*, the mining company has not actively mined in the project area and has not yet proposed a plan to mine. In the absence of specific information about the details of how potential mining activities would go forward, what they would involve, and how they would likely be affected by the construction of the project, the pipeline mitigation plans that Coronado Coal would have us require would be based only on speculation. Where coal mining in the vicinity of a proposed pipeline is a reasonably foreseeable future action,²⁰³ the Commission has considered the impacts that mining activities might have on a proposed pipeline as part of our environmental review of the project.²⁰⁴ Should Coronado Coal at some point in the future engage in long-wall mining beneath the facilities Mountain Valley will construct, Mountain Valley would remain under an obligation to comply with all relevant DOT Pipeline and Hazardous Materials Safety Administration (PHMSA) safety requirements for existing pipelines.²⁰⁵

163. We expect Mountain Valley to consult with companies planning to extract coal beneath the approved right-of-way and to follow procedures to maintain its facilities' integrity when mining operations undercut a pipeline. As discussed in the final EIS,²⁰⁶ the MVP Project is subject to the oversight of PHMSA, and thus must adhere to any measures that PHMSA requires to mitigate risks when mining operations occur in proximity to pipelines, and is also subject to certain state requirements related to the project's construction and operation.

164. Thus, we reject Coronado Coal's request to condition construction of the MVP Project on mitigation of potential impacts from speculative future coal mining operations.

²⁰² *Id.* at P 22.

²⁰³ See 40 C.F.R. § 1508.7 (2017) (NEPA regulations describing cumulative impacts).

²⁰⁴ See e.g. Final EIS at 4-48 (noting that if subsidence becomes an issue Mountain Valley would supplement its *Mining Area Construction Plan* through consultation with the WVDEP and mine operators with regards to potential hazards).

²⁰⁵ See also Final EIS at 4-48 to 4-49 (addressing future longwall mining).

²⁰⁶ *Id.* at 1-23 and 4-558.

e. **Water Resources**

i. **Groundwater**

165. Commenters argue that the projects would harm groundwater supplies, especially in karst terrain areas.

166. The project areas are primarily comprised of bedrock aquifers with minor surficial aquifers along streams. The pipeline trench will rarely exceed 10 feet in depth, but could encounter shallow groundwater. In those situations, the trench will be dewatered through filters into adjacent vegetated uplands so that there will be some recharge to shallow aquifers.

167. As stated in the final EIS, the MVP Project will cross two groundwater wellhead protection areas²⁰⁷ located in the Nettie-Leivasy Public Service District in Nicholas County, West Virginia. In addition, the MVP Project will cross surface water protection areas, including 6 Zones of Critical Concern and 14 Zones of Peripheral Concern²⁰⁸ in West Virginia. The MVP Project will cross the Red Sulphur Public Service District's Zone of Critical Concern and Zone of Peripheral Concern at MP 195.4 in Monroe County, West Virginia. No groundwater source protection areas were identified in the vicinity of the Equitrans Expansion Project.

168. The MVP Project will be within 0.1 mile of two public water supplies: one well in Greenbrier County, West Virginia (the Greenbrier County Public Supply District #2), and the other in Pittsylvania County, Virginia (the Robin Court Subdivision). The MVP Project will also be within 0.3 mile of Rich Creek Spring, located near MP 195.2, which is used as a water supply by the Red Sulphur Public Service District. No public water supply resources were identified within one mile of the Equitrans Expansion Project.

169. To minimize potential impact from construction of the MVP Project on groundwater wellhead protection areas or surface water supply protection areas, Environmental Condition No. 24 requires Mountain Valley to develop a contingency plan with measures to protect, repair, or replace the water supplies of public service districts.

²⁰⁷ The 1986 Amendment of the Safe Drinking Water Act required states to develop wellhead protection programs to protect public supply wells from contamination. *See* 42 U.S.C. § 300h-7 (2012).

²⁰⁸ Zones of Critical Concern and Zones of Peripheral Concern are generally established buffers mapped around all sources that contribute directly to a public water supply intake.

170. Commenters note the degree of groundwater interconnectivity in areas of karst terrain. Commenters also state that many landowners depend on wells or springs sourced from karst-generated groundwater for their domestic drinking water supplies, livestock watering, and irrigation of agricultural lands.

171. Because karst features provide a direct connection to groundwater, there is a potential for pipeline construction to increase turbidity in groundwater due to runoff of sediment into karst features or to contaminate groundwater resources by inadvertent spills of fuel or oil from construction equipment. To minimize potential impacts on karst related groundwater through construction associated sedimentation and runoff, Mountain Valley will implement the erosion control measures outlined in the Commission's Plan and its *Karst-specific Erosion and Sediment Control Plan*. Further, to minimize the potential for hazardous materials leaking from construction equipment to contaminate groundwater, Mountain Valley will implement the measures outlined in its *Stormwater Pollution Prevention Plan (SWPP Plan)*; *Spill Prevention, Control, and Countermeasures Plan (SPCC Plan)*; and *Unanticipated Discovery of Contamination Plan for Construction Activities in West Virginia and Virginia*.

172. Because field surveys for both projects have not been completed due to lack of approved access, Mountain Valley and Equitrans have been unable to identify all private wells and springs used for domestic water supplies within 150 feet of the pipelines (500 feet in karst terrain). Therefore, Environmental Condition No. 12 of this order requires the applicants to file an updated list of the locations of water wells, springs, and other drinking water sources within 150 feet (500 feet in karst terrain) of construction work areas and aboveground facilities, prior to construction. In areas where a public or private water supply well or spring is identified within 150 feet of the projects (500 feet in karst terrain), the applicants will flag the wellhead or spring as a precaution and notify the owner or operator of the water resource. The applicants will conduct pre-construction water quality evaluations on water wells. Further, Environmental Condition Nos. 21 and 35 of this order require Mountain Valley and Equitrans to conduct post-construction testing of domestic water supplies evaluated during the pre-construction process. In situations where project-related construction damages the quantity or quality of domestic water supplies, the applicants will compensate the landowner for damages, repair or replace the water systems to near pre-construction conditions, and provide temporary sources of water.

173. On July 31, 2017, Indian Creek Watershed Association filed a report prepared by Thomas Bouldin regarding sedimentation in streams crossed by the MVP Project. Mr. Bouldin states that estimates of sedimentation into waterbodies contained in the final EIS are flawed because they do not account for runoff from construction workspaces. In addition, Mr. Bouldin claims that final EIS ignores points made in the *Hydrologic Analysis of Sedimentation* report prepared by Mountain Valley for the Forest Service.

174. We disagree. Section 4.3 of the final EIS discusses runoff caused by construction²⁰⁹ and includes a summary of the findings of Mountain Valley's *Hydrologic Analysis of Sedimentation* report. Further, the final EIS states that Mountain Valley will work with the Forest Service and appropriate agencies to develop a stream monitoring plan that it will implement during operation of the MVP Project.

175. Section 4.3.2 of the final EIS provides a discussion of two peer-reviewed scientific studies, including one prepared by the U.S. Geological Survey, regarding sedimentation into waterbodies crossed from dry-ditch methods. The final EIS states that the dry-ditch methods would result in minor, short-term, and localized increases in sedimentation in waterbodies crossed by the MVP Project.²¹⁰ Those minor increases in sedimentation at pipeline stream crossings should not significantly affect aquatic resources within the waterbodies.

176. As outlined in the final EIS (section 2.4.1.1), Mountain Valley agreed to adopt the Commission's Plan without modifications and the *Wetland and Waterbody Construction and Mitigation Procedures* with modifications. The Commission's Plan and Procedures provide baseline mitigation measures, including erosion control devices, that would limit sedimentation and runoff from all work areas. Based on Commission staff's experience with pipeline construction, and Mountain Valley's commitment to cross waterbodies via dry-ditch methods, adherence to the measures in the Commission's Plan and Procedures, Mountain Valley's proposal to conduct a stream monitoring plan, and use of the Commission's third-party construction compliance program, we determine that impacts on waterbodies due to sedimentation will be effectively minimized.

177. We conclude that impacts on groundwater will be adequately minimized with the implementation of the applicants' best management practices as appropriate and the implementation of the environmental conditions in Appendix C.

²⁰⁹ See, e.g., Final EIS at 4-137 ("The use of heavy equipment for construction could cause compaction of near-surface soils, an effect that could result in increased runoff into surface waters in the immediate vicinity of the proposed construction right-of-way. Increased surface runoff could transport sediment into surface waters, resulting in increased turbidity levels and increased sedimentation rates in the receiving waterbody. Disturbances to stream channels and stream banks could also increase the likelihood of scour after construction.").

²¹⁰ Final EIS at 4-217.

ii. Surface Waters and Fisheries

178. Some commenters, including the Appalachian Mountain Advocates, question the adequacy of the final EIS's discussion on the MVP Project's impacts on surface waters.

179. The MVP Project will cross 389 perennial surface waterbodies, 5 of which are defined as major waterbodies (i.e., more than 100-foot-wide). Mountain Valley will cross all waterbodies using dry open-cut (flumed, dam-and-pump, or cofferdam) methods, except for the Pigg River. The MVP Project crosses the Pigg River, a state-designated Scenic River that contains habitat for the federally-endangered Roanoke logperch (freshwater fish), in Pittsylvania County, Virginia. To minimize potential impacts on the Pigg River and the Roanoke logperch, Environmental Condition No. 23 of this order requires Mountain Valley to use a horizontal directional drill (HDD) to cross under the Pigg River.

180. The Equitrans Expansion Project will cross 15 perennial surface waterbodies. Of these, the Monongahela River is a major river more than 100-foot-wide. Equitrans will cross all waterbodies using either dry open-cut or HDD crossing methods. Nine waterbody crossings will be completed by HDD: the Monongahela River, South Fork Tenmile Creek, and seven crossings of unnamed tributaries of the South Fork Tenmile Creek. Because Equitrans has not completed environmental surveys for the New Cline Variation, which is incorporated in Equitrans' proposal, we will require, Environmental Condition No. 36, that Equitrans file the results of all the environmental surveys for the New Cline Variation prior to construction.

181. The MVP Project will cross four waterbodies (i.e., Left Fork Holly River, Elk River, Greenbrier River, and Craig Creek) listed on the National Park Service's (NPS) National Rivers Inventory as rivers with outstanding qualities that may qualify for wild, scenic, or recreational designation. The MVP Project will also cross Greenbrier River, a waterbody protected under the Natural Streams Preservation Act of West Virginia, and two waterbodies (i.e., Blackwater River and the Pigg River) on the Virginia Scenic Rivers List.

182. The MVP Project will cross 23 perennial waterbodies in West Virginia and 10 perennial waterbodies in Virginia that contain freshwater mussels. The Virginia Department of Game defines windows in which construction should not occur in streams that contain freshwater mussels characterized as long-term brooders, such as the yellow lampmussel and green floater. The restricted windows are April 15 through June 15 and August 15 through September 30. Further, construction will be restricted in streams that contain freshwater mussels characterized as short-term brooders, such as the James spinymussel and Atlantic pigtoe, from May 15 through July 31. Mountain Valley has agreed to adhere to these in-water work windows.

183. Mountain Valley estimates that about 58,422,382 gallons of water may be needed for the hydrostatic testing of its pipeline, with about 46,644,831 gallons coming from municipal sources, and about 11,777,551 gallons from surface water sources (i.e., Meadow River and the Greenbrier River). For pipeline segments that will be tested using surface water sources, the withdrawal and discharge of the hydrostatic test water will occur within the same watersheds. About 55,000 gallons per day of water from unidentified surface or groundwater sources may be required for dust control for each spread along the MVP Project. Environmental Condition No. 22 requires Mountain Valley to reveal the sources and quantities of water to be utilized for dust control prior to construction.

184. Commenters, such as the Counties, expressed concerns regarding potential effects on surface waterbodies during construction and operation of the projects due to sedimentation or spills or leaks of hazardous materials.

185. The final EIS concludes that dry open-cut waterbody crossings result in temporary (less than 4 days) and localized (for a distance of only a few hundred feet of the crossing) increases in turbidity downstream of construction, but the magnitude of this increase is minimal compared to increased turbidity associated with natural runoff events. Once construction is complete, Mountain Valley will stabilize and restore streambeds and banks consistent with its *Wetland and Waterbody Construction and Mitigation Procedures*. In addition, Mountain Valley and Equitrans will follow their *Wetland and Waterbody Construction and Mitigation Procedures*, which stipulates the use of clean gravel or native cobbles for the upper one foot of trench backfill in all waterbodies that are classified as coldwater fisheries. Mountain Valley and Equitrans will minimize impacts on riparian vegetation at the edge of waterbodies by narrowing the width of the standard construction rights-of-way at waterbody crossings to 75 feet, and by locating most temporary workspaces at least 50 feet away from stream banks. Outside of the 10-foot-wide corridor over the pipeline maintained clear of trees, Mountain Valley will hand plant shrubs and trees within the temporary workspaces at specific waterbody crossings, up to 100 feet from the stream bank. The applicants will minimize impacts on surface waterbodies by implementation of the construction practices outlined in their project-specific *Erosion and Sediment Control Plans*, the Commission's Plan (for the MVP Project), Equitrans' project-specific *Upland Erosion Control, Revegetation, and Maintenance Plan* (Equitrans Plan), and Equitrans' project-specific *Wetland and Waterbody Construction and Mitigation Procedures* (Equitrans' Procedures). As stated in the final EIS, Commission staff reviewed these plans and procedures and determined that they will provide acceptable protection of surface waterbodies.²¹¹

186. To avoid or minimize the potential impacts of fuel or oil or other hazardous materials spilled from construction equipment, Mountain Valley will follow the

²¹¹ Final EIS at 4-149.

procedures outlined in its SPCC Plan and Equitrans will implement its SPCC Plan and/or its *Preparedness, Prevention, and Contingency and Emergency Action Plan* depending on the project location. These plans include both preventative and mitigation measures such as personnel training, equipment inspection, refueling procedures, and spill cleanup and containment.

187. In addition to the measures we require here, the Army Corps, the Pennsylvania Department of Environmental Protection (PADEP), WVDEP, and Virginia Department of Environmental Quality (VADEQ) have the opportunity to impose conditions to protect water quality pursuant to sections 401 and 404 of the Clean Water Act. The applicants must obtain all necessary federal and state permits and authorizations, including the water quality certifications, prior to receiving Commission authorization to commence construction. We expect strict compliance by the applicants with any federal and state-mandated conditions.

iii. Wetlands

188. The final EIS states that construction of the MVP and Equitrans Expansion Projects will impact a total of 32.1 acres of wetlands, including 24.9 acres of emergent wetlands, 2.5 acres of scrub-shrub wetlands, and 4.6 acres of forested wetlands.²¹² Because all wetlands will be restored after pipeline installation, there will be no net loss of wetlands. However, in some cases there will be conversions of wetland types and functions.

189. Within the 10-foot-wide corridor centered on the pipeline that will be mowed on a regular basis to comply with DOT's pipeline safety regulations, there will be a permanent conversion of forested and shrub wetlands to herbaceous wetlands. Impacts on emergent and scrub-shrub wetlands within temporary workspaces will be short-term. After construction, those areas are expected to be restored, and emergent and scrub-shrub wetlands return within a few years to their original condition and function. Forested wetlands within temporary workspaces will be subject to long-term impacts. While trees could regenerate in those areas, it will take decades for them to mature and return the forested wetlands to their original condition and function.

190. In general, construction and operation-related impacts on wetlands may also be mitigated by the applicants' compliance with their *Wetland and Waterbody Construction and Mitigation Procedures* and the conditions of the Clean Water Act sections 404 and

²¹² Final EIS 4-153.

401 permits.²¹³ With implementation of the acceptable avoidance and minimization measures, as well as the environmental conditions in this order, we agree with the final EIS's conclusion that impacts on wetland resources will be appropriately mitigated and reduced to less than significant levels.

f. Vegetation, Forested Land, and Wildlife

191. The MVP Project will cross about 235 miles of forest, 2.7 miles of shrublands, and 7.5 miles of grasslands. The Equitrans Expansion Project will cross about 4 miles of forest and less than 0.1 mile of grasslands. Construction of the MVP Project will affect a total of about 4,453 acres of forest, while operation of the project will affect about 1,597 acres of forest. Construction of the Equitrans Expansion Project will affect a total of about 62 acres of forest and operation of the Equitrans Expansion Project will impact a total of about 22 acres of forest.

192. The 50-foot-wide operational pipeline easement in uplands will be kept clear of trees, resulting in the permanent conversion of forest to grasslands/shrub land use. The remainder of the temporary construction workspace along the pipeline routes in forested uplands will be allowed to regenerate, although it would take many years for trees to mature. This long-term impact will affect about 3,164 acres of forest, but the forest is expected to eventually recover.²¹⁴ About 174 acres of forest will be permanently converted to industrial land use at the MVP Project's aboveground facilities and permanent access roads. Construction of the Equitrans Expansion Project's aboveground facilities will clear a total of about 5 acres of forest, and operation will permanently remove 4 acres.

193. The removal of interior forest to create the necessary pipeline rights-of-way will result in the conversion of forest area to a different vegetation type. This will contribute to forest fragmentation and the creation of forest edges. The pipeline right-of-way through forest will remove habitat for interior forest wildlife species. The MVP Project will pass through 24 state-listed core forest areas in West Virginia, which will result in temporary impacts from construction on about 2,428 acres of large core forest areas (greater than 500 acres) and permanent impacts from operations on about 872 acres of

²¹³ For unavoidable wetland impacts, the applicants commit to purchase wetland and stream credits from approved mitigation banks in the respective states. In-lieu fee state programs may also be considered. Proof of compensatory mitigation credit purchase will be provided by the applicants to the Army Corps prior to construction.

²¹⁴ This would include the temporary workspace along the pipeline right-of-way outside of the 50-foot-wide permanent easement, additional temporary workspaces, yards, and temporary access roads.

large core forest areas. In Virginia, the MVP Project will pass through 17 state-listed ecological core areas categorized as Outstanding, Very High, or High. Construction of the MVP Project in Virginia will result in temporary impacts on about 547 acres of ecological core areas categorized as Outstanding to High and permanent impacts on about 209 acres of ecological core areas categorized as Outstanding to High. Construction and operation of the Equitrans Expansion Project's H-318 pipeline in Pennsylvania will affect one tract of interior forest of about 50 acres.

194. The MVP Project will cross five EPA Level III ecoregions:²¹⁵ the Western Allegheny Plateau, Central Appalachians, Ridge and Valley, Blue Ridge Mountains, and the Piedmont. All components for the Equitrans Expansion Project will be within the Western Allegheny Plateau ecoregion. Combined, these ecoregions make up a total area of more than 164 million acres, of which more than 100 million acres is forested. However, in considering the total acres of forest affected, the quality and use of forest for wildlife habitat, and the time required for full restoration in temporary workspaces, the final EIS concludes that the MVP Project will have significant impacts on forested land.²¹⁶

195. To minimize forest fragmentation and edge effects, Mountain Valley has collocated about 30 percent of the pipeline route with existing linear corridors. Mountain Valley will revegetate the right-of-way and workspaces with seeds for species recommended by the Wildlife Habitat Council. Mountain Valley will reduce impacts on vegetation with the implementation of the Commission's Plan and Mountain Valley's project-specific *Erosion and Sediment Control Plan*. Mountain Valley also developed an *Exotic and Invasive Species Control Plan* to minimize impacts from invasive species. Equitrans will reduce impacts on vegetation by implementing the measures of its Plan and approved seeding mixes, rates, and dates obtained from the Pennsylvania Erosion and Sediment Control Manuals, and invasive species control measures outlined in Equitrans' invasive species control strategies. Commission staff's review of the applicants' proposed seed mixes revealed a limited number of non-native plant species and recommended, in the final EIS, the development of revised erosion control plans. Environmental Condition No. 13 of this order requires the applicants to revise their erosion control plans to contain seed mixes for only native species.

196. The Roanoke Appalachian Trail Club argues that the final EIS underestimates the impacts caused by the clearing of forest because of forest fragmentation. The final EIS

²¹⁵ Ecoregions are areas where ecosystems are generally similar. They are classified into four levels. See EPA, Ecoregions, <https://www.epa.gov/eo-research/ecoregions>.

²¹⁶ Final EIS at 4-191.

appropriately addresses forest habitat impacts, including interior/core forest habitats, in sections 4.4 and 4.5. These sections include mapping, tabular data, impact analyses, and proposed measures to reduce impacts on forest.

197. The Virginia Department of Game expresses concerns about invasive species management. Section 4.4 of the final EIS appropriately discusses Mountain Valley's *Exotic and Invasive Species Control Plan* and determines that the plan is adequate to manage invasive species along the restored right-of-way.²¹⁷

198. Preserve Roanoke expresses concern regarding the use of herbicides along the pipeline route. As stated in the final EIS, Mountain Valley would not use herbicides anywhere on the right-of-way, except where requested by landowners.²¹⁸ We agree that Preserve Roanoke's concern is adequately addressed.

199. The Virginia Department of Game comments on the loss of forested habitat, including core/interior forest habitat. The VADCR also expresses concerns about forest fragmentation. The final EIS addresses forest habitat impacts and impact avoidance, minimization, and mitigation in sections 4.4 and 4.5. It concludes that impacts on forest resources would be significant, but have been minimized to the extent practicable. For example, the final EIS states that impacts on forest will be reduced by collocating the MVP Project adjacent to existing rights-of-way for about 30 percent of the project route. Mountain Valley will also reseed construction areas with native vegetation during restoration.²¹⁹

200. Dr. Carl Zipper contends that the final EIS does not adequately address mitigation of adverse effects on forest, and requests a Supplemental EIS. Other people filed comments supporting Dr. Zipper's statements. Dr. Zipper offers his own recommendations for forest mitigation in comments filed on the draft EIS. The final EIS addresses Dr. Zipper's proposed forest mitigation measures in Appendix AA of the final EIS.²²⁰

201. Further, the final EIS discloses the extent and level of impacts on forest, and outlines measures Mountain Valley proposes to reduce or mitigate those impacts. Dr. Zipper does not offer new information or a change of circumstance since the final EIS was issued. Therefore, a Supplemental EIS is not necessary.

²¹⁷ Final EIS at 4-189 to 4-191.

²¹⁸ Final EIS at 4-187.

²¹⁹ Final EIS at 4-183.

²²⁰ See response to comment IND244 in Appendix AA of the final EIS.

202. The final EIS clarifies that during restoration, Mountain Valley will seed temporary workspaces with species recommended by the Wildlife Habitat Council. In forested areas, Mountain Valley will use a woody seed mix composed of native overstory, understory, and shrub oak-hickory forest species. Environmental Condition No. 13 of this order requires that Mountain Valley only use native species in its seed mixes. Mountain Valley will also plant native shrubs and saplings (outside of the 30-foot-corridor over the pipeline) within forested wetlands and at the crossings of waterbodies known to contain special status species.

203. Dr. Zipper's comments regarding the effectiveness of hand-planting trees as compared to using a woody seed mix are noted. However, the proposed use of a woody seed mix is a reasonable measure to minimize impacts on forests. As stated in the final EIS, Mountain Valley will monitor revegetation efforts following restoration.²²¹ As stated in the final EIS response to Dr. Zipper's comments on the draft EIS, natural recruitment will allow for the regeneration of more highly variable plant species and trees best suited for local conditions.

204. Dr. Zipper also criticizes Commission staff's approval of Mountain Valley's *Exotic and Invasive Species Control Plan* and recommends handcutting of invasive species. However, as stated in the final EIS, Mountain Valley will adhere to the measures outlined in the Commission's Plan, which provides that "[r]evegetation in non-agricultural areas shall be considered successful if upon visual survey the density and cover of non-nuisance vegetation are similar in density and cover to adjacent undisturbed lands." Based on our staff's experience monitoring revegetation efforts where the spread of invasive species was successfully limited, we conclude that Mountain Valley's *Exotic and Invasive Species Control Plan* would limit the spread of invasive species during revegetation.

205. A variety of wildlife species occupy the ecoregions and habitats crossed by the MVP and Equitrans Expansion Projects. Construction of both projects may result in limited mortality for less mobile animals, such as small rodents, reptiles, amphibians, and invertebrates, that are unable to escape equipment. More mobile animals will likely be displaced to adjacent similar habitats during construction. Once the right-of-way is revegetated, it will be reoccupied by displaced wildlife.

206. Additionally, constructing the projects could disrupt bird courting, breeding, or nesting behaviors. Migratory birds, including Birds of Conservation Concern, are associated with the habitats that will be affected by both projects. Two Important Bird Areas will be crossed: 1) Bird Conservation Region 28 (Appalachian Mountains for both projects) and 2) Bird Conservation Region 29 (Piedmont for the MVP Project). Both Mountain Valley and Equitrans developed *Migratory Bird Habitat Conservation Plans* to

²²¹ Final EIS at 4-180.

minimize impacts on bird species. In addition, Equitrans has agreed to conduct tree clearing outside of the migratory bird nesting season (generally between April 15 and August). Mountain Valley will potentially conduct tree clearing in select areas during the migratory bird nesting season (during April, May, and August). Environmental Condition No. 27 of this order requires Mountain Valley to finalize its *Migratory Bird Habitat Conservation Plan* and address the comments of resource agencies. As a result, we agree with the final EIS's conclusion that the projects would not result in population-level impacts on migratory bird species.

207. The VADCR points out that Appendix N-15 (Recommended Seed Mixtures and Fertilizer/Mulch for Revegetation Mountain Valley Project – Virginia) in the final EIS lists different seed mixes than those listed in Mountain Valley's *Migratory Bird Conservation Plan* (Appendix D - Restoration and Rehabilitation Plan). We acknowledge that the two seed mix lists are different. Environmental Condition No. 27 of this order requires Mountain Valley to revise its *Migratory Bird Conservation Plan* in order to ensure that the seed mix in the plan matches the seed mix in the final EIS.

208. The Blue Ridge Land Conservancy expresses concerns about scenic views of Brush Mountain, the MVP Project's proximity to the Brush Mountain Wilderness, alternations of wildlife patterns resulting from the MVP Project, and the potential for the introduction of invasive species. Sections 4.4, 4.5, and 4.8 of the final EIS discuss these topics and conclude that the implementation of the measures outlined in the final EIS would minimize adverse effects.²²²

209. In conclusion, the final EIS finds, and we agree, that construction and operation of both projects would not significantly affect wildlife.

g. Threatened, Endangered, and Other Special Status Species

210. The final EIS identifies 23 federally-listed threatened or endangered species (or federal candidate species or federal species of concern) that will be potentially present in the vicinity of the projects.²²³ The final EIS concludes that the MVP Project will have no effect on two species; is not likely to adversely affect eight species; will have no adverse

²²² See also responses to Comments CO-7 and CO-31 in Appendix AA of the final EIS.

²²³ One species, the bog turtle, is not subject to section 7 consultation under the Endangered Species Act.

impacts anticipated for two species of concern;²²⁴ is not likely to contribute to a trend toward federal listing for three species; and is likely to adversely affect seven species (Indiana bat, northern long-eared bat, Roanoke logperch, running buffalo clover, shale barren rock cress, small whorled pogonia, and Virginia spiraea). The likely-to-adversely-affect determination for four of the seven species – the running buffalo clover, shale barren rock cress, small whorled pogonia, and Virginia spiraea – is based on Commission staff’s conservative assumption that these species are present in portions of the MVP Project corridor that Mountain Valley was not granted land access to survey. On July 10, 2017, Commission staff issued a Biological Assessment (BA), which was submitted to West Virginia and Virginia Field Offices of the FWS, that included a detailed assessment regarding the effects of the MVP Project on federally-listed species.

211. The final EIS concludes that the Equitrans Expansion Project is not likely to adversely affect the two endangered bats assumed to be present in the vicinity of the project. The conclusion was based in part upon Equitrans implementing avoidance and minimization measures outlined in the FWS-approved Myotis Bat Conservation Plan.

212. In response to our BA, the FWS stated, in a letter to the Commission dated August 4, 2017, that based on new information provided by Mountain Valley, it determined that the MVP Project is not likely to adversely affect shale barren rock cress and running buffalo clover. Commission staff agrees with the findings of the FWS for these two species.

213. However, because consultation with the FWS is not yet complete, Environmental Condition No. 28 of this order prohibits construction of the MVP Project until Commission staff completes the process of complying with the Endangered Species Act.

214. The projects could also affect 20 additional species that are state-listed as threatened, endangered, or were noted by the applicable state agencies as being of special concern. Based on implementation of the applicants’ proposed mitigation and the environmental conditions in the appendix of the order, we agree with the final EIS’s conclusion that impacts on special-status species will be adequately avoided or minimized.²²⁵

²²⁴ “Species of concern” is an informal term used by FWS to refer to species that have been identified as important to monitor, but do not have endangered, threatened or candidate status and thus receive no legal protection.

²²⁵ Final EIS at 4-250.

h. Land Use, Recreation, and Visual Resources

i. Land Use

215. Construction of the MVP Project would impact forest land (76.6 percent), agricultural land (14.6 percent), and open land, commercial, open water, and residential (approximately 8.7 percent). Construction of the Equitrans Expansion Project would primarily impact the following land use types: agricultural (46.3 percent), forest (37.6 percent), and open land (12.5 percent). Both projects combined would affect about 1,023 acres of agricultural lands. Impacts on agricultural lands will be short-term, lasting during the period of construction and restoration and a few years later.

216. The applicants will compensate farmers for loss of agricultural production during the construction and restoration period. Following pipeline installation, the right-of-way will be restored to near pre-construction conditions and use, and agricultural practices could resume. Except for orchards, crops and pasture can be planted directly over the entire right-of-way. Mitigation measures typically implemented in agricultural lands (as specified in the Commission's Plan) include topsoil segregation, rock removal, soil decompaction, and repair/replacement of irrigation and drainage structures damaged by construction. Mountain Valley developed an *Organic Farm Protection Plan* that outlined measures that it will implement when crossing organic farms to reduce impacts.

217. Mountain Valley identified 118 residences within 50 feet of its proposed construction right-of-way. Site-specific residential mitigation plans for all residences within 50 feet of the construction right-of-way are included as Appendix H of the final EIS, as required by our regulations.²²⁶ Environmental Condition No. 30 of this order requires Mountain Valley to file landowner concurrence with the plans for all residences that will be within 10 feet of the construction work area. In addition, because the final EIS identified an additional residence within 20 feet from MP 216.6 since the issuance of the draft EIS, we also include as part of Environmental Condition No. 30 the requirement that Mountain Valley file a site-specific residential plan within 50 feet of this newly-identified residence.

218. The VADCR indicates that the final EIS incorrectly states that incorporation of the Canoe Cave Variation into the proposed route would avoid the Canoe Cave Conservation Site in Giles County, Virginia. We acknowledge the error and note that the proposed pipeline route will only cross the edges of the Canoe Cave Conservation Site. Further, as table 4.1.1-14 of the final EIS indicates, the pipeline centerline will be about 902 feet away from Canoe Cave.

²²⁶ See 18 C.F.R. § 380.12(j)(10) (2017).

219. The Virginia Outdoors Foundation, which manages land on behalf of Virginia, states that it initially identified the Wimmer Easement (tract MON-VOF-1871 at MP 234.2 in Montgomery County, Virginia) as land that it manages.²²⁷ Virginia Outdoors Foundation now clarifies that the MVP Project will not cross the Wimmer Easement. Therefore, we clarify that the MVP Project will not affect the Wimmer Easement.

220. The final EIS included a recommended condition, which would have required Mountain Valley provide documentation that WVDNR reviewed a crossing plan for the Burnsville Lake Wildlife Management Area. In a communication with Mountain Valley that was forwarded to Commission staff on August 22, 2017, a representative of the WVDNR who reviewed the final EIS clarified that the MVP Project will not cross any portion of the Burnsville Lake Wildlife Management Area that is owned or managed by the state of West Virginia. Instead, the only lands within the boundaries of the Burnsville Lake Wildlife Management Area that will be crossed by the pipeline are owned and managed by the Army Corps (i.e., Weston and Gauley Bridge Turnpike Trail). The BLM will cover Army Corps-owned lands in its future right-of-way grant to Mountain Valley. Therefore, we do not adopt recommended Environmental Condition No. 30 from section 5.2 of the final EIS.

ii. Recreation

221. Federally owned or managed recreational and special use areas that will be crossed by the MVP Project include the Weston and Gauley Bridge Turnpike Trail, the Blue Ridge Parkway, and the Jefferson National Forest. The Weston and Gauley Bridge Turnpike Trail is owned by the Army Corps, and will be crossed with a bore to avoid all surface impacts on the trail. The Blue Ridge Parkway is managed by the NPS, and will also be crossed with a bore. The MVP Project will cross the Appalachian National Scenic Trail and the Brush Mountain Inventoried Roadless Area, both within the Jefferson National Forest and managed by the Forest Service. Mountain Valley proposes to bore under the Appalachian National Scenic Trail, to avoid all surface impacts on the trail.

222. Congressman Beyer expresses concerns about impacts on the Appalachian National Scenic Trail. Section 4.8 of the final EIS discusses impacts on the Appalachian National Scenic Trail and measures Mountain Valley will implement to avoid, reduce, or mitigate those impacts.²²⁸

²²⁷ Citing Final EIS at 4-281.

²²⁸ Final EIS at 4-311 to 4-313.

223. The MVP Project will pass through the Jefferson National Forest for a total of 3.5 miles in three segments between MPs 196.2 and 197.8, MPs 218.5 and 219.4, and MPs 219.8 and 220.8 in Monroe County, West Virginia, and Giles and Montgomery Counties, Virginia. As listed on table 1.3-1 of the final EIS, the MVP Project will affect about 83 acres in the Jefferson National Forest during construction and 42 acres during operation.²²⁹ The Jefferson National Forest operates under a Land and Resource Management Plan (LRMP).²³⁰ The Forest Service analyzed the information provided by Mountain Valley and is amending its LRMP to allow for the MVP Project to be sited within the Jefferson National Forest. On June 23, 2017, the Forest Service issued a draft record of decision for the use and occupancy of the Jefferson National Forest for the MVP Project. The public objection period on the draft record of decision closed on September 21, 2017. After resolving the objections, the Forest Service will issue a final decision on the respective authorization before it. Mountain Valley will implement the measures outlined in its Plan of Development, pending approval by the Forest Service, and its *Construction, Operation, and Maintenance* Plan to minimize the impacts on National Forest resources.

224. The Equitrans Expansion Project will not cross any federally designated Wild and Scenic Rivers, National Parks, National Trails, National Landmarks, federal or state designed Wilderness Areas, national or state forests, wildlife refuges, natural preserves or game management areas, Indian reservations, or state or county parks or recreation areas. However, because the Riverview Golf Course will be crossed as a result of the Cline Variation that Equitrans incorporated into its proposal, we include Environmental Condition No. 37 requiring Equitrans to file a crossing plan and documentation that the landowners have reviewed it.

iii. Visual Resources

225. Mountain Valley conducted visual impact assessments for the Weston and Gauley Bridge Turnpike Trail, Blue Ridge Parkway, Appalachian National Scenic Trail, and the Jefferson National Forest.

226. Based on the visual impact assessments, the final EIS concludes that the MVP Project will not have significant adverse visual impacts on the Weston and Gauley Bridge Turnpike Trail, Blue Ridge Parkway, Appalachian National Scenic Trail, or the Jefferson National Forest.

²²⁹ Final EIS at 1-14.

²³⁰ The LRMP was prepared pursuant to 16 U.S.C. § 1604(e) (2012) and is available at https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3834582.pdf.

227. We agree with the final EIS's conclusion that, with adherence to the applicants' proposed impact avoidance, minimization, and mitigation plans, and implementation of the environmental conditions in the appendix of this order, the overall impacts on land use will be adequately minimized.²³¹

i. Socioeconomics

i. Property Values, Mortgages, and Insurance

228. Commenters expressed concerns regarding the potential effect of the projects on property values, mortgages, and homeowners insurance. Several commenters provided anecdotes about property values and public surveys and opinion polls about perceived reductions of property values. However, anecdotes, public surveys, or opinion polls do not constitute substantial evidence that natural gas projects decrease property values. Accordingly, we conclude here, as we have in other cases, that the proposed project is not likely to significantly impact property values in the project areas.²³²

229. A few landowners claim that prospective property buyers cannot obtain mortgages when property is encumbered by a pipeline easement. However, the evidence they provide is an article about natural gas drilling, not natural gas transmission; thus, it does not support their contention. The final EIS also states that banks regularly issues mortgages, including loans from the Veterans Administration and Federal Housing Administration, for properties encumbered with pipeline easements.²³³ The final EIS found no evidence that banks or federal lenders refused to lend to prospective purchasers of property encumbered with a pipeline easement.²³⁴

230. With regard to concerns expressed by commenters regarding the ability to obtain homeowner's insurance, our staff has researched this extensively and has found little evidence that owners of property encumbered with pipeline easements were unable to obtain homeowner's insurance.²³⁵ The final EIS finds that insurance companies do not

²³¹ Final EIS at 4-347.

²³² See, e.g., *Transco*, 158 FERC ¶ 61,125, at P 106 (2017); *Central New York Oil & Gas Co., LLC*, 116 FERC ¶ 61,277, at P 44 (2006).

²³³ Final EIS at 4-367 and 4-392.

²³⁴ Final EIS 4-368.

²³⁵ Final EIS at 4-367, 4-368, and 4-392. See also *Transco*, 158 FERC ¶ 61,125 at PP 107-108.

consider the presence of natural gas pipeline when underwriting homeowner's insurance policies.²³⁶ Nonetheless, Mountain Valley and Equitrans have agreed to document, track, investigate, and report to the Commission every quarter for a period of two years following in-service, complaints from any affected landowners whose insurance policy was cancelled or materially increased in price as a direct result of the projects.²³⁷ The applicants have committed to consider any potential mitigation on a case-by-case basis, and address resolutions in quarterly reports to the Commission.²³⁸

231. Based on the foregoing, we agree with the final EIS's conclusion that the projects would not have significant adverse impacts on property values, mortgages, or insurance.

ii. Environmental Justice

232. Executive Order 12898 requires that specified federal agencies make achieving environmental justice part of their missions by identifying and addressing, as appropriate, disproportionately high and adverse human or environmental health effects of their programs, policies, and activities on minorities and low income populations.²³⁹ Executive Order 12898 applies to the agencies specified in section 1-102 of that order. This Commission is not one of the specified agencies, and the provisions of Executive Order 12898 are not binding on this Commission. Nonetheless, in accordance with our usual practice, the final EIS addresses this issue and concludes that the proposed projects will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations.²⁴⁰

233. In its guidance to implement Executive Order 12,898, CEQ instructs that low-income populations be identified with annual statistical poverty thresholds from the

²³⁶ Final EIS at 4-392.

²³⁷ *Id.* at 4-393.

²³⁸ *Id.*

²³⁹ Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, Executive Order 12,898 (Feb. 11, 1994), reprinted at 59 Fed. Reg. 7629.

²⁴⁰ *See* sections 4.9.1.8 and 4.9.2.8 of the final EIS.

Bureau of the Census.²⁴¹ Minority groups compose of American Indian or Alaska Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic.²⁴² Further, minority populations are identified where either the minority population of the affected area exceeds 50 percent or the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.²⁴³

234. Relying on census data, the final EIS finds no counties or census blocks in the project areas that have minority populations exceeding 50 percent or have minority populations meaningfully greater than the minority population percentage in the respective states.²⁴⁴ The final EIS identifies low-income populations within the MVP and Equitrans Expansion Project areas.²⁴⁵ However, the projects would not result in disproportionate adverse health or environmental impacts on any low-income community because, as discussed in the final EIS, water and air quality would not be significantly affected.²⁴⁶

235. As we have stated in prior cases, the siting of linear facilities between two fixed end points is generally based on environmental and engineering factors.²⁴⁷ Along the way, Mountain Valley selected its pipeline route to take advantage of ridgetop alignments, avoid sensitive natural resources (where possible), and avoid major population centers. The pipeline route mostly crosses rural regions with relatively low population densities. By avoiding metropolitan areas, the MVP Project should reduce impacts on communities with high percentages of minorities, low-income populations,

²⁴¹ CEQ, *Environmental Justice Guidance Under the National Environmental Policy Act*, at 25 (Dec 1997) (CEQ Environmental Justice Guidance), https://www.epa.gov/sites/production/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf. The final EIS relies on the poverty line established by the U.S. Department of Health and Human Services: an individual income of \$11,880 and a family of five income of \$28,440 in 2016. Final EIS at 4-374.

²⁴² CEQ Environmental Justice Guidance at 25.

²⁴³ *Id.*

²⁴⁴ Final EIS at 4-399.

²⁴⁵ Final EIS at 4-373 to 4-378.

²⁴⁶ Final EIS at 4-400.

²⁴⁷ *See, e.g., Florida Southeast Connection, LLC*, 154 FERC ¶ 61,080 at P 262.

and other vulnerable populations. Therefore, we conclude that environmental justice communities would not be significantly affected by the projects.

iii. Tourism, Transportation, and Housing

236. Commenters identify construction traffic, restriction of access to tourist attractions, limitations on business opportunities, and competition for accommodations as potential issues.

(a) Tourism

237. While construction of the projects will overlap with the peak tourist season, between May and October, the construction in most of the recreational use areas will take only a few weeks. Therefore, the final EIS concludes, and we agree, that the MVP Project would not have significant adverse impacts on specific federally-managed recreational areas in the region, including the Weston and Gauley Bridge Turnpike Trail, Blue Ridge Parkway, Appalachian National Scenic Trail, and the Jefferson National Forest.²⁴⁸ Likewise, the final EIS also concludes, and we agree, that the Equitrans Expansion Project would not have a significant adverse impact on housing, tourism, or recreation in the project area.²⁴⁹

(b) Transportation

238. Commenters were also concerned about the MVP Project's impacts on local roads. The Virginia Department of Transportation submitted comments on the MVP Project on July 19, 2017, recommending Mountain Valley to continue to coordinate with the agency, conduct detours at times to minimize impacts, and provide signage to alert the public to utility work and detours. The Lynchburg District of the Virginia Department of Transportation also commented on the final EIS, stating that a Virginia Department of Transportation project along U.S. Route 29 in Pittsylvania County, Virginia is planned for the period from 2017 through 2018. In addition, road repaving is ongoing in the Lynchburg District.

239. Transportation and traffic issues are discussed in sections 4.9.1.5 and 4.9.2.5 of the final EIS. Mountain Valley prepared a *Traffic and Transportation Management Plan* that was reviewed by Virginia Department of Transportation. Mountain Valley will obtain permits from Virginia Department of Transportation prior to crossing roads in Virginia. Equitrans also prepared a *Traffic and Transportation Management Plan* for West Virginia and Pennsylvania and will obtain road crossing and encroachment permits from

²⁴⁸ Final EIS at 4-389 to 4-392.

²⁴⁹ Final EIS at 4-308, 4-321, and 4-389.

the West Virginia Department of Transportation and highway occupancy permits from the Pennsylvania Department of Transportation. Mountain Valley and Equitrans will restore all roads to their pre-construction condition and will coordinate with state and local authorities to obtain the required permits to operate trucks on public roads. As a result, the final EIS finds, and we agree, that the MVP Project would result in temporary to short-term impacts on transportation infrastructure and that the Equitrans Expansion Project would not have significant adverse impacts on transportation infrastructure.²⁵⁰

240. Mountain Valley filed a response to recommended Environmental Condition No. 16 in the final EIS, which recommended that Mountain Valley provide an access plan for the right-of-way between MP 237.6 and 240.3 to avoid using proposed access road MVP-RO-279.01. The purpose of this recommendation was to avoid Virginia Outdoor Foundation's open space easement ROA-2563/MON-2563, and minimize impacts on environmental resources and landowners.²⁵¹

241. Mountain Valley contends that access road MVP-RO-279.01 is needed to increase project safety, because of topography in the area. Without use of the road, Mountain Valley contends that it would only have two options. The first involves the use of additional winching. Specifically, Mountain Valley identifies three steeply-sloped areas along the right-of-way that would require up to 10 winch tractors daisy chained together to move a single load of materials, equipment, fuel, or personnel up and down the slopes. Without the use of access road MVP-RO-279.01. Mountain Valley contends that more than 700 additional winch loads would be necessary to transport the required materials, equipment, fuel, and workers along the right-of-way during construction using this chain technique. Mountain Valley contends that the number and complexity of these winching processes create safety concerns. In addition, the required winching is purportedly an extremely slow process that increases the amount of time that Mountain Valley is actively constructing in the area. This, in turn, could increase environmental impacts and safety risks in the area.

242. Mountain Valley states its second alternative is to transport pipe and certain materials to the right-of-way using helicopters. Mountain Valley contends that this could double the number of loads and increase noise impacts on surrounding properties for a much longer period of time. Similar to the winching processes, Mountain Valley believes that using helicopters to bring pipe and equipment to the right-of-way is an extremely slow process that increases the amount of time that Mountain Valley is actively constructing in the area, which increases environmental impacts and safety risks in the area.

²⁵⁰ Final EIS at 4-389 to 4-392.

²⁵¹ Final EIS at 3-75 to 3-76.

243. Finally, Mountain Valley points out that without the use of access road MVP-RO-279.01, it could take up to two additional hours for emergency responders to reach an injured worker on the right-of-way. Similarly, without use of the road, access to repair a section of the pipeline during operation of the MVP Project would be slowed.

244. As stated in the final EIS, the impact of the access road would affect about 0.62 acre. Mountain Valley now proposes to reduce those impacts to 0.32 acre by limiting the width of the road improvements. Mountain Valley now proposes to limit the width of the road to 15 feet in straight sections and 20 feet on curved portions, and narrow additional workspaces to 20 feet on straight sections and 30 feet on curved portions. Mountain Valley will mitigate the impacts by acquiring about 10.25 acres of undisturbed high-quality forest adjacent to the Poor Mountain Natural Area Preserve and providing it to the VOF as compensatory mitigation.

245. We find Mountain Valley's request to use access road MVP-RO-279.01 reasonable because it would improve and ensure project safety. Thus, we include Environmental Condition No. 17 and a modified Environmental Condition No. 16 to this order, to allow use of the road, but require that Mountain Valley incorporate its proposed modifications to minimize impacts.

(c) Housing

246. The projects may have temporary impacts on local housing. The influx of non-local construction workers could affect local housing availability, as they compete with visitors for limited accommodations in rural areas with few hotels. Peak non-local employees working on the MVP Project would average between 536 and 671 people per construction spread; with a total of 11 spreads. The total peak workforce for the Equitrans Expansion Project, including pipelines and aboveground facilities, would be about 400 people. Non-local construction workers would need to find housing in vacant rental units, including houses, apartments, mobile home parks, hotels/motels, and campgrounds and recreational vehicle parks. The final EIS estimates that the housing stock in the affected counties of West Virginia would include 1,913 rental units, 5,202 hotel/motel rooms, and 2,704 recreational vehicle spaces; while the counties crossed in Virginia have about 1,986 rental units, 6,548 hotel/motel rooms, and 321 recreational vehicle spaces. In those counties where housing is limited, workers would likely find accommodations at adjacent larger communities that are within commuting distance, bring their own lodgings in the form of recreational vehicles, or share units. For the MVP Project, construction workers would be spread out along 11 separate pipeline spreads and 7 aboveground facilities across 17 counties. While it would take about 2.5 years to build the MVP Project, the average worker would only be on the job for about 10 months for the pipeline and 8 months for aboveground facilities. The final EIS

concludes, and we agree, that the projects should not have significant long-term adverse impacts on housing.²⁵²

j. Cultural Resources

i. Historic Districts

247. The final EIS states that the MVP Project will cross seven Historic Districts: (1) Big Stony Creek Historic District, (2) Greater Newport Rural Historic District, (3) North Fork Valley Rural Historic District, (4) Bent Mountain Rural Historic District, (5) Blue Ridge Parkway Historic District, (6) Coles-Terry Rural Historic District, and (7) the Lynchburg and Danville Railroad Historic District.²⁵³ The Virginia Department of Historic Resources, representing the State Historic Preservation Office (SHPO), states that the Lynchburg and Danville Railroad Historic District is not eligible for inclusion in the National Register of Historic Properties (National Register) and therefore will not be affected by the MVP Project; and Commission staff agrees.²⁵⁴ The Virginia Department of Historic Resources indicated that the MVP Project would have adverse effects on the Big Stony Creek Historic District, Greater Newport Rural Historic District, North Fork Valley Rural Historic District, Bent Mountain Rural Historic District, and Coles-Terry Rural Historic District because visual impacts will diminish the feelings and settings of these historic districts.²⁵⁵ Commission staff agrees with the determination of the Virginia Department of Historic Resources.

248. The Equitrans Expansion Project does not cross any Historic Districts.

249. In comments on the final EIS, Preserve Roanoke raises concerns about the Blue Ridge Parkway Historic District and the Coles-Terry Rural Historic District. Preserve Roanoke indicates that construction of the MVP Project could result in visual impacts on the Blue Ridge Parkway Historic District that would impair its historic and cultural values. The Blue Ridge Parkway Historic District is discussed in section 4.10.7 of the final EIS, which states that the District is listed on the National Register. The final EIS also states that Mountain Valley filed a visual impact assessment for the Blue Ridge Parkway Historic District in February 2017. Based on that assessment, Mountain Valley

²⁵² Final EIS at 4-447.

²⁵³ Final EIS 4-447.

²⁵⁴ See section 4.10.7.1 of the final EIS.

²⁵⁵ See July 5, 2017 Letter from the Virginia Department of Historic Resources to Mountain Valley (filed July 20, 2017).

concluded that there would be no significant adverse impacts on the visual resources associated with the Blue Ridge Parkway Historic District at the crossing of the MVP Project. The Blue Ridge Parkway, however, is managed by the NPS which has not yet concurred on the visual impact assessments. In accordance with Environmental Condition No. 15 of this order, visual impacts related to the Blue Ridge Parkway Historic District will be fully identified and appropriate mitigation will be developed, to the extent necessary, once the NPS and the Virginia Department of Historic Resources file their opinions.²⁵⁶

250. Preserve Roanoke also contends that the Roanoke River contributes to the historic integrity of the Coles-Terry Rural Historic District. However, the Roanoke River is a geographic feature and not a cultural resource.

251. The Counties, in comments on the final EIS, also raise concerns about potential project-related effects on the Greater Newport Rural Historic District, Newport Historic District, Blue Ridge Parkway Historic District, Coles-Terry Rural Historic District, and the Bent Mountain Rural Historic District. These Historic Districts are discussed in section 4.10.7.1 of the final EIS. The Newport Historic District, Greater Newport Historic District, and Blue Ridge Parkway Historic District are already listed on the National Register. The final EIS states that the Coles-Terry Rural Historic District and Bent Mountain Rural Historic District are eligible for the National Register. The MVP Project will be outside the boundaries of the Newport Historic District and will not affect that District.

252. On August 28, 2017, after the final EIS was issued, Mountain Valley filed Treatment Plans with the Commission to resolve adverse effects on the Big Stony Creek Historic District, Greater Newport Rural Historic District, North Fork Valley Rural Historic District, Bent Mountain Rural Historic District, and Coles-Terry Rural Historic District. Mountain Valley also submitted these plans to the Virginia Department of Historic Resources. Environmental Condition No. 15 of this order will ensure future consultations with the SHPOs and reviews of treatment plans.

ii. Previously Recorded Cultural Resources

253. The final EIS identifies two previously-recorded historic properties²⁵⁷ in the direct area of potential effect (150 feet from work areas) for the Equitrans Expansion Project's

²⁵⁶ Final EIS at 4-442 to 4-443.

²⁵⁷ Historic properties include prehistoric or historic sites, districts, buildings, structures, objects, or properties of traditional religious or cultural importance that are listed or eligible for listing on the National Register, in accordance with 36 C.F.R. § 60.4 (2017). See final EIS at 1-41.

H-318 pipeline: (1) the Monongahela River Navigation System and (2) the Pittsburgh and Lake Erie Railroad. Equitrans will use an HDD to cross under the river and railroad to avoid impacts on these two historic properties.

254. In Braxton County, West Virginia, Mountain Valley identified one previously-recorded National Register-listed site (Weston and Gauley Bridge Turnpike Trail [NR#98001430]) in the direct area of potential effect, and intends to bore under the site. The West Virginia Department of Culture and History, representing the SHPO, states that this would result in no adverse effects. Commission staff agrees with this determination.

255. Mountain Valley identified one previously recorded archaeological site (44MY54) and three previously-recorded historic sites (Appalachian National Scenic Trail, Elijah Henry House, and Flora Farm) in the direct area of potential effect in Virginia that are eligible for the National Register. Commission staff and the Virginia Department of Historic Resources agree that the MVP Project would have no adverse effects on those sites.

256. James and Karen Scott (Scotts) state that supplemental materials filed by Mountain Valley on June 30, 2017, after the EIS was issued, misrepresent historic sites on their property, including the Elijah Henry House. Mountain Valley's June 30, 2017 filing indicates that the proposed MVP Project would be 425 feet from the Elijah Henry House, while the final EIS states that the pipeline would be about 139 feet away from the site. In a filing on September 5, 2017, Mountain Valley clarifies that the Elijah Henry House is located about 144 feet away from a proposed access road for the MVP Project. The final EIS states that the Elijah Henry House is eligible for the National Register, and may be considered a contributing resource to the Coles-Terry Rural Historic District. The Virginia Department of Historic Resources found, and Commission staff agrees, that the MVP Project will have no adverse effects on the Elijah Henry House.²⁵⁸

257. The Scotts claim that Mountain Valley's consultant misidentified the Elijah Henry Spring House as a "shed," and failed to record a root cellar at the site. As discussed in the final EIS, the Virginia Department of Historic Resources accepted the cultural reports that described the site, and made an assessment of eligibility and effects. In any case, the distinction the Scotts draw does not change our analysis.

258. The Scotts state that the pipeline would cross the Elijah Henry Spring House water line. The Spring House is outside the area of potential effect and will not be affected by the MVP Project. As indicated in the final EIS, Mountain Valley will attempt to install

²⁵⁸ Final EIS at 4-446.

its pipeline below existing foreign utilities.²⁵⁹ Therefore, Mountain Valley is expected to install its pipeline below the Spring House water line to avoid impacts.

iii. Newly-Recorded Cultural Resource Sites

259. The final EIS indicates that a total of 282 newly-recorded archaeological sites and 116 historic architectural sites have been identified in the direct area of potential effect for the MVP Project, outside of Historic Districts.²⁶⁰ Based on Mountain Valley's cultural resources investigations reports, the final EIS determines that 220 of the newly-recorded archaeological sites and 107 of the newly-recorded historic architectural sites in the direct area of potential effect are not eligible for the National Register, are not historic properties, and require no additional evaluation. A total of 46 newly-recorded archaeological sites are unevaluated and avoidance of these sites was recommended. The final EIS concludes that, for the entire MVP Project, eleven newly-recorded archaeological sites and seven newly recorded historic architectural sites have been evaluated as eligible for nomination to the National Register.

260. Of the total of 18 National Register-eligible newly recorded resources in the direct area of potential (outside of Historic Districts) for the entire MVP Project discussed in the final EIS, eight archaeological sites and two historic architectural sites are located in West Virginia. Mountain Valley's cultural resources consultants recommended that the MVP Project would have either no effect or no adverse effects on the eligible historic architectural sites in West Virginia. Mountain Valley intends to avoid four of the eligible archaeological sites in West Virginia. In the case of the four other eligible archaeological sites in West Virginia, Mountain Valley indicated that significant data were already recovered, and recommended a finding of no adverse effects. Three archaeological sites and five historic architectural sites found to be eligible in the final EIS are located in Virginia. Mountain Valley intends to avoid the three eligible archaeological sites in Virginia. Mountain Valley's cultural resources consultants recommended that the MVP Project will have no adverse effects on the eligible historic architectural sites in Virginia. Commission staff concludes that the MVP Project will have no effect on sites that are avoided. No additional work will be required at historic properties where the MVP Project will have no effect or no adverse effects.

261. After the issuance of the final EIS, the West Virginia Division of Culture and History, made a finding that three National Register-listed or eligible historic architectural sites in West Virginia (Underwood Farmstead [LE-150], St. Bernard's Church [NR#85001583], and Losch Farmstead [BX-351] will be adversely effected by the MVP Project. On September 18, 2017, Mountain Valley filed Treatment Plans to

²⁵⁹ Final EIS at 2-48.

²⁶⁰ Final EIS at 4-479.

mitigate adverse effects at these three historic architectural sites, and the plans are being reviewed by the West Virginia SHPO. Also after the final EIS was issued, the Virginia Department of Historic Resources found that the MVP Project will have adverse effects on three archaeological sites in the Virginia (44GS241, 44RN400 and 44RN401). Mountain Valley filed Treatment Plans to mitigate adverse effects at those three archaeological sites, to be reviewed by the Virginia SHPO.

262. The Scotts also comment on impacts of the MVP Project on the Henry-Waldron Cemetery. The final EIS states that Mountain Valley will avoid the cemetery. Mountain Valley's historic architectural consultant recommended that the Henry-Waldron Cemetery is not individually eligible for the National Register, but could be considered a contributing element to the Coles-Terry Rural Historic District.²⁶¹ The Virginia Department of Historic Resources agreed with the consultant's recommendations for the Henry-Waldron Cemetery in a June 27, 2017 letter accepting the consultant's report.²⁶² Mountain Valley's Treatment Plan for the Coles-Terry Rural Historic District indicates that the Henry-Waldron Cemetery is about 20 feet away from the construction limits for proposed Access Road MVP-EO-281. Mountain Valley will fence the cemetery to avoid impacts.

263. A minor route variation for the Scotts parcel was evaluated in section 3.5 of the final EIS. As stated in table 3.5.3-1 of the final EIS, desktop analysis showed a minor route deviation to address the Scotts' concerns is feasible, but would shift the route onto the properties of adjacent landowners. The minor route deviation was part of a larger route variation (the Poor Mountain Variation), which the final EIS concludes does not offer a significant environmental advantage when compared to the corresponding proposed route segment.²⁶³

264. Preservation Virginia expresses concerns about potential project impacts on pre-contact archaeological sites 44FR240, 372, 392, 398, 399, and 400, in Franklin County, Virginia. Preservation Virginia recommends additional archaeological test excavations at these sites.

265. Preservation Virginia acknowledges, however, that archaeological site 44FR240 is outside of the area of potential effect. Therefore, that site will not be affected by the MVP Project. In addition, the final EIS indicates that archaeological sites 44FR398, 399,

²⁶¹ Final EIS at 4-463.

²⁶² Filed with the FERC by Mountain Valley on June 30, 2017, after the issuance of the final EIS.

²⁶³ Final EIS at 3-80.

and 400 were evaluated as not eligible for the National Register based on a December 2016 survey report, and a determination which the Virginia Department of Historic Resources concurred with. Thus, no further investigations are necessary for those sites. Finally, because archaeological sites 44FR372 and 392 are eligible for the National Register, Mountain Valley proposes to avoid those sites.²⁶⁴

266. The Counties claim that the Commission did not directly consult with them regarding findings of eligibility and effects for cultural resources identified in the areas of potential effect within those counties.

267. We disagree. The Counties were sent copies of both the draft EIS and the final EIS. Those documents present the findings of the Commission staff regarding identification of historic properties and assessment of effects. Commission staff addresses the comments of the Counties on the draft EIS in Appendix AA of the final EIS.²⁶⁵

268. During surveys for the Equitrans Expansion Project, Equitrans' consultant identified six new archaeological sites within the direct area of potential effect and 115 historic architectural sites within the indirect area of potential effect (0.25-mile from the pipeline), all of which were evaluated as not eligible for the National Register. We have, however, included Environmental Condition No. 36 to this order to require Equitrans to file the results of cultural resource surveys for the New Cline Variation, which Equitrans incorporated into its proposal, prior to construction.

iv. Conclusion

269. The entire process of compliance with section 106 of the National Historic Preservation Act has not yet been completed for the projects. The applicants will need to conduct surveys and evaluation studies at areas where access was previously denied. Commission staff has not yet finished consultations with the SHPOs. If the Commission staff determines that any historic properties will be adversely affected, staff will notify the Advisory Council on Historic Preservation, and consult with appropriate consulting parties regarding the production of an agreement document to resolve adverse effects, in accordance with 36 C.F.R. § 800.6. Therefore, Environmental Condition No. 15 of this order restricts construction until after all additional required surveys and evaluations are completed, survey and evaluation reports and treatment plans have been reviewed by the

²⁶⁴ Final EIS at 4-463 to 4-465.

²⁶⁵ See responses to Comments LA4, LA7, LA2, and LA15 in Appendix AA of the final EIS.

appropriate consulting parties, the Advisory Council on Historic Preservation has had an opportunity to comment, and the Commission has provided written notification to proceed.

k. Air Quality and Noise Impacts

i. Air Quality

270. Air quality impacts associated with construction of the proposed projects will include emissions from construction equipment and fugitive dust. The final EIS concludes that such air quality impacts will generally be temporary and localized, and are not expected to cause or contribute to a violation of applicable air quality standards.

271. Operational emissions will be mainly generated by the four new compressor stations proposed for the projects. Mountain Valley submitted applications for construction and operation of the Bradshaw, Harris, and Stallworth Compressor Stations to the WVDEP and received construction permits. Equitrans' application for construction and operation of the Redhook Compressor Station is pending at the PADEP. All the compressor stations will be minor sources with respect to Prevention of Significant Deterioration and New Source Review under the Clean Air Act.

272. The Clean Air Act Title V permit program, as described in 40 C.F.R. Part 70, requires sources of air emissions to obtain federal operating permits if their criteria pollutant emissions reach or exceed the Title V major source threshold. The new Bradshaw Compressor Station will exceed the Title V major source threshold for nitrogen oxide and carbon monoxide. Therefore, Mountain Valley is required to file a Title V permit application with the WVDEP within 12 months of startup of operations of the Bradshaw Compressor Station. The Harris, Stallworth, and Redhook Compressor Stations will not exceed the major source emissions thresholds or be subject to a Title V operating permit.

273. As stated in the final EIS, minimization of operational air pollutant emissions from the projects' compressor stations, including greenhouse gases (GHG), will be achieved by operating the most efficient turbines available, installing best available technology, adhering to good operating and maintenance practices on turbines and combustion engines, and adhering to applicable federal and state regulations designed to reduce emissions. The screening analyses conducted for Mountain Valley's and Equitrans' compressor stations show criteria air pollutant concentrations are below the applicable National Ambient Air Quality Standards.

274. Mr. Workman asserts that the final EIS did not quantify GHGs. The EIS does quantify GHG emissions in table 4.13.2-2, and GHGs are further discussed in sections 4.11 and 4.13.

275. Based on the foregoing reasons, the final EIS concludes, and we agree, that emissions resulting from operation of the compressor stations will not result in significant impacts on local or regional air quality.²⁶⁶

ii. Noise Impacts

276. Noise levels are quantified according to decibels (dB), which are units of sound pressure. The A-weighted sound level, expressed as dBA, is used to quantify noise impacts on people. Sound level increases during pipeline construction will be intermittent and will generally occur during daylight hours, with the possible exception of some HDD activities. Construction equipment noise levels will typically be around 85 dBA at a distance of 50 feet. Blasting may be necessary to trench through shallow bedrock. Blasting noise levels have been documented at about 94 dBA at a distance of 50 feet. Noise impacts during construction will be transient as pipe installation progresses from one location to the next. HDD operations at the entry and exit locations will result in high noise levels at the source location. Typically, noise from HDD are estimated to be about 90 dBA at 50 feet. Therefore, Environmental Condition No. 38 of this order requires, prior to construction at HDD locations, Equitrans to file plans outlining measures to be implemented to reduce the projected noise level increases attributable to the proposed drilling operations at noise sensitive areas (NSA).

277. As stated in the final EIS, the applicants modeled noise levels at NSAs near each compressor station during operation. Worst case modeled noise levels at each NSA due to typical compressor station operation will be below the Commission's noise limit of 55 dBA. Increases over existing ambient noise levels will be barely noticeable, ranging from 0.1 dBA to 3 dBA. Environmental Condition Nos. 40 and 41 of this order requires the applicants to file the results of noise surveys during operation of the compressor stations, and if noise exceeds the day-night sound level of 55 dBA at any NSA, the applicants must install additional noise controls and refile noise survey results within one year.

i. Safety

278. Commenters questioned the safety of the projects. The final EIS states that the project facilities must be designed, constructed, operated, and maintained to meet or exceed the DOT's Minimum Federal Safety Standards²⁶⁷ and other applicable federal and state regulations. These regulations include specifications for material selection and

²⁶⁶ Final EIS at 4-515-516.

²⁶⁷ See 49 C.F.R. pt. 192 (2017).

qualification; minimum design requirements; and protection of the pipeline from internal, external, and atmospheric corrosion.

279. The final EIS concludes that the projects provide a safe, reliable means of transporting natural gas. The low number of incidents distributed over the more than 300,000 miles of natural gas transmission pipelines indicates that the risk is minimal for an incident at any given location. The final EIS concludes, and we agree, that the projects do not represent a significant safety risk to the public.²⁶⁸

280. We also received comments expressing concern that the projects may become a target for a future act of terrorism. The likelihood of future acts of terrorism or sabotage occurring along the project or at any of the myriad natural gas pipeline or energy facilities throughout the United States is unpredictable given the disparate motives and abilities of terrorist groups. Further, the Commission, in cooperation with other federal agencies, including the U.S. Department of Homeland Security, industry trade groups, and interstate natural gas companies, is working to improve pipeline security practices, strengthen communications within the industry, and extend public outreach in an ongoing effort to secure pipeline infrastructure. In accordance with the DOT surveillance requirements, the applicants will incorporate air and ground inspection of its proposed facilities into its inspection and maintenance program. In addition, the applicants propose security measures at the new aboveground facilities that will include secure fencing.

m. Cumulative Impacts

281. A number of commenters generally argue that the final EIS's discussion of the cumulative impacts of the projects is inadequate.

282. CEQ defines "cumulative impact" as "the impact on the environment which results from the incremental impact of the action [being studied] when added to other past, present, and reasonably foreseeable future actions" ²⁶⁹ The requirement that an impact must be "reasonably foreseeable" to be considered in a NEPA analysis applies to both indirect and cumulative impacts.

283. The "determination of the extent and effect of [cumulative impacts], and particularly identification of the geographic area within which they may occur, is a task assigned to the special competency of the appropriate agencies."²⁷⁰ CEQ has explained

²⁶⁸ Final EIS at 4-573.

²⁶⁹ 40 C.F.R. § 1508.7 (2017).

²⁷⁰ *Kleppe*, 427 U.S. at 413.

that “it is not practical to analyze the cumulative effects of an action on the universe; the list of environmental effects must focus on those that are truly meaningful.”²⁷¹ Further, a cumulative impact analysis need only include “such information as appears to be reasonably necessary under the circumstances for evaluation of the project rather than to be so all-encompassing in scope that the task of preparing it would become either fruitless or well-nigh impossible.”²⁷² An agency’s analysis should be proportional to the magnitude of the environmental impacts of a proposed action; actions that will have no significant direct and indirect impacts usually require only a limited cumulative impacts analysis.²⁷³

284. In considering cumulative impacts, CEQ advises that an agency first identify the significant cumulative effects issues associated with the proposed action.²⁷⁴ The agency should then establish the geographic scope for analysis. Next, the agency should establish the time frame for analysis.²⁷⁵ Finally, the agency should identify other actions that potentially affect the same resources, ecosystems, and human communities that are affected by the proposed action.²⁷⁶ As noted above, CEQ advises that an agency should relate the scope of its analysis to the magnitude of the environmental impacts of the proposed action.²⁷⁷

285. Commission staff defined the geographic scope for its analysis of cumulative impacts on specific environmental resources to include projects/actions within the watersheds crossed by the projects for cumulative impacts on water resources and wetlands, vegetation, land use, and wildlife; cumulative impacts on air quality were evaluated within the Air Quality Control Regions (AQCR) where compressor stations are located; cumulative noise impacts on NSAs within 1 mile of compressor stations;

²⁷¹ CEQ, *Considering Cumulative Effects Under the National Environmental Policy Act* at 8 (January 1997) (1997 Cumulative Effects Guidance).

²⁷² *Id.*

²⁷³ See CEQ, *Memorandum on Guidance on Consideration of Past Actions in Cumulative Effects Analysis* at 2-3 (June 2005).

²⁷⁴ 1997 Cumulative Effects Guidance at 11.

²⁷⁵ *Id.*

²⁷⁶ *Id.*

²⁷⁷ CEQ, *Memorandum on Guidance on Consideration of Past Actions in Cumulative Effects Analysis* at 2 (June 2005).

cumulative impacts on visual resources within 0.25-mile of the pipelines; and cumulative impacts on cultural resources at the county level.

286. The types of other projects, in addition to the MVP and Equitrans Expansion Projects, considered by Commission staff that could potentially contribute to cumulative impacts on a range of environmental resources include other Commission-jurisdictional natural gas interstate transportation projects; non-jurisdictional pipelines and gathering systems; oil and gas exploration and production activities; mining operations; transportation or road projects; commercial/residential/industrial and other development projects; and other energy projects, including power plants or electric transmission lines. The MVP Project will cross 31 watersheds, and the Equitrans Expansion Project will cross 3 watersheds. The 33 watersheds cover a combined total of 4,557,727 acres (about 7,121 square miles).²⁷⁸ The projects will account for about 6,487 acres of impacts (0.1 percent) within these watersheds, while other projects located within the same watersheds account for 83,722 acres (1.8 percent) of impact.²⁷⁹ The final EIS concludes, and we agree, that when added to other past, present, and reasonably foreseeable future actions, the projects will not result in significant adverse cumulative impacts on environmental resources.²⁸⁰

n. Downstream Greenhouse Gas Emissions

287. Sierra Club²⁸¹ argues that because of the recent decision by the D.C. Circuit Court of Appeals in *Sierra Club v. FERC*²⁸² the Commission should reopen the record in this proceeding and issue a supplemental EIS to address greenhouse gas (GHG) emissions and impacts on climate change as a result of the end-use consumption of the natural gas transported by the pipeline. Sierra Club asserts that, although the final EIS estimated downstream GHG emissions from combustion of the transported natural gas, the final

²⁷⁸ The Fishing Creek watershed contains parts of both projects.

²⁷⁹ As indicated in the final EIS, the footprint of other projects is provided where available. Footprint data for all projects considered was not available.

²⁸⁰ Final EIS at 4-622.

²⁸¹ Sierra Club filed on behalf of Allegheny Defense Project, Appalachian Voices, Dominion Pipeline Monitoring Coalition, Friends of Nelson, Natural Resources Defense Council, Ohio Valley Environmental Coalition, Protect Our Water Heritage Rights, Sierra Club (including its West Virginia and Virginia Chapters), West Virginia Highland Conservancy, West Virginia Rivers Coalition, and Wild Virginia.

²⁸² Sabal Trail, 867 F.3d 1357.

EIS does not analyze the scope, significance, cumulative impact, and potential alternatives of the GHG emissions.²⁸³

288. Sierra Club claims that the final EIS was not only required to quantify the greenhouse gas emissions, but also must include a discussion of their significance and any cumulative impacts associated with greenhouse gas emissions. Sierra Club argues that the final EIS only provides a cursory analysis of the impact associated with downstream combustion. Sierra Club also states that the final EIS relies on the assertion that the projects would result in the displacement of some coal, but that this approach was rejected by the court in Sabal Trail because the Commission failed to assess whether total emissions would be reduced or increased, or what the degree of reduction or increase would be.²⁸⁴

289. Next, Sierra Club dismisses the final EIS's assertions that the Commission is unable to assess the significance of the projects' impacts on climate because it contends the social cost of carbon methodology was available when the Commission prepared the final EIS. Sierra Club asserts that the court in Sabal Trail held that the Commission must explain why it did not use the methodology to determine project-specific impacts.²⁸⁵

290. Last, Sierra Club states that the final EIS's statement that end-use "emissions would increase the atmospheric concentration of GHGs, in combination with past and future emissions from all other sources, and contribute incrementally to climate change that produces the impacts previously described" does not adequately address the cumulative impacts of the projects. Sierra Club avers that the final EIS incorrectly downplays the cumulative climate impacts associated with the natural gas infrastructure build out in Pennsylvania, West Virginia, Virginia, and other surrounding states, and does not quantify the project's GHG emissions in combination with these past, present, and reasonably foreseeable gas projects.

291. Sierra Club concludes that as a result of the final EIS's failure to address these concerns, the Commission did not conduct an informed public process and failed to provide information necessary to assess potential alternatives and mitigation measures.

²⁸³ Sierra Club also requests that the Commission supplement or revise the final EIS based on purported new information received after the close of the comment period on the draft EIS. However, as discussed in PP 134-135 of this order, there is no new information here that would necessitate a supplemental or revised EIS.

²⁸⁴ Sabal Trail, 867 F.3d at 1375.

²⁸⁵ *Id.*

292. The court in Sabal Trail held that where it is known that the natural gas transported by a project will be used for end-use combustion, the Commission should “estimate[] the amount of power-plant carbon emissions that the pipelines will make possible.”²⁸⁶ As Sierra Club acknowledges, the final EIS did just that.²⁸⁷ Thus, the Commission and the public were fully informed of the potential impacts from the projects.

293. The final EIS conservatively estimates that full combustion of the volume of natural gas transported would produce GHG emissions of up to about 48 million metric tons per year.²⁸⁸ We note that this estimate represents an upper bound for the amount of end-use combustion that could result from the gas transported by these projects. This is because some of the gas may displace other fuels, which could actually lower total GHG emissions. It may also displace gas that otherwise would be transported via different means, resulting in no change in GHG emissions.

294. In an effort to put these emissions in to context, we examined both the regional²⁸⁹ and national emissions of GHGs. If only the regions identified by the applicants as prospective markets are considered, the volume of GHG emissions by the MVP and Equitrans Expansion Projects will result in a two percent increase of GHG emissions

²⁸⁶ *Id.* at 1371. We note that the end users in Sabal Trail were known (i.e., FPL and Duke Energy Florida power plants in Florida), *see id.* at 1364 and n.8, which is dissimilar to the situation here. While Mountain Valley has entered into precedent agreements with two end users (Roanoke Gas and ConEd) for approximately 13 percent of the MVP project capacity, the ultimate destination for the remaining gas will be determined by price differentials in the Northeast, Mid-Atlantic, and Southeast markets and, thus, is unknown.

²⁸⁷ Final EIS at 4-620 (providing table with Total Projected GHG Emissions from End-Use Combustion).

²⁸⁸ Final EIS at 4-620. Our estimate here is based on GHG emissions caused by the combustion of the full design capacity of the projects.

²⁸⁹ Commission staff looked at the Transco, Columbia, and Texas Eastern systems to identify the states where those pipeline systems serve. Natural gas can move anywhere on these systems. Thus, we used the combined inventory of: (1) states served by Transco’s system; (2) states served by Transco and Columbia; and (3) states served by Transco and Texas Eastern (the Columbia system overlapped the Texas Eastern system). We compared the 2014 inventory of these states served by the three systems in comparison to the downstream emissions to arrive at the potential increase in GHG emissions.

from fossil fuel combustion in these states. From a national perspective, combustion of all the gas transported by the MVP and Equitrans Expansion Projects will, at most, result in a one percent increase of national GHG emissions.

295. The final EIS acknowledged that the emissions would increase the atmospheric concentration of GHGs, in combination with past and future emissions from all other sources, and contribute incrementally to climate change.²⁹⁰ However, as the final EIS explained, because the project's incremental physical impacts on the environment caused by climate change cannot be determined, it also cannot be determined whether the projects' contribution to cumulative impacts on climate change would be significant.²⁹¹

296. We also disagree with Sierra Club's assertion that the Commission should have used the social cost of carbon methodology to determine how the proposed projects' incremental contribution to GHGs would translate into physical effects on the global environment. While we recognize the availability of the social cost of carbon methodology, it is not appropriate for use in any project-level NEPA review for the following reasons: (1) EPA states that "no consensus exists on the appropriate [discount] rate to use for analyses spanning multiple generations"²⁹² and consequently, significant variation in output can result;²⁹³ (2) the tool does not measure the actual incremental impacts of a project on the environment; and (3) there are no established criteria identifying the monetized values that are to be considered significant for NEPA reviews. The methodology may be useful for rulemakings or comparing regulatory alternatives using cost-benefit analyses where the same discount rate is consistently applied; however, it is not appropriate for estimating a specific project's impacts or informing our analysis under NEPA. Moreover, Executive Order 13783, Promoting Energy Independence and Economic Growth, has disbanded the Interagency Working Group on Social Cost of Greenhouse Gases and directed the withdrawal of all technical support documents and instructions regarding the methodology, stating that the documents are "no longer representative of governmental policy."²⁹⁴

²⁹⁰ Final EIS at 4-620.

²⁹¹ *Id.*

²⁹² See Fact Sheet: *Social Cost of Carbon* issued by EPA in November 2013, https://19january2017snapshot.epa.gov/climatechange/social-cost-carbon_.html.

²⁹³ Depending on the selected discount rate, the tool can project widely different present day cost to avoid future climate change impacts.

²⁹⁴ Exec. Order No. 13,783, 82 Fed. Reg. 16093 (2017).

o. Alternatives

297. The final EIS analyzes alternatives, including the no-action alternative, system alternatives, and route alternatives. If the no-action alternative is selected, the environmental impacts outlined in the final EIS will not occur. However, if the projects are not authorized, their stated objectives will not be realized, and natural gas will not be transported from production areas in the Appalachian Basin to end-users in the Southeast and Mid-Atlantic regions. In response to the no-action alternative, shippers may seek other infrastructure to transport natural gas to customers, and construction of those other projects may result in environmental impacts that will be similar to or greater than the MVP and Equitrans Expansion Projects.

298. A number of commenters suggested that the contracted volumes of natural gas could be transported via existing pipeline systems. The final EIS concludes, and we agree, that no existing pipeline system in the vicinity of the projects can meet their stated objectives without major expansions, which might result in environmental impacts similar to or greater than the impacts of the proposed the MVP and Equitrans Expansion Projects.²⁹⁵

299. The final EIS also considers if the contracted volumes of the MVP and Equitrans Expansion Projects could be transported through the Supply Header - Atlantic Coast Pipeline (Atlantic Coast) proposed in Docket Nos. CP15-554-000 and CP15-555-000. The final EIS examines two hypothetical scenarios²⁹⁶ for this: (1) the “one-pipe” alternative in which the MVP Project volumes would be transported together with the Atlantic Coast volumes in a single pipeline along the proposed Atlantic Coast route; and (2) the “two-pipe, one right-of-way” alternative, where the MVP Project would be relocated adjacent to the Atlantic Coast Project.²⁹⁷

300. A hypothetical “one-pipe” alternative to transport the combined volumes of both the MVP and Atlantic Coast Projects, totaling about 3.44 Bcf per day, would require either significant additional compression or a larger diameter pipeline as described below. If the alternative utilized Atlantic Coast Project’s currently proposed single 42-inch-diameter pipeline, Commission staff estimated that transporting the MVP and Atlantic Coast Projects’ combined volumes would require construction of eight additional new

²⁹⁵ Section 3.3.1 of the final EIS.

²⁹⁶ We note that no applicant has proposed to construct, and no shipper indicated an interest in utilizing, either of the hypothetical alternative pipeline systems.

²⁹⁷ See sections 3.3.2.1 and 3.4.2.1 of the final EIS.

compressor stations totaling about 873,015 hp of additional compression.²⁹⁸ Commission staff further estimated that the additional compression could triple air quality impacts compared to construction and operation of both the MVP and Atlantic Coast Projects as proposed. In addition, more laterals would need to be constructed in order to reach the MVP Project taps, thereby resulting in impacts to many new landowners, who have thus far not been part of the pre-filing or certification process. Ultimately, this alternative might not be able to provide service as contracted for to the MVP Project shippers, which is the purpose of the project.

301. Construction of an alternative system utilizing larger, non-typical 48-inch-diameter pipeline instead of the additional compression would require a wider construction right-of-way.²⁹⁹ The final EIS found that the larger right-of-way could not be accommodated in many areas along route due to the topography of the area, rendering this alternative technically infeasible.³⁰⁰ Moreover, each of these one-pipe scenarios (more compression or larger diameter pipeline) would require construction of at least 353 miles of greenfield pipeline in order to reach the contracted-for receipt and delivery points for the MVP Project.³⁰¹ We therefore find that based on all the factors described above, the “one-pipe” alternative is not technically feasible or practical, nor does it offer a significant environmental advantage over the proposed MVP and Equitrans Projects.³⁰²

²⁹⁸ Final EIS at 3-15 (noting that this amount of additional compression is greater than the total compression of both the Atlantic Coast and MVP Projects combined).

²⁹⁹ Final EIS at 3-15 (installation of 48-inch-diameter pipeline would require 30 feet or more of additional construction right-of-way over the entire length of the pipeline route and would displace about 30 percent more soil).

³⁰⁰ Final EIS at 3-16.

³⁰¹ Final EIS at 3-14.

³⁰² The Commission need not analyze “the environmental consequences of alternatives it has in good faith rejected as too remote, speculative, or . . . impractical or ineffective.” *Fuel Safe Washington v. FERC*, 389 F.3d 1313, 1323 (10th Cir. 2004) (quoting *All Indian Pueblo Council v. United States*, 975 F.2d 1437, 1444 (10th Cir.1992) (internal quotation marks omitted)); see also *Nat'l Wildlife Fed'n v. F.E.R.C.*, 912 F.2d 1471, 1485 (D.C. Cir. 1990) (NEPA does not require detailed discussion of the environmental effects of remote and speculative alternatives); *Natural Resources Defense Council, Inc. v. Morton*, 458 F.2d 827, 837-38 (D.C.Cir.1972) (same).

302. Under a hypothetical “two-pipe, one right-of-way” scenario, the MVP Project would be collocated with the Atlantic Coast Project for about 205 miles.³⁰³ While the final EIS identified environmental benefits that might be realized with such an alternative, there are also disadvantages such as additional environmental impacts associated with construction of multiple laterals necessary to reach the receipt and delivery points required to fulfill Mountain Valley’s contractual obligations with its shippers.³⁰⁴ Additionally, as described in the final EIS, the narrow ridgelines along the Atlantic Coast route are currently too narrow to accommodate two parallel 42-inch-diameter pipelines. To be able to fit two parallel 42-inch-diameter pipelines, the project sponsors would need to utilize extensive side-hill or two-tone construction techniques and disturb additional acres to prepare workspaces to safely accommodate equipment and personnel, as well as spoil storage. The final EIS concludes that collocating two pipes in a single right-of-way with the Atlantic Coast Project has constructability issues that likely render the “two-pipe” alternative technically infeasible.³⁰⁵ Moreover, this alternative does not provide a significant environmental advantage over the proposed MVP Project.³⁰⁶ We agree with the final EIS’s conclusion.

303. We are mindful, as the D.C. Circuit has acknowledged, that “given the choice, almost no one would want natural gas infrastructure built on their block.”³⁰⁷ But as the court noted:

[G]iven our nation’s increasing demand for natural gas . . . it is an inescapable fact that such facilities must be built somewhere Congress decided to vest the [Commission] with responsibility for overseeing the construction and expansion of interstate natural gas facilities. And in carrying out that

³⁰³ See Final EIS at 3-29 (detailing this alternative). A collocated route would not be reach the receipt and delivery points for the MVP Project, which might adversely affect Mountain Valley’s agreements with its shippers.

³⁰⁴ See Final EIS at 3-29 through 3-32 (including table comparing the environmental impacts of the two-pipe, one-ROW alternative with the MVP project).

³⁰⁵ Final EIS at 3-32.

³⁰⁶ Final EIS at 3-32.

³⁰⁷ *Minisink Residents for Environmental Preservation and Safety v. FERC*, 762 F.3d 97, 100 (D.C. Cir. 2014) (affirming the Commission’s decision to approve project where two dissenting commissioners preferred an alternative pipeline project).

charge, sometimes the Commission is faced with tough judgment calls as to where those facilities can and should be sited.³⁰⁸

304. While “the existence of a more desirable alternative is one of the factors which enters into a determination of whether a particular proposal would serve the public convenience and necessity,”³⁰⁹ that is not at issue in this case. Here, neither the “one-pipe” nor the “two-pipe, one right-of-way” alternative is a viable or desirable alternative. The final EIS nonetheless took a hard look at these alternatives.³¹⁰ We agree with the determination in the final EIS and need not consider either alternative any further.³¹¹

305. James Workman claims that the final EIS excluded consideration of the no-action alternative. However, the final EIS discusses the no-action alternative in section 3.1.³¹² Mr. Workman suggests that an alternative route following the Rover Pipeline Project (Rover)³¹³ should be studied. While Rover’s CGT Lateral is about five miles from the MVP Project near about MP 20.0 in Doddridge County, West Virginia, Rover heads northwest into Ohio. In order to reach Mountain Valley’s proposed terminus and delivery point at Transco Station 165 in Pittsylvania County, Virginia, the MVP Project would need to be routed southeast from Doddridge County, West Virginia, which is the opposite direction from Rover. Therefore, collocating the MVP Project along Rover’s CGT Lateral is not practical.

306. The final EIS also considers 3 other major route alternatives (Alternative 1, Hybrid 1-A, and Hybrid 1-B) and 15 route variations along the MVP Project, and 5 route

³⁰⁸ *Id.*

³⁰⁹ *City of Pittsburgh v. FPC*, 237 F.2d 741, 751 n.28 (D.C. Cir. 1956).

³¹⁰ Indeed, CEQ regulations implementing NEPA explicitly permit the Commission, in rejecting alternatives, merely to “briefly discuss the reasons for their having been eliminated.” *City of Rockingham, N. Carolina v. FERC*, No. 15-2535, 2017 WL 2875112, at *5 (4th Cir. July 6, 2017) (quoting 40 C.F.R. § 1502.14(a)).

³¹¹ The Commission’s NEPA obligation requires that it “‘identify the reasonable alternatives to the contemplated action’ and ‘look hard at the environmental effects of [its] decision[].’” *Midcoast Interstate Transmission, Inc. v. FERC*, 198 F.3d 960, 967 (D.C. Cir. 2000) (quoting *Corridor H Alternatives, Inc. v. Slater*, 166 F.3d 368, 374 (D.C.Cir.1999)) (alterations in original).

³¹² Final EIS at 3-4.

³¹³ *Rover Pipeline LLC*, 158 FERC ¶ 61,109.

variations along the Equitrans Expansion Project.³¹⁴ The final EIS finds, and we agree, that these alternative routes generally did not provide a significant environmental advantage over the proposed route segments to justify affecting additional landowners, and were not recommended. However, the final EIS recommends that Mountain Valley adopt Variation 250 into its proposed route between MPs 220.7 and 223.7, and we include that recommendation in Environmental Condition No. 16 of this order.

4. Environmental Analysis Conclusion

307. We have reviewed the information and analysis contained in the final EIS regarding the potential environmental effects of the MVP and Equitrans Expansion Projects, as well as the other information in the record. We are accepting the environmental recommendations in the final EIS, as modified herein, and are including them as conditions in Appendix C to this order.

308. Based on our consideration of this information and the discussion above, we agree with the conclusions presented in the final EIS and find that the projects, if constructed and operated as described in the final EIS, are environmentally acceptable actions. Further, for the reasons discuss throughout the order, as stated above, we find that the projects are in the public convenience and necessity.

309. Any state or local permits issued with respect to the jurisdictional facilities authorized herein must be consistent with the conditions of this certificate. We encourage cooperation between interstate pipelines and local authorities. However, this does not mean that state and local agencies, through application of state or local laws, may prohibit or unreasonably delay the construction or operation of facilities approved by this Commission.³¹⁵

310. The Commission on its own motion received and made part of the record in this proceeding all evidence, including the application, as amended and supplemented, and exhibits thereto, and all comments submitted, and upon consideration of the record,

³¹⁴ See section 3.5 of the final EIS.

³¹⁵ See 15 U.S.C. § 717r(d) (state or federal agency's failure to act on a permit considered to be inconsistent with Federal law); see also *Schneidewind v. ANR Pipeline Co.*, 485 U.S. 293, 310 (1988) (state regulation that interferes with FERC's regulatory authority over the transportation of natural gas is preempted) and *Dominion Transmission, Inc. v. Summers*, 723 F.3d 238, 245 (D.C. Cir. 2013) (noting that state and local regulation is preempted by the NGA to the extent it conflicts with federal regulation, or would delay the construction and operation of facilities approved by the Commission).

The Commission orders:

(A) A certificate of public convenience and necessity is issued to Mountain Valley, authorizing it to construct and operate the proposed Mountain Valley Pipeline Project, as described and conditioned herein, and as more fully described in the application as supplemented.

(B) A certificate of public convenience and necessity is issued to Equitrans, authorizing it to construct and operate the proposed Equitrans Expansion Project, as described and conditioned herein, and as more fully described in the application.

(C) The certificate authority issued in Ordering Paragraphs (A) and (B) is conditioned on:

(1) Mountain Valley's and Equitrans' projects being constructed and made available for service within 3 years of the date of this order, pursuant to section 157.20(b) of the Commission's regulations;

(2) Mountain Valley's and Equitrans' compliance with all applicable Commission regulations, particularly the general terms and conditions set forth in Parts 154, 157, and 284, and paragraphs (a), (c), (e), and (f) of section 157.20 of the Commission's regulations;

(3) Mountain Valley's and Equitrans' compliance with the environmental conditions listed in Appendix C to this order; and

(4) Mountain Valley and Equitrans filing written statements affirming that they have executed firm contracts for volumes and service terms equivalent to those in their precedent agreements, prior to the commencement of construction.

(D) Equitrans' request to abandon facilities, as described in this order and in its application, is granted, subject to the conditions described herein and in Appendix C of this order.

(E) Equitrans shall notify the Commission within 10 days of the date(s) of its abandonment(s) of facilities as authorized by this order. Equitrans shall complete authorized abandonments within one year from the date of this order.

(F) Mountain Valley's request for a blanket construction certificate under Subpart F of Part 157 of the Commission's regulations is granted.

(G) Mountain Valley's request for a blanket transportation certificate under Subpart G of Part 284 of the Commission's regulations is granted.

(H) Mountain Valley's initial rates and tariff are approved, as conditioned and modified above.

(I) Mountain Valley is required to file actual tariff records reflecting the initial rates and tariff language that comply with the requirements contained in the body of this order not less than 30 days and not more than 60 days prior to the commencement of interstate service.

(J) Mountain Valley must file not less than 30 days and not more than 60 days before the in-service date of the proposed facilities an executed copy of the non-conforming agreements reflecting the non-conforming language and a tariff record identifying these agreements as non-conforming agreements consistent with section 154.112 of the Commission's regulations.

(K) Within three years after its in-service date, as discussed herein, Mountain Valley must make a filing to justify its existing cost-based firm and interruptible recourse rates. Mountain Valley's cost and revenue study should be filed through the eTariff portal using a Type of Filing Code 580. In addition, Mountain Valley is advised to include as part of the eFiling description, a reference to Docket No. CP16-10-000 and the cost and revenue study.³¹⁶

(L) Equitrans' proposal to use its existing Mainline System rates as the initial recourse rates for firm transportation service on the Equitrans Expansion Project is granted.

(M) Equitrans' request for a predetermination supporting rolled-in rate treatment for the costs of the Equitrans Expansion Project in its next NGA general section 4 rate proceeding is granted, absent a significant change in circumstances.

(N) Equitrans shall file an executed copy of the negotiated rate agreement as part of its tariff, disclosing and reflecting all non-conforming language not less than 30 days and not more than 60 days, prior to the commencement of service on the Equitrans Expansion Project.

(O) Mountain Valley and Equitrans shall notify the Commission's environmental staff by telephone, e-mail, and/or facsimile of any environmental noncompliance identified by other federal, state or local agencies on the same day that such agency notifies either Mountain Valley or Equitrans. Mountain Valley or

³¹⁶ *Electronic Tariff Filings*, 130 FERC ¶ 61,047 at P 17.

Equitrans shall file written confirmation of such notification with the Secretary of the Commission (Secretary) within 24 hours

(P) The late, unopposed motions to intervene filed before issuance of this order in each respective docket are granted pursuant to Rule 214(d) of the Commission's Rules of Practice and Procedure.

(Q) ICG Eastern, LLC's late, opposed motion to intervene filed before issuance of this order in Docket No. 16-10-000 is granted pursuant to Rule 214(d) of the Commission's Rules of Practice and Procedure.

(R) The requests for full evidentiary, trial-type hearing are denied.

By the Commission. Commissioner LaFleur is dissenting with a separate statement attached.

(S E A L)

Nathaniel J. Davis, Sr.,
Deputy Secretary.

Appendix A

List of Timely Intervenors

Docket No. CP16-10-000 – Mountain Valley Pipeline Project

Adam Brauns	Black Diamond Property Owners, Inc.
Alice Martin Taylor Wilson and Maurice E. Taylor Tate	Blue Ridge Environmental Defense League
Allegheny Defense Project	Blue Ridge Land Conservancy
Alpha Natural Resources Services, LLC (and affiliates, Green Valley Coal Company and Brooks Run Mining Company, LLC)	Bold Alliance
American Electric Power Service Corporation	Border Conservancy
Andrew Geier	Brian R. Murphy
Anita M. Puckett	Bruce M. Coffey and Mary Coffey
Ann Marie L. Conner	Bruce W. Zoecklein
Anna L. Karr	Cahas Mountain Rural Historic District
Appalachian Mountain Advocates	Cameron Bernand
Appalachian Trail Conservancy	Carl E. Zipper
Appalachian Voices	Carol C. Bienstock
Ariel Darago	Carolyn Jake
Association for the Study of Archaeological Properties	Carolyn Reilly
Becky Crabtree and Roger Crabtree	Cave Conservancy of the Virginias
Bill Dooley	Charles D. Nikolaus
	Charles F. Chong and Rebecca A. Eneix-Chong
	Cheryl Borgman

Chesapeake Climate Action Network	David J. Wemer
Chris Asmann	David M. Hancock
Chris Roberts	David Rauchle and Judith Rauchle
Christian M. Reidys	Deborah E. Hammond
Christina Witcher	Delwyn A. Dyer
Christopher B. Kaknis	Dennis Jones
Christopher L. Barrett	Dennis M. Bryant
Clifford A. Shaffer	Don Barber
Clifford S. Cleavenger and Laura J. Cleavenger	Donald Jones
Consolidated Edison Company of New York, Inc.	Donna M. Riley
County Commission of Monroe County, West Virginia	Donna Pitt and Joseph Pitt
County of Montgomery, Virginia	Donna Reilly
Craig County Board of Supervisors, Virginia	Dragana Avirovik
Craig-Botetourt Electric Cooperative	Duke Energy Carolinas, LLC
Cynthia B. Morris	Duke Energy Progress, LLC
Dana O. Olson	Dwayne Milam
Dane Webster	Edward M. Savage
Daniel C. Campbell	Eleanor M. Amidon
Daniel Moore	Elizabeth D. Covington
	Elizabeth E. Ackermann
	Elizabeth Hahn

Elizabeth Struthers Malbon	Harriet G. Hodges
Elizabeth Terry Reynolds	Headwaters Defense
EQT Energy, LLC	Heartwood
Erin McKelvy	Helena Teekell
Ernest Q Reed, Jr.	Hersha Evans
Frank Terry, Jr.	Highlanders for Responsible Development
Frank Wickline	Holly L. Scoggins
Fred W. Vest	Holly Waterman
Friends of Nelson	Hope Gas, Inc. d/b/a Dominion Hope
Friends of the Lower Greenbrier River	Howdy Henritz
General Federation of Women's Clubs	Ian Reilly
George Lee Jones	Independent Oil & Gas Association of West Virginia, Inc.
Gerald M. Jones	Indian Creek Watershed Association
Getra Hanes	J. Phillip Pickett
Giles County Board of Supervisors	James Chandler
Grace M. Terry	James McGrady
Greater Newport Historic District Committee	Jana M. Peters
Greater Newport Rural Historic District Committee	Jason Boyle
Greenbrier River Watershed Association	Jason Donald Jones
Gwynn L. Kinsey	Jean L. Porterfield

Jennifer J. Henderson

Lindsay Newsome

Jobyl A. Boone

Lois K. Waldron

John Coles Terry, III

Lois Martin

John M. Henrietta

Loretta Broslma

Johnathan Lee Jones

Louisa Gay and Kenneth Gay

Jonathan D. McLaughlin

Lynda Majors

Joseph H. Fagan

Madison A. Roberts

Julian Clark Hansbarger

Margaret A. Roston

Justin Haber

Marjorie Lewter

Kali Casper

Mark A. Laity-Snyder

Kara Jeffries

Marshall D. Tessnear

Keith M. Wilson

Mary Keffer

Kelley S. Sills

Matthew Denton-Edmundson

Landcey Ragland

Maury W. Johnson

Laura K. Berry and David E. Berry

Michael Bortner

Lauren C. Malhotra

Michael T. Martin

Lauren Eanes Jones

Monroe County Organic District

Laurie Ardison

Nadia Doutcheva

Lenora Montuori

Nancy Guile

Leon G. Gross

Natural Resources Defense Council

Leslie Day

Nature Conservancy

NextEra Energy Power Marketing,
LLC

Norfolk Southern Railway Company

Ohio Valley Environmental Coalition

Olivia F. Foskey

Orus Ashby Berkley

Pamela S. Tessnear

Patricia Tracy

Paula L. Mann and Herman Mann

Piedmont Natural Gas Company, Inc.

Pittsylvania County Historical Society

PJ Crabtree

Preserve Bent Mountain

Preserve Craig, Inc.

Preserve Giles County

Preserve Greenbrier County

Preserve Monroe

Preserve Montgomery County Virginia

Preserve the New River Valley

Protect Our Water, Heritage and
Rights

Rachel L. Warnock

Raymond D. Roberts

Rebecca Dameron

Red Sulphur Public Service District

Renee Howell

Renee Powers

Rex Coal Land Co., Inc.

RGC Midstream, LLC

RGC Resources, Inc.

Richard Shingles

Roanoke County, Virginia

Roanoke Gas Company

Robert B. Lineberry

Robert E. Gross and Rosemary C.
Gross

Robert J. Tracy

Robert K. Johnson

Roberta C. Johnson

Robin Austin

Robin S. Boucher

Ronald Tobey and Elisabeth Tobey

Roseanna E. Sacco

Roy S. Quesenberry

Samuel V. Gittelman	Susan A. Cornish
Sandra Schlaudecker	Susan B. Ryan
Save Monroe, Inc.	Susan G. Barrett
Serina Garst	Susan M. Crenshaw
Shenandoah Valley Battlefields Foundation	Tammy A. Capaldo
Shenandoah Valley Network	Taylor Johnson
Sierra Club	Terry Hrubec
Sierra Club (Virginia Chapter)	Thomas Tyler Bouldin
Stephen C. Browning, Jr.	Timothy Ligion
Stephen D. Gallagher, Jr.	Tina Badger
Stephen D. Slough	Tom Ryan and Susan Ryan
Stephen K. Wood	Ursula Halferty
Stephen Legge	Valerie Ughetta
Stephen M. Miller	Vicki Pierson
Stephen T. Whitehurst	Victoria J. Stone
Steven C. Hodges and Judy R. Hodges	Virginia Cross
Steven Hanes	Virginia Wilderness Committee
Steven Hodges	W. Sam Easterling and Pamela J. Easterling
Steven L. Cass	Washington Gas Light Company
Steven L. Powers	West Virginia Highlands Conservancy
Summers County Residents Against the Pipeline	

West Virginia Rivers Coalition

William J. Sydor

WGL Midstream, Inc.

Wilmer E. Seago and Patricia A. Seago

Wild Virginia

Yvette Jones

Wildest Society

Zane R. Lawhorn

Docket No. CP16-13-000 – Equitrans Expansion Project

Appalachian Mountain Advocates	Norfolk Southern Railway Company
Appalachian Voices	Ohio Valley Environmental Coalition
Betty Jane Cline	Peoples Gas WV LLC
Blue Ridge Environmental Defense League	Peoples Natural Gas Company LLC (including its Equitable Division)
Bold Alliance	Peoples TWP LLC
Chesapeake Climate Action Network	Preserve Bent Mountain
Eleanor Sawyers	Preserve Craig, Inc.
EQT Energy, LLC	Preserve Giles County Virginia
Friends of the Lower Greenbrier River	Preserve Greenbrier County
Greenbrier River Watershed Association	Preserve Monroe
Headwaters Defense	Preserve Montgomery County Virginia
Highlanders for Responsible Development	Protect Our Water, Heritage, Rights
Hope Gas, Inc. d/b/a Dominion Hope	Roanoke County, Virginia
Independent Oil & Gas Association of West Virginia, Inc.	Save Monroe, Inc.
Natural Resources Defense Council	Shenandoah Valley Battlefields Foundation
Nature Conservancy	Shenandoah Valley Network
NJR Energy Services Company	Sierra Club
Norfolk Southern Railway Company	Sierra Club (Virginia Chapter)
	Summers County Residents Against the Pipeline

Thomas W. Headley

Virginia Wilderness Committee

Thomas Prentice

West Virginia Highlands Conservancy

Timothy Detwiler

West Virginia Rivers Coalition

Appendix B

List of Untimely Intervenors

Docket No. CP16-10-000 – Mountain Valley Pipeline Project

Ann Petrie Brown	ICG Eastern, LLC
Ashley L. Johnson	Jean Porterfield
Bradley R. Foro	Jennifer Fenrich
Brian Murphy	Joe Pitt
Bruce Bzoeckle	John Garrett Baker
Carol Geller	Joseph L. Scarpaci
Coronado Coal, LLC	Kelsey A. Williams
County of Franklin, Virginia	Linda E. Parsons Sink
Culy Hession	Michael E. Slayton
Darlene Cummingham	Mode A. Johnson
David A. Brady	Nan Gray
Donna Pitt	New River Conservancy
Dorothy W. Larew	Pamela L. Ferrante
Eldon L. Karr	Patricia Ann Cole
Felicia Etzkornik	Patrick Robinson
Friends of Claytor Lake	Paul E. Washburn
Gordon Jones	Rebecca Dameron
Guy W. Buford	Rick Shingles

Robert M. Jones

Roberta Motherway Bondurant

Russell Chisholm

Shirley J. Hall

Smith Mountain Lake Association

Suzie Henritz

Thomas Gilkerson and Betty Gilkerson

Thomas W. Triplett

Tina Smusz

Tom Hoffman

Tom J. Bondurant, Jr.

Town of Rocky Mount, Virginia

Victoria Jordan Stone

Wilbur Larew and Irene Larew

Docket No. CP16-13-000 – Equitrans Expansion Project
Consolidated Edison Company of New York, Inc.

Coronado Coal, LLC

Smith Mountain Lake Association

Appendix C

Environmental Conditions

As recommended in the final environmental impact statement (EIS) and otherwise amended herein, this authorization includes the following conditions. The section number in parentheses at the end of a condition corresponds to the section number in which the measure and related resource impact analysis appears in the final EIS.

These measures would further mitigate the environmental impact associated with construction and operation of the projects. We have included several conditions that require the applicants to file additional information **prior to construction**. Other conditions require actions **during operations**. Some are standard conditions typically attached to Commission Orders. There are conditions that apply to both applicants, and other conditions are specific to either Mountain Valley Pipeline LLC (Mountain Valley) or Equitrans LP (Equitrans).

Conditions 1 through 11 are standard conditions that apply to both Mountain Valley and Equitrans.

1. Mountain Valley and Equitrans shall each follow the construction procedures and mitigation measures described in their application and supplements, including responses to staff data requests and as identified in the final EIS, unless modified by the order. The applicants must:
 - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary of the Commission (Secretary);
 - b. justify each modification relative to site-specific conditions;
 - c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
 - d. receive approval in writing from the Director of Office of Energy Projects (OEP) **before using that modification**.
2. The Director of OEP, or the Director's designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of the order, and take whatever steps are necessary to ensure the protection of all environmental resources during construction and operation of the project and activities associated with abandonment. This authority shall allow:
 - a. the modification of conditions of the order;
 - b. stop work authority; and
 - c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the order as well

as the avoidance or mitigation of unforeseen adverse environmental impacts resulting from project construction and operation and abandonment.

3. **Prior to any construction**, Mountain Valley and Equitrans shall each file an affirmative statement with the Secretary of the Commission (Secretary), certified by a senior company official, that all company personnel, environmental inspectors (EI), and contractor personnel will be informed of the EIs' authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.
4. The authorized facility locations shall be as shown in the final EIS, as supplemented by filed alignment sheets, and shall include all of the staff's recommended facility locations identified in conditions 16, 17, and 23. **As soon as they are available, and before the start of construction**, Mountain Valley and Equitrans shall each file any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by the order. All requests for modifications of environmental conditions of the order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

The exercise of eminent domain authority granted under Natural Gas Act Section 7(h) in any condemnation proceedings related to the Mountain Valley Pipeline (MVP) Project or Equitrans Expansion Project must be consistent with the facilities and locations approved in the Commission Order. The right of eminent domain granted under Natural Gas Act Section 7(h) does not authorize either Mountain Valley or Equitrans to increase the size of the natural gas pipelines approved in the Commission Order to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

5. Mountain Valley and Equitrans shall each file detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area**.

This requirement does not apply to extra workspace allowed by the FERC *Upland Erosion Control, Revegetation, and Maintenance Plan* and/or minor field

realignments per landowner needs and requirements, which do not affect other landowners or sensitive environmental areas such as wetlands.

Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

- a. implementation of cultural resources mitigation measures;
- b. implementation of endangered, threatened, or special concern species mitigation measures;
- c. recommendations by state regulatory authorities; and
- d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.

6. **Within 60 days of their acceptance of a Certificate and before construction begins**, Mountain Valley and Equitrans shall each file their respective Implementation Plans for review and written approval by the Director of OEP. Mountain Valley and Equitrans must each file revisions to their plans as schedules change. The plans shall identify:

- a. how Mountain Valley and Equitrans will each implement the construction procedures and mitigation measures described in their applications and supplements (including responses to staff data requests), identified in the final EIS, and required by the Order;
- b. how the Mountain Valley and Equitrans will each incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
- c. the number of EIs assigned to each project and spread, and how Mountain Valley and Equitrans will each ensure that sufficient personnel are available to implement the environmental mitigation;
- d. company personnel, including EIs and contractors, who will receive copies of the appropriate materials;
- e. the location and dates of the environmental compliance training and instructions Mountain Valley and Equitrans will each give to all personnel involved with construction and restoration (initial and refresher training as the projects progress and personnel change) with the opportunity for OEP staff to participate in the training sessions;
- f. the company personnel (if known) and specific portion of the company's organization having responsibility for compliance;

- g. the procedures (including use of contract penalties) that Mountain Valley and Equitrans will each follow if noncompliance occurs; and
 - h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:
 - i. the completion of all required surveys and reports;
 - ii. the environmental compliance training of onsite personnel;
 - iii. the start of construction; and
 - iv. the start and completion of restoration.
7. Mountain Valley and Equitrans shall each employ a team of EIs for each construction spread. The EIs shall be:
- a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;
 - b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 6 above) and any other authorizing document;
 - c. empowered to order correction of acts that violate the environmental conditions of the Order, and any other authorizing document;
 - d. a full-time position, separate from all other activity inspectors;
 - c. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
 - d. responsible for maintaining status reports.
8. **Beginning with the filing of its Implementation Plan**, Mountain Valley and Equitrans shall each file updated status reports with the Secretary on a **weekly basis until all construction and restoration activities are complete**. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:
- a. an update on Mountain Valley and Equitrans efforts to obtain the necessary federal authorizations;
 - b. the construction status of their respective project facilities, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally sensitive areas;
 - c. a listing of all problems encountered and each instance of noncompliance observed by the EIs during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
 - d. a description of corrective actions implemented in response to all instances of noncompliance, and their cost;
 - e. the effectiveness of all corrective actions implemented;

- f. a description of any landowner/resident complaints that may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and
 - g. copies of any correspondence received by Mountain Valley and Equitrans from other federal, state, or local permitting agencies concerning instances of noncompliance, and the responses of Mountain Valley and Equitrans to each letter.
9. Mountain Valley and Equitrans must receive written authorization from the Director of OEP **before commencing construction of any project facilities**. To obtain such authorization, Mountain Valley and Equitrans must file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).
10. Mountain Valley and Equitrans must each receive separate written authorization from the Director of OEP **before placing their respective projects into service**. Such authorization will only be granted following a determination that rehabilitation and restoration of areas affected by the projects are proceeding satisfactorily.
11. **Within 30 days of placing the authorized facilities in service**, Mountain Valley and Equitrans shall each file an affirmative statement with the Secretary, certified by a senior company official:
- a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
 - b. identifying which of the Certificate conditions Mountain Valley and Equitrans has complied or will comply with. This statement shall also identify any areas affected by their respective projects where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.

Conditions 12 to 15 apply to both Mountain Valley and Equitrans, and shall be addressed before construction is allowed to commence.

12. **Prior to construction**, Mountain Valley and Equitrans shall each file with the Secretary the location of all water wells, springs, and other drinking water sources within 150 feet (500 feet in karst terrain) of construction work areas and aboveground facilities. (*section 4.3.1.2*)
13. **Prior to construction**, Mountain Valley and Equitrans shall file with the Secretary, for review and written approval by the Director of OEP, revised erosion control plans that contain only native species. (*section 4.4.2.7*)

14. **Prior to construction**, Mountain Valley and Equitrans shall each file with the Secretary copies of their environmental complaint resolution procedures. The procedures shall provide landowners with clear directions for identifying and resolving concerns resulting from construction and restoration of the projects. Mountain Valley and Equitrans shall mail copies of their complaint procedures to each landowner whose property would be crossed by the projects. In their letters to affected landowners, Mountain Valley and Equitrans shall:
- a. provide a local contact that the landowners shall call first with their concerns; the letter shall indicate how soon a landowner shall expect a response;
 - b. instruct the landowners that if they are not satisfied with the response, they shall call the Mountain Valley or Equitrans Hotline, as appropriate. The letter shall indicate how soon to expect a response from the company; and
 - c. instruct the landowners that if they are still not satisfied with the response from the company Hotline, they shall contact the Commission's Landowner Helpline at 877-337-2237 or at LandownerHelp@ferc.gov.

In addition, Mountain Valley and Equitrans shall include in their weekly status reports to the FERC a table that contains the following information for each problem/concern:

- a. the identity of the caller and date of the call;
 - b. the location by milepost and engineering station number from the alignment sheet(s) of the affected property;
 - c. a description of the problem/concern; and
 - d. an explanation of how and when the problem was resolved, will be resolved, or why it has not been resolved. (Section 4.8.2.2)
15. Mountain Valley and Equitrans **shall not begin construction** of facilities and/or use staging, storage, or temporary work areas and new or to-be-improved access roads **until**:
- a. Mountain Valley and Equitrans each files with the Secretary:
 - b. remaining cultural resources survey reports;
 - c. site evaluation reports, avoidance plans, or treatment plans, as required; and comments on the reports and plans from the appropriate State Historic Preservation Offices, federal land managing agencies, interested Indian tribes, and other consulting parties.
 - d. the Advisory Council on Historic Preservation has been afforded an opportunity to comment if historic properties would be adversely affected; and
 - e. the FERC staff reviews and the Director of OEP approves all cultural resources reports and plans, and notifies Mountain Valley and/or Equitrans

in writing that either treatment measures (including archaeological data recovery) may be implemented or construction may proceed.

All materials filed with the Commission containing **location, character, and ownership** information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: “**CUI//PRIV- DO NOT RELEASE.**” (*section 4.10.10.3*)

Conditions 16 through 34 are project-specific conditions that apply only to Mountain Valley and shall be addressed before construction is allowed to commence.

16. **Prior to construction**, Mountain Valley shall adopt Variation 250 into its proposed route. As part of its Implementation Plan, Mountain Valley shall file with the Secretary the results of all environmental surveys, an updated 7.5-minute USGS topographic quadrangle map, and a large-scale alignment sheet that illustrates this route change. (*section 3.5.1.11*)
17. **Prior to construction**, Mountain Valley shall file with the Secretary, for review and approval by the Director of OEP, a segment-specific construction and operation access plan for the area between mileposts 237.6 and 240.3, that includes access road MVP-RO-279.01. The plan shall incorporate the measures proposed in Mountain Valley’s July 20, 2017 filing to minimize and mitigate impacts resulting from use of the road. (*section 3.5.1.12*)
18. **Prior to construction**, Mountain Valley shall file landowner-specific crossing plans developed in coordination with the affected landowners which contain impact avoidance, minimization, or mitigation measures, as appropriate, for review and written approval of the Director of OEP. The landowner-specific crossing plans shall be prepared in relation to the draft EIS comments in the following accession numbers: 20161024-5011 (water well), 20161212-5046 (steep ravines), 20161212-5234 (forest impacts, road frontage), 20161213-5021 (cattle and hay operations), 20161223-0033 (gravel road and reconfiguration of temporary workspaces), 20161228-0073 (water well and waterline for the campground), and 20170324-5140 (home under construction and septic system). (*section 3.5.3.1*)
19. **Prior to construction**, Mountain Valley shall file with the Secretary, for review and written approval by the Director of OEP, a revised *Landslide Mitigation Plan* that includes the following best management practices and measures:
 - a. describe methods that will ensure backfill, compaction, and restoration activities occur only during suitable soil moisture content conditions for steep (greater than 15 percent) slopes perpendicular to the slope contour, not just for steep (greater than 15 percent) side slopes;

- b. as identified for steep side slopes, place backfill material in compacted lifts no greater than 12 inches thick and compact using an excavator bucket, sheep's foot, roller, or similar for all steep slopes;
 - c. geotechnical personnel that will be employed and onsite to prescribe additional mitigation measures for steep slopes shall have regional experience for constructing in and mitigating steep slopes and associated hazards; and
 - d. monitoring of all landslide hazard areas identified in the final EIS in addition to any hazard areas identified during construction using the methods prescribed for the Jefferson National Forest. (section 4.1.2.4)
20. **Prior to construction**, Mountain Valley shall file with the Secretary, for review and written approval by the Director of OEP, a revised *Karst Mitigation Plan* that includes monitoring of all potential karst areas for subsidence and collapse using the same acquired Light Imaging Detection and Ranging (LiDAR) monitoring methods and procedures currently proposed to monitor for earth movements at landslide hazard areas within the Jefferson National Forest. LiDAR data shall be provided in a form that is conducive to comparison of repeat surveys, such as a Digital Elevation Model or Digital Terrain Model. (section 4.1.2.5)
21. **Prior to construction**, Mountain Valley shall file with the Secretary, for review and written approval of the Director of OEP, a revised *Water Resources Identification and Testing Plan* which includes:
 - a. water quality testing for oil and grease, volatile organic compounds, and hydrocarbons; and
 - b. post-construction monitoring, with the landowner's permission, of all water wells, springs, and other drinking water supply sources within 150 feet of construction workspaces or 500 feet of construction workspaces in karst terrain. (section 4.3.1.2)
22. **Prior to construction**, Mountain Valley shall file with the Secretary, for review and written approval of the Director of OEP, source, location, and quantities of water which would be used for dust control. (section 4.3.2.1)
23. **Prior to construction**, Mountain Valley shall adopt into its proposed pipeline route the alternative alignment for the crossing of the Pigg River and adopt a horizontal directional drill (HDD) as the crossing method. As part of its Implementation Plan, Mountain Valley shall file with the Secretary a revised alignment sheet, a summary comparison of impacts between the HDD alignment and the original alignment, and an HDD Contingency Plan, for the review and approval of the Director of OEP. (section 4.3.2.2)

24. **Prior to construction**, Mountain Valley shall file with the Secretary, for review and written approval of the Director of OEP, water supply contingency plans, prepared in coordination with the Public Service/Supply Districts, outlining measures to minimize and mitigate potential impacts on public surface water supplies with intakes within 3 miles downstream of the workspace, and Zones of Critical Concern within 0.5 mile of the workspace. The measures shall include, but not be limited to, providing advance notification to water supply owners prior to the commencement of pipeline construction. (*section 4.3.2.2*)
25. **Prior to construction**, Mountain Valley shall file with the Secretary, for review and approval by the Director of OEP, either a plan to maintain a 15 foot buffer from the tributary to Foul Ground Creek or proposed mitigation measures to minimize impacts on the waterbody. (*section 4.3.2.2*)
26. **Prior to construction**, Mountain Valley shall file with the Secretary, for review and written approval by the Director of OEP, site plans and maps that illustrate how permanent impacts on wetlands W-EE6 and W-EE7 will be avoided at the Stallworth Compressor Station. (*section 4.3.3.2*)
27. **Prior to construction**, Mountain Valley shall file with the Secretary its final *Migratory Bird Conservation Plan*. The plan shall include impact avoidance, minimization, restoration, and/or mitigation measures for the impacts on migratory birds and it shall be prepared in coordination with the U.S. Fish and Wildlife Service (FWS), West Virginia Department of Natural Resources, and the Virginia Department of Game and Inland Fisheries. Appendix D (Restoration and Rehabilitation Plan) of the final *Migratory Bird Conservation Plan* shall be modified to match the seed list in appendix N-14 and N-15 of the EIS; and shall include only native species, as required in Environmental Condition 13 of this order. (*section 4.5.2.6*)
28. Mountain Valley shall not begin construction of the proposed facilities **until**:
 - a. all outstanding and required biological surveys for federally listed species are completed and filed with the Secretary;
 - b. the FERC staff completes any necessary Endangered Species Act Section 7 informal and formal consultation with the FWS; and
 - c. Mountain Valley has received written notification from the Director of OEP that construction and/or use of mitigation (including implementation of conservation measures) may begin. (*section 4.7.1.3*)
29. **Prior to construction**, Mountain Valley shall file with the Secretary the results of all remaining environmental surveys (water resources, wetlands, cultural resources, and threatened and endangered species) for all cathodic protection groundbeds. (*section 4.8.1.2*)

30. **Prior to construction**, Mountain Valley shall file with the Secretary evidence of landowner concurrence with the site-specific residential construction plans for all locations where construction work areas will be within 10 feet of a residence. Mountain Valley shall also file with the Secretary a site-specific residential construction plan, including site-specific justification for locating project components within 50 feet of structures located on parcel VA-GI-5673 at about MP 216.6. (*section 4.8.2.2*)
31. **Prior to construction**, Mountain Valley shall file with the Secretary documentation that the U.S. Highway 50 and North Bend Rail Trail Crossing Plan was provided to the West Virginia Department of Transportation and WVDNR for review and comment. (*section 4.8.2.4*)
32. **Prior to construction**, Mountain Valley shall file with the Secretary documentation that The Nature Conservancy (TNC) Property Crossing Plan was provided to the TNC for review and comment. (*section 4.8.2.4*)
33. **Prior to construction of the Pig River Horizontal Directional Drill (HDD) crossing**, Mountain Valley shall file with the Secretary an HDD noise analysis identifying the existing and projected noise levels at each noise sensitive area (NSA) within 0.5 mile of the HDD entry and exit site. If noise attributable to the HDD is projected to exceed a day-night sound level (L_{dn}) of 55 decibels on the A weighted scale (dBA) at any NSA, Mountain Valley shall file with the noise analysis a mitigation plan to reduce the projected noise levels for the review and written approval by the Director of OEP. During drilling operations, Mountain Valley shall implement the approved plan, monitor noise levels, and make all reasonable efforts to restrict the noise attributable to the drilling operations to no more than an L_{dn} of 55 dBA at the NSAs. (*section 4.11.2.3*)

Recommendations 35 through 39 are project-specific conditions that applies only to Equitrans and shall be addressed before construction is allowed to commence.

34. **Prior to construction**, Equitrans shall offer to conduct, with the landowner's permission, post-construction monitoring of all water wells, springs, and other drinking water supply sources within 150 feet of construction workspaces or 500 feet of construction workspaces in karst terrain. (*section 4.3.1.2*)
35. **Prior to construction**, Equitrans shall file with the Secretary, for review and written approval by the Director of OEP, a plan to identify septic systems and avoidance, minimization, and mitigation measures. (*section 4.3.1.2*)
36. **Prior to construction**, Equitrans shall file with the Secretary the results of all environmental surveys (water resources, wetlands, cultural resources, and threatened and endangered species) for the New Cline Variation. (*section 4.3.2.1*)

37. **Prior to construction**, Equitrans shall file with the Secretary, for the review and written approval of the Director of OEP, a crossing plan for the Riverview Golf Course that includes mitigation measures and documentation that the plan was reviewed by the landowners. (*section 4.8.2.4*)
38. **Prior to construction of the South Fork Tenmile Creek and Monongahela River HDD crossings**, Equitrans shall file with the Secretary, for the review and written approval by the Director of OEP, an HDD noise mitigation plan to reduce the projected noise level increase attributable to the proposed drilling operations at NSAs. **During drilling operations**, Equitrans shall implement the approved plan, monitor noise levels, include noise levels in weekly reports to the FERC, and make all reasonable efforts to restrict the noise attributable to the drilling operations to no more than a 10 dBA increase over ambient noise levels at the NSAs. (*section 4.11.2.3*)

Condition 40 is a project-specific condition that applies only to Mountain Valley and shall be addressed during operation of facilities.

39. Mountain Valley shall file noise surveys with the Secretary **no later than 60 days** after placing the equipment at the Bradshaw, Harris (including the WB Interconnect), and Stallworth Compressor Stations into service. If full load condition noise surveys are not possible, Mountain Valley shall provide interim surveys at the maximum possible horsepower load **within 60 days** of placing the equipment into service and provide the full load survey **within 6 months**. If the noise attributable to the operation of all of the equipment at each station under interim or full horsepower load exceeds an L_{dn} of 55 dBA at the nearest NSA, Mountain Valley shall file a report on what changes are needed and shall install the additional noise controls to meet the level **within 1 year** of the in-service date. Mountain Valley shall confirm compliance with the above requirement by filing a second noise survey with the Secretary for each station **no later than 60 days** after it installs the additional noise controls. (*section 4.11.2.3*)

Condition 41 is a project-specific condition that applies only to Equitrans and shall be addressed during operation of facilities.

40. Equitrans shall file a noise survey with the Secretary **no later than 60 days** after placing the Redhook Compressor Station into service. If a full load condition noise survey is not possible, Equitrans shall provide an interim survey at the maximum possible horsepower load **within 60 days** of placing the Redhook Compressor Station into service and provide the full load survey **within 6 months**. If the noise attributable to operation of the equipment at the Redhook Compressor Station exceeds an L_{dn} of 55 dBA at the nearest NSA, Equitrans shall file a report on what changes are needed and shall install the additional noise controls to meet the level **within 1 year** of the in-service date. Equitrans shall confirm compliance

with the above requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls. (*section 4.11.2.3*)

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Mountain Valley Pipeline, LLC
Equitrans, L.P.

Docket Nos. CP16-10-000
CP16-13-000

(Issued October 13, 2017)

LaFLEUR, Commissioner *dissenting*:

With the increasing abundance of domestic natural gas, the Commission plays a key role in considering applications for the construction of natural gas infrastructure to support the delivery of this important fuel source. Under the Certificate Policy Statement, which sets forth the Commission's approach to evaluating proposed projects under Section 7 of the Natural Gas Act, the Commission evaluates in each case whether the benefits of the project as proposed by the applicant outweigh adverse effects on existing shippers, other pipelines and their captive customers, landowners, and surrounding communities.¹ For each pipeline I have considered during my time at the Commission, I have tried to carefully apply this standard, evaluating the facts in the record to determine whether, on balance, each individual project is in the public interest.² Today, the Commission is issuing orders that authorize the development of the Mountain Valley Pipeline Project/Equitrans Expansion Project (MVP) and the Atlantic Coast Pipeline Project (ACP). For the reasons set forth herein, I cannot conclude that either of these projects as proposed is in the public interest, and thus, I respectfully dissent.

Deciding whether a project is in the public interest requires a careful balancing of the need for the project and its environmental impacts. In the case of the ACP and MVP projects, my balancing determination was heavily influenced by similarities in their respective routes, impact, and timing. ACP and MVP are proposed to be built in the

¹ *Certification of New Interstate Natural Gas Pipeline Facilities*, 88 FERC ¶ 61,227 (1999) (Certificate Policy Statement), *order on clarification*, 90 FERC ¶ 61,128, *order on clarification*, 92 FERC ¶ 61,094 (2000); 15 U.S.C. 717h (Section 7(c) of the Natural Gas Act provides that no natural gas company shall transport natural gas or construct any facilities for such transportation without a certificate of public convenience and necessity.).

² See *Millenium Pipeline Company, L.L.C.*, 140 FERC ¶ 61,045 (2012) (LaFleur, Comm'r, *dissenting*).

same region with certain segments located in close geographic proximity. Collectively, they represent approximately 900 miles of new gas pipeline infrastructure through West Virginia, Virginia and North Carolina, and will deliver 3.44 Bcf/d of natural gas to the Southeast. The record demonstrates that these two large projects will have similar, and significant, environmental impacts on the region. Both the ACP and MVP cross hundreds of miles of karst terrain, thousands of waterbodies, and many agricultural, residential, and commercial areas. Furthermore, the projects traverse many important cultural, historic, and natural resources, including the Appalachian National Scenic Trail and the Blue Ridge Parkway. Both projects appear to be receiving gas from the same location, and both deliver gas that can reach some common destination markets. Moreover, these projects are being developed under similar development schedules, as further evidenced by the Commission acting on them concurrently today.³ Given these similarities and overlapping issues, I believe it is appropriate to balance the collective environmental impacts of these projects on the Appalachian region against the economic need for the projects. In so doing, I am not persuaded that both of these projects as proposed are in the public interest.

I am particularly troubled by the approval of these projects because I believe that the records demonstrate that there may be alternative approaches that could provide significant environmental advantages over their construction as proposed. As part of its alternatives analysis, Commission staff requested that ACP evaluate an MVP Merged Systems Alternative that would serve the capacity of both projects.⁴ This alternative would largely follow the MVP route to deliver the capacity of both ACP and MVP in a single large diameter pipeline. Commission staff identifies significant environmental advantages of utilizing this alternative. For example, the MVP Merged Systems Alternative would be 173 miles shorter than the cumulative mileage of both projects individually. This alternative would also increase collocation with existing utility rights-of-way, avoid the Monongahela National Forest and the George Washington National Forest, reduce the number of crossings of the Appalachian National Scenic Trail and Blue Ridge Parkway, and reduce the amount of construction in karst topography. Commission staff eliminated this alternative from further consideration because it failed to meet the project's objectives, in particular that it would "result in a significant delay to the delivery of the 3.44 Bcf/d of natural gas to the proposed customers of both ACP and MVP"⁵ due to the significant time for the planning and design that would be necessary to

³ ACP and MVP filed their applications for approval pursuant to section 7(c) of the Natural Gas Act on September 18, 2015 and October 23, 2015, respectively.

⁴ ACP Final Environmental Impact Statement (FEIS) at 3-6 – 3-9.

⁵ *Id.* at 3-9.

develop a revised project proposal.⁶

Similarly, in the MVP FEIS, Commission staff evaluated a single pipeline alternative to the MVP project that would utilize the proposed ACP to serve MVP's capacity needs.⁷ While this alternative was found to have certain environmental disadvantages, such as the need for additional compression to deliver the additional gas, the EIS acknowledges that this alternative would "essentially eliminate all environmental impacts on resources along the currently proposed MVP route."⁸

I recognize that the two alternatives described above were eliminated from further consideration because they were deemed not to meet each project's specific stated goals. However, I believe that these alternatives demonstrate that the regional needs that these pipelines address may be met through alternative approaches that have significantly fewer environmental impacts.

While my dissents rest on my concerns regarding the aggregate environmental impacts of the proposed projects, particularly given the potential availability of environmentally-superior alternatives, I believe that the needs determinations for these projects highlight another issue worthy of further discussion.

The Commission's policy regarding evaluation of need, and the standard applied in these cases, is that precedent agreements generally are the best evidence for determining market need. When applying this precedent here, I believe there is an important distinction between the needs determinations for ACP and MVP. Both projects provide evidence of precedent agreements to demonstrate that these pipelines will be fully subscribed. ACP also provides specific evidence regarding the end use of the gas to be delivered on its pipeline. ACP estimates that 79.2 percent of the gas will be transported to supply natural gas electric generation facilities, 9.1 percent will serve residential purposes, 8.9 percent will serve industrial purposes, and 2.8 percent will serve other purposes such as vehicle fuel.⁹ In contrast, "[w]hile Mountain Valley has entered into precedent agreements with two end users ... for approximately 13% of the MVP

⁶ Staff also found that this alternative would likely limit the ability to provide additional gas to the projects' customers, another of the stated goals for the original proposal. *Id.*

⁷ MVP FEIS at 3-14.

⁸ *Id.*

⁹ ACP FEIS at 1-3.

project capacity, the ultimate destination for the remaining gas will be determined by price differentials in the Northeast, Mid-Atlantic, and Southeast markets, and thus, is unknown.”¹⁰

In my view, it is appropriate for the Commission to consider as a policy matter whether evidence other than precedent agreements should play a larger role in our evaluation regarding the economic need for a proposed pipeline project. I believe that evidence of the specific end use of the delivered gas within the context of regional needs is relevant evidence that should be considered as part of our overall needs determination. Indeed, the Certificate Policy Statement established a policy for determining economic need that allowed the applicant to demonstrate need relying on a variety of factors, including “environmental advantages of gas over other fuels, lower fuel costs, access to new supply sources or the connection of new supply to the interstate grid, the elimination of pipeline facility constraints, better service from access to competitive transportation options, and the need for an adequate pipeline infrastructure.”¹¹ However, the Commission’s implementation of the Certificate Policy Statement has focused more narrowly on the existence of precedent agreements.

I believe that careful consideration of a fuller record could help the Commission better balance environmental issues, including downstream impacts, with the project need and its benefits.¹² I fully realize that a broader consideration of need would be a change in our existing practice, and I would support a generic proceeding to get input from the regulated community, and those impacted by pipelines, on how the Commission evaluates need.¹³

¹⁰ *Mountain Valley Pipeline, LLC, Equitrans, L.P.*, 161 FERC ¶ 61,043 at FN 286 (October 13, 2017).

¹¹ *Certificate Policy Statement*, 88 FERC ¶ 61,227 at 61,744.

¹² I note that this approach would not necessarily lead to the rejection of more pipeline applications. Rather, it would provide all parties, including certificate applicants, the opportunity to more broadly debate and consider the need for a proposed project. This could, for example, support development of new infrastructure in constrained regions where there may be demand for new capacity, but barriers to the execution of precedent agreements that are so critical under the Commission’s current approach. In such situations, evidence of economic need other than precedent agreements might be offered as justification for the pipeline.

¹³ See also, *National Fuel Gas Supply Corporation, Empire Pipeline, Inc.*, 158 FERC ¶ 61,145 (Bay, Comm’r, *Separate Statement*).

I recognize that the Commission's actions today are the culmination of years of work in the pre-filing, application, and review processes, and I take seriously my decision to dissent. I acknowledge that if the applicants were to adopt an alternative solution, it would require considerable additional work and time. However, the decision before the Commission is simply whether to approve or reject these projects, which will be in place for decades. Given the environmental impacts and possible superior alternatives, approving these two pipeline projects on this record is not a decision I can support.

For these reasons, I respectfully dissent.

Cheryl A. LaFleur
Commissioner



west virginia department of environmental protection

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Harold Ward, Cabinet Secretary
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December 30, 2021

Mr. Michael Hatten
Chief, Regulatory Branch
United States Army Corps of Engineers
Huntington District
502 Eighth Street
Huntington, West Virginia 25701

Re: State §401 Water Quality Certification; LRH-2015-00592 and LRP-2015-798; Mountain Valley Pipeline, LLC; Mountain Valley Pipeline Project; Braxton, Doddridge, Fayette, Greenbrier, Harrison, Lewis, Monroe, Nicholas, Summers, Webster, and Wetzel Counties, West Virginia; WQC-21-0005

Dear Mr. Hatten:

I. Introduction and Project Background

The West Virginia Department of Environmental Protection-Division of Water and Waste Management (“WVDEP-DWWM” or “WVDEP”), in conjunction with the West Virginia Division of Natural Resources - Wildlife Resources Section (“WVDNR-WRS” or “WVDNR”), has completed its review of an application by Mountain Valley Pipeline, LLC (“MVP”) for a Section 401 water quality certification. MVP submitted the application on March 4, 2021, for discharges from activities subject to the approval of the U.S. Army Corps of Engineers (“USACE” or “Corps”) under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act in conjunction with the Mountain Valley Pipeline Project (the “Project”).¹ WVDEP is authorized

¹ Neither the Project nor the pending Section 401 request is entirely new to WVDEP or to the Corps. The history of prior efforts to permit and certify federal licenses and permits is not repeated here but is discussed in prior opinions by the United States Fourth Circuit Court of Appeals. See *Sierra Club v. U.S. Army Corps of Eng’rs*, 981 F.3d 251, 254–56 (4th Cir. 2020) (granting stay of Huntington and Norfolk District verifications under nationwide permit 12); *Sierra Club v. U.S. Army Corps of Eng’rs*, 909 F.3d 635, 639–43 (4th Cir. 2018) (vacating prior version of Huntington District’s verification); *Sierra Club v. State Water Control Bd.*, 898 F.3d 383, 384 (4th Cir. 2018) (denying petition

by state law to exercise the State's authority and responsibility under Section 401 of the Clean Water Act to certify the compliance of activities subject to federal permits and licenses with state water quality requirements. W.Va. Code §§ 22-1-6(d)(7) and 22-11-7(a).

Since the application was submitted, two things of note have occurred. First, the Environmental Protection Agency (USEPA) published notice of its intention to reconsider and revise the Section 401 rule that it issued effective September 11, 2020. *See* 86 Fed. Reg. 29541 (June 2, 2021). Second, in late October 2021, a federal court in California vacated the 2020 rule pending remand to USEPA for reconsideration of the rule, resulting in a temporary return to USEPA's prior rule.² As a result, USACE advised WVDEP-DWWM in late November 2021 that MVP's certification application should be reviewed under the rule in effect prior to September 11, 2020.

To avoid later confusion should the recent ruling vacating the 2020 rule be stayed or overturned, WVDEP has reviewed the application for compliance with both the 2020 rule and the rule in effect before September 11, 2020. We believe that the Project may proceed in accordance with either version of USEPA's Section 401 rule. As discussed below and in our response to public comments, the Secretary has determined both that (1) there is reasonable assurance that the activity will be conducted in a manner which does not violate water quality standards in accordance with 40 C.F.R. §121.2(a)(3) (2019) and (2) the discharges from the proposed Project will comply with water quality standards in accordance with 40 C.F.R. § 121.7(c) (2020). WVDEP has also imposed certain conditions that it deems desirable and that are set out in Attachment A to this document.

Also, to avoid confusion, the scope of MVP's application and this certification decision are limited to discharges and water quality effects associated with USACE-regulated activities. They do not extend to the discharges from upland activities associated with the Project that are regulated by the Federal Energy Regulatory Commission (FERC) under the Natural Gas Act. In 2016, MVP sought a Section 401 certification for the FERC certificate from WVDEP for Project-related activities that were not also regulated by the USACE. By letter of November 1, 2017, WVDEP provided FERC with a waiver of the requirement that MVP obtain a Section 401 certification for those FERC-regulated discharges that fall outside of the USACE's authority. Today's action is not intended to re-open that 2017 waiver decision.³ While this certification is limited to discharges and effects from USACE-regulated activities, the determination that those activities will comply with water quality standards includes the cumulative or combined effects of contributions from upland construction activities.

challenging Virginia §401 certification); *see also* *Mountain Valley Pipeline, LLC v. N. Carolina Dep't of Env't Quality*, 990 F.3d 818, 824 (4th Cir. 2021) (detailing history of the project and Southgate extension).

² *See In re Clean Water Act Rulemaking*, ___ F.Supp.3d ___, No. C 20-04636, 2021 WL 4924844 (N.D. Cal. Oct. 21, 2021).

³ WVDEP re-stated that position earlier this year. In February 2021, MVP applied to FERC for an amendment of its certificate. By letter of May 13, 2021, FERC asked our opinion whether any further Section 401 action was required for that amendment. On July 20, 2021, we advised FERC that the modification did not create the potential for new discharges not previously considered in our 2017 waiver. We also noted that it was WVDEP's intention to conduct a Section 401 review of all potential discharges from Corps-regulated activities, thereby assuring that all aspects of the Project were subject either to the 2017 waiver issued to FERC or the separate Section 401 application submitted in 2021 for the Corps-permitted aspects of the Project.

WVDEP has imposed certain conditions to this certification that it deems desirable and that are set out in Attachment A to this document. A list of the primary documents WVDEP has reviewed as part of this decision are set out in Attachment B. WVDEP-DWWM received 406 written comments on the Section 401 application in response to public notice. In addition, a public hearing was requested, which WVDEP held on June 22, 2021. During the public hearing, 22 individuals commented on the proposed activity. Attachment C includes a summary of the substantive comments and WVDEP-DWWM's responses.

II. Project Description and Status

Mountain Valley Pipeline, LLC (MVP) proposes to complete construction of the Mountain Valley Pipeline (Project). The Project is an approximate 304-mile (197 miles of which are in West Virginia), 42-inch diameter natural gas pipeline, proposed to provide access to natural gas for use by local distribution companies, industrial users, and power generation utilities in the Mid-Atlantic and southeastern United States, as well as potentially in the Appalachian region. Construction of the Project commenced in February 2018 and is now substantially complete.

In West Virginia, the completion of the Project will involve 664 crossings of aquatic resources that result in unavoidable temporary and permanent impacts to Waters of the United States falling within the jurisdiction of the USACE, Huntington and Pittsburgh Districts. Of these, MVP plans to conduct 38 bores (including three Section 10 waters) which will cross under 57 aquatic resources using trenchless methods and, except for use of timber mats to gain access at most of the sites, will not require USACE authorization because they will not involve any discharges of dredged or fill material. Three trenchless crossings will take place on Section 10 waters and are required to comply with the requirements of this Certification. Neither temporary nor permanent fills are planned for these Section 10 waters.

The Project will result in permanent impacts to 1,276 linear feet of stream and 0.4458 acres of wetland. Permanent impacts will result from activities such as restoring the pipeline right-of-way, constructing permanent access roads, and installing culverts along these roads to maintain stream connectivity. The permanent impacts are associated with 37 stream crossings and 21 wetland crossings. The Project will result in temporary impacts to 20,868 linear feet of stream and 11.7101 acres of wetland, which includes the conversion of 1.7503 acres of wetland resources from palustrine forested ("PFO") and scrub shrub ("PSS") to palustrine emergent ("PEM"). The Project will also result in wetland resource conversion from PFO and PSS to PEM at 28 wetland crossings affecting 1.7503 acres of wetland resources. The impacts will occur within the project limits at 364 stream crossings and 211 wetland crossings. Most of the temporary impacts will result from the excavation and backfilling of the pipeline trench as the Project crosses wetlands and streams.

III. Water Quality Requirements and Regulatory Reviews

Since 1982, WVDEP-DWWM has administered the Clean Water Act National Pollutant Discharge Elimination System (NPDES) program in West Virginia pursuant to authority granted under the West Virginia Water Pollution Control Act. It has also adopted and administers, subject

to USEPA review, water quality standards for the State in accordance with Section 303 of the Clean Water Act. Those standards appear at West Virginia Code of State Rules § 47-2-1, *et seq.* The standards include a list of protected water “uses” and “criteria” to protect them. Some of the criteria are numeric, most often expressed as an allowable concentration of a particular substance. WVDEP-DWWM has not established a water quality criterion for sediment or suspended solids but has issued criteria for metals that may be influenced by sediment (such as iron, manganese, and aluminum) and a criterion for turbidity, which may also be influenced by sediment. Other criteria are narrative and prohibit defined significant impacts to the aquatic ecosystem. W. Va. Code R. § 47-2-3.2.

The water quality standards also include an antidegradation policy required by the Clean Water Act. 33 U.S.C. § 1313(d)(4)(B) and 40 C.F.R. § 131.12. West Virginia’s antidegradation policy is at W. Va. Code R. §47-2-4.1. WVDEP-DWWM has also adopted a procedural rule to implement its antidegradation policy. *See* W. Va. Code R. § 60-5-1, *et seq.* Under the antidegradation policy, the State’s waters fall into one of three categories or “tiers” of water quality, each of which is subject to a different standard of review and protection similar to USEPA’s federal antidegradation provisions. Generally speaking, those tiers of review (1) prohibit lowering of water quality in waters already “impaired,” (2) prevent “significant degradation” in the majority of waters absent a detailed socio-economic analysis, and (3) in the most protected waters, allow only a “temporary lowering of water quality.” W. Va. Code R. §§ 60-5-4 to -6.

For permanent fills that displace portions of waters and their corresponding “uses” altogether, WVDEP ensures compliance with water quality standards by relying on the USACE’s application of the Section 404 program to prevent significant degradation to the aquatic ecosystem as a whole. A component of that program includes mitigation to compensate for the unavoidable losses. *See* W. Va. Code R. § 47-5A-3.2 (recognizing that WVDEP may require mitigation and must provide credit for mitigation that is a required component of a Section 404 permit issued by the USACE).

For discharges of dredged or fill material that do not fully displace waters—such as temporary water crossings associated with the construction of water, sewer, and gas pipelines—WVDEP is charged with evaluating the impact of the discharge on the quality of the surrounding or downstream water. For pipelines, the primary pollutant of concern with both upland construction and USACE-regulated discharges is sediment released from earth-disturbing activities. West Virginia does not, however, have a water quality criterion for sediment. Nor do WVDEP’s antidegradation procedures specify how to evaluate the impacts of pipeline construction on water quality. WVDEP’s antidegradation procedures were adopted primarily for traditional NPDES permits where the potential impacts on receiving waters of “point sources” with known volumes and specific concentrations of pollutants can readily be calculated. Discharges of stormwater and fill material are not clearly addressed by our procedural rule.⁴ For them, consistent with Section 1.5.d of our implementation rule, we turn to USEPA for guidance.⁵

⁴ *See* WVDEP Response to Comments for further discussion of the antidegradation implementation procedures.

⁵ WVDEP’s antidegradation implementation rule provides that information from other “environmental processes and reviews” and from “facilities plans” “may be used to provide part or all of the requirements of the antidegradation procedure and review.” W. Va. Code R. § 60-5-1.5.d.

The USEPA regulates construction stormwater under its Construction General NPDES Permit (CGP), issued originally in 1992. 57 Fed. Reg. 41176 (Sept. 9, 1992). The most recent version was issued in 2017. The USEPA's CGP does not rely on numeric effluent limits. Instead, it relies on the use of engineering controls, i.e., best management practices (BMPs), to protect water quality. *See* USEPA's 2017 Construction General Permit Fact Sheet, pp. 9-11 and 25-51.⁶

Since 2012, USEPA has satisfied federal antidegradation requirements for new discharges of construction stormwater by imposing more stringent or "enhanced" BMPs on projects that discharge to "sensitive waters" (Tier 2, Tier 3, and sediment-impaired waters). The USEPA determined that by requiring faster site stabilization and more frequent inspections than for non-sensitive waters, the CGP "will result in stormwater discharges being controlled as necessary to meet applicable water quality standards (which include state antidegradation requirements)." USEPA's 2012 Construction General Permit Fact Sheet § VIII.3.2; *see also id.* (determining that "compliance with the [CGP] generally will be sufficient to satisfy Tier 2 . . . and Tier 3 antidegradation requirements because the controls will not result in a lowering of water quality, making individualized Tier 2 or Tier 3 review unnecessary.").

The USEPA reissued its CGP in 2017. There, it reinforced that the use of engineering controls on erosion and sedimentation, coupled with increased site inspections and faster site stabilization, would "not result in a lowering of water quality" and would thereby "satisfy Tier 2 and Tier 3 antidegradation review," "making individualized Tier 2 or Tier 3 review unnecessary." USEPA 2017 Construction General Permit—Fact Sheet, § VI, Part 3.2, pp. 53-54. As a result, applicants for coverage under the CGP are not required to collect baseline water quality data and evaluate the site-specific effects of discharges. USEPA also noted that the engineering controls are "designed to prevent the mobilization of sediment and sediment-bound pollutants, such as metals and nutrients." *Id.* § II, p. 9. USEPA also noted that the permit is not static. It requires registrants to take corrective measures where USEPA or the registrant become aware the permit is not meeting its standards. *Id.* § VI, Part 3.1. p. 51.

Section 402(l)(2) of the Clean Water Act exempts the oil and gas industry from USEPA's construction stormwater program. Nevertheless, WVDEP-DWWM has chosen to impose a state general permit program with controls and processes nearly identical to USEPA's construction stormwater program on the oil and gas industry. *See* WVDEP's O&G CGP (Permit No. WV0116815—issued 2013).⁷ Like the USEPA's CGP, WVDEP's General Permit relies on engineering controls and adaptive management processes to control sediment and its constituents. The General Permit "establishes minimum standards of practices (best management practices) for specific situations rather than specific effluent limitations for stormwater discharges. *** This general permit allows the meeting of water quality standards with the proper installation of the minimum standards set forth in the general permit . . ." It requires permittees to submit for review and approval detailed stormwater pollution prevention plans and provides that the plans must be modified as necessary to include additional or modified controls to correct problems. 2013 O&G CGP, Fact Sheet, § G, p. 5.

⁶ Available at <https://www.epa.gov/npdes/epas-2017-construction-general-permit-cgp-and-related-documents>.

⁷ Available at <https://dep.wv.gov/WWE/Programs/stormwater/ogcsw/Pages/default.aspx>.

WVDEP has also issued an Erosion and Sediment Control BMP Manual (2006, *rev'd* 2016) (BMP Manual), which describes “standardized and comprehensive erosion and sediment control management practices” for use in “developing sediment control plans for the General . . . Permit for Stormwater Associated with Construction Activities.” BMP Manual, p. 1-1. It also includes the use of “instream BMPs” for stream and water crossing activities and removal of water from excavation sites and sumps and notes that “WVDEP expects that the selection and implementation of appropriate BMPs will result in compliance with standards for surface water discharges from construction sites.” *Id.* p. 1-3, 3.21-1 to -27 and 3.22-1 to -8. As discussed below, WVDEP has determined that the application of these programs to MVP’s USACE-regulated activities will prevent any significant degradation of water quality or water uses.

IV. Review of MVP’s USACE-Regulated Activities

The proposed USACE-regulated activities under Section 404 of the Clean Water Act consist of discharges of fill material into waters of the United States for site development, road crossings, and open-cut water crossings. As noted above, some of the fills will be permanent. Other activities, such as open-cut water crossings, will not permanently displace waters. Rather, they will be conducted in areas where water is diverted from the construction site (“in the dry”) and will last only so long as necessary to install the pipeline, backfill the open cut, and restore the waterbody before water is returned to the area. The remaining water crossings will be accomplished with trenchless methods, which involve the use of various drilling techniques to bore and install the pipeline beneath waters. Of these trenchless crossings, the only ones directly regulated by the USACE are the three proposed under navigable rivers in West Virginia (Elk, Gauley, and Greenbrier) pursuant to Section 10 of the Rivers and Harbors Act.

A. Permanent Fills or Impacts

These impacts to streams and wetlands were evaluated utilizing the West Virginia Stream and Wetland Valuation Metric system, developed by an interagency team that included the USACE, WVDEP, and USEPA. To compensate for permanent stream and wetland impacts, as well as the conversion of some wetlands from PFO/PSS to PEM, MVP proposes to utilize mitigation bank credits or in-lieu fee credits. *See infra*, p. 8. The use of mitigation bank credits and in-lieu fee credits is identified as appropriate in the Compensatory Mitigation for Losses of Aquatic Resources Final Rule, 33 C.F.R. Part 332 (2008). *See also* West Virginia In Lieu Fee Stream and Wetland Mitigation Program Instrument (2013) (detailing joint USACE-WVDEP program). Compensatory mitigation will be required as a condition of MVP’s Corps-issued permit. Pursuant to WVDEP’s Section 401 certification rule, “[t]he Secretary shall provide credit for any mitigation that is a required component of the permit issued by the USACE pursuant to 33 U.S.C. 1344.” W. Va. Code R. § 47-5A-3.2.a. WVDEP finds these credits are sufficient to compensate for permanent impacts to aquatic resources and thereby preserve the uses of state waters.

WVDEP has also determined that the application of the engineering controls required by WVDEP’s O&G CGP and by construction plans submitted to the USACE by MVP will protect water quality from sediment related to the construction of permanent fills. Further discussion of those engineering controls and permits follows in the discussion of temporary impacts caused by water crossings and related construction.

B. Temporary Fills and Impacts

Most of the temporary impacts will consist of waterbody and wetland crossings in which MVP constructs and then backfills the pipeline trench. These construction activities are subject to extensive engineering and process controls described in the plans approved as part of MVP's O&G CGP registration, its Section 404 application to the USACE, its request for State 401 water quality certification, and a supplemental monitoring, restoration, and mitigation plan described below.

V. Engineering Controls and Best Management Practices ("BMPs")

WVDEP previously approved MVP's registration for coverage under the O&G CGP in 2017. The approved controls in MVP's O&G CGP Registration include BMPs for both upland disturbance and waterbody crossings. They include measures for restoring stream bottoms and wetlands with native material and stabilizing them to minimize sediment movement. These measures are consistent with WVDEP's BMP Manual and have proven effective to prevent scour of stream bottoms and sediment movement. MVP's Erosion and Sediment Control Plan, included as part of its O&G CGP registration, includes a narrative construction sequence and description of controls for managing water crossings, dewatering work areas, and preventing spills equipment and industrial fluids. *See* MVP Erosion and Sediment Control Plan ("ESCP"), p. 13 (Nov. 2016). The CGP also requires inspection and maintenance of engineering controls to identify and address issues as they arise. CGP § G.4.d.1.A. If existing controls do not fully control sediment or field conditions warrant, then MVP must revise its site-specific pollution prevention plans. CGP § G.4.c.

The WVDEP approved MVP's proposed controls in 2017. The WVDEP determined, after reviewing public comments, that the site-specific controls proposed by MVP included enhanced BMPs and additional controls that were functionally equivalent to the enhanced BMPs developed by USEPA for ensuring no degradation of "sensitive waters." *See* WVDEP Responsiveness Summary, Registration No. WVR310667 (Nov. 1, 2017), p. 77 (finding that compliance with the O&G CGP would satisfy Tier 2 review and that MVP's site-specific control plans "exceed USEPA required controls to satisfy Tier 3 antidegradation, are sufficient to not result in a lowering of water quality, making individualized Tier 2 or 3 review unnecessary."). Although registration approvals are subject to challenge before the West Virginia Environmental Quality Board, no challenge was filed to WVDEP's approval of MVP's application. As authorized by West Virginia Code of State Rules § 60-5-1.5.d., WVDEP relies on findings made in that review to support its determination here that both the upland and water crossing activities are covered by engineering controls that will prevent lowering of water quality from releases of sediment and its constituents (such as metals and turbidity) and thereby ensure that the individual and cumulative effects of the USACE-regulated discharges will comply with State water quality requirements.

More specifically, the Project will require temporary and permanent impacts to aquatic resources to facilitate the installation of the 42-inch diameter natural gas pipeline. The Project will result in 51 crossings of Tier 1 streams, while the remaining stream crossings will take place on Tier 2 waters. As stated above, the Project will not cross any Tier 3 waters. The WVDEP has conducted extensive water quality monitoring as part of its process to identify impaired waters for inclusion on the State's 303(d) list for TMDL development. The TMDLs consist of approved allocations of pollutant loadings that are designed to restore water quality and uses. The TMDLs

authorize future construction activities like this Project, but control sediment releases by restricting the disturbed acreage allowed at any one time and/or by requiring additional erosion and sediment engineering controls.

In October 2017, MVP modified its CGP registration to include both a TMDL Watershed Analysis for the sediment-impaired streams and enhanced controls for the same sites to ensure that its activities complied with the TMDL. *See MVP TMDL Watershed Analysis (Oct. 2017)*. Likewise, while MVP does not propose to cross any Tier 3 waters, it will cross some that are located upstream of Tier 3 water segments. In the fall of 2017, MVP provided WVDEP with a Tier 3 Stream Report identifying the Tier 3 waters. To protect those waters, MVP's Erosion and Sediment Control Plan committed to advanced BMPs at upstream crossings. *See ESCP, pp. 7, 13 and Attachment 2, Table 1*. WVDEP relies also on findings made in that review to support its review here.

Impaired waters to be crossed by the Project were identified in the following watersheds: West Fork, Middle Ohio North, Little Kanawha, Elk, Gauley, Lower New, Greenbrier, and Upper New. Impairments identified in Tier 1 waters included fecal coliforms, CNA biological, iron, pH and selenium. The predominant sources of both organic enrichment and fecal coliform bacteria in the Tier 1 waters subject to review are inadequately treated sewage and runoff from agricultural land uses.

In the Gauley River watershed, one proposed Tier 1 stream crossing exhibits pH impairment. Another proposed Tier 1 crossing exhibits selenium impairment. The nature of the proposed Project is not expected to contribute to water quality impairment for pH or selenium. In streams for which iron impairment was identified, sedimentation was a significant stressor and contributed to total iron. TMDLs have been developed for Tier 1 waters with iron impairment and the assessment for iron included representation and allocation of iron loadings associated with sediment. All of the stream segments identified to be crossed by the project have been assessed in accordance with West Virginia Code of State Rules § 60-5-1, *et seq.* and the proposed Project impacts were not deemed to be significant since appropriate best management practices (BMPs) are to be utilized ensuring protection from sediment entering waters

The Project's plans indicate that where permanent fill is placed in waters, there is no reasonable expectation that water quality will be degraded. The permanent fill activities proposed for the Project predominantly include the installation of culverts or box culverts for access road development and compressor stations. These types of fill activities involving the placement of structures have little to no potential to affect water quality. In some ephemeral and intermittent waters, low water access road crossings will be implemented utilizing the discharge of clean and coarse non-erodible material with 15% or less fines and properly sized to withstand expected high flows. None of the proposed permanent impacts are expected to result in water quality impairment or degradation of designated uses when complying with the conditions of this Certification.

The discharge of dredge material associated with the temporary pipeline installation crossings and the temporary and permanent discharges of fill material authorized by the USACE under its §404 authority do not have a significant potential to release pollutants. MVP proposes to conduct all of its "open cut" crossings of waters using "dry" methods. That entails construction

techniques that exclude or divert water from the excavation area as MVP excavates and backfills the pipeline trench. MVP Application for Certification, p. 4 (Mar. 4, 2021). No deposits of dredged or fill material will occur in flowing or standing water when they would be susceptible to mobilization. Instead, the areas must be backfilled and stabilized before water is restored to the work area. ESCP, p. 16. There is an extensive body of literature on the effectiveness of these techniques to prevent significant mobilization of sediment into the water column and to protect aquatic life, which WVDEP has reviewed in its attached response to comments. FERC concurs. FERC previously reviewed the impacts of MVP's proposed water crossing construction techniques. *See* Final EIS Mountain Valley Project and Equitrans Expansion Project (June 23, 2017), 4-119 to -120 (citing U.S. Geological Survey study concluding that turbidity from dry cuts is minimal compared to natural runoff events); 4-136 (no long-term or significant water impacts expected based on erosion and sediment control measures, contingency plans for protecting public water supplies and karst mitigation plan).

The WVDEP expects that MVP, at temporary stream and wetland crossings where excavation is required, will comply with Certification conditions that require that the stream bed material and wetland soils be stockpiled separately from other excavated material and will be used in the restoration of the aquatic resource being crossed. The work area during excavation must remain isolated from flowing water through the use of dam and flume or dam and pump method so as to prevent any sediment from being entrained and carried downstream when appropriate BMPs are utilized. The original stream substrate and wetland hydric soils must be placed back on the surface of the ground or stream bed once the trench is backfilled and the BMPs are removed to allow free flowing water back over the wetland and stream work sites. Since this original substrate and soil that existed at the time of construction initiation is also the same material in place prior to the removal of BMPs there is little to no opportunity for any sediment that was not already exposed to flowing water to be exposed post construction, thus the potential for any water quality degradation is not considered to be significant. The WVDEP also anticipates that the temporary discharge of fill material in the form of stream diversions, culverts, and/or timber mats will not contribute to any water quality impairment so long as appropriate BMPs are utilized.

Finally, before work stopped on Project-related water crossings, MVP completed open-cut crossings of approximately 23 streams and nine wetlands in West Virginia. WVDEP inspectors evaluated Project work multiple times per week and conducted dozens of investigations. While there were several minor violations, the WVDEP's Environmental Enforcement group found no significant adverse effects at the stream crossings where MVP conducted work.

VI. Supplemental Assessment and Mitigation

In addition to the engineering controls designed to prevent degradation, MVP proposed to both the USACE and to the WVDEP a six-part plan to assess pre-construction conditions, restore temporary impact sites, react to any unplanned impacts, and to obtain supplemental migration credits. *See* MVP's Comprehensive Stream and Wetland Monitoring, Restoration, and Mitigation Framework ("Stream and Wetland Mitigation Framework").

The Stream and Wetland Mitigation Framework consolidates the Project's proposed stream and wetland monitoring restoration and mitigation measures into a comprehensive framework and outlines a systemic approach to verifying that the temporary impacts to each jurisdictional aquatic

resource are appropriately restored to a comparable baseline condition. The Stream and Wetland Mitigation Framework consists of six elements: (1) additional assessment of prescribed baseline conditions at each water crossing (including geomorphic characteristics, vegetation, prescribed water quality criteria, use of USEPA’s Rapid Bioassessment Protocol, and evaluation of aquatic insect population diversity); (2) a restoration work plan for restoring temporary impacts after construction; (3) performance standards consisting of measurable restoration goals that can be evaluated through post-restoration monitoring; (4) a three-year monitoring plan to evaluate attainment of restoration performance standards; (5) requirements for developing site-specific corrective actions if any restored stream or wetland is not making expected progress toward attaining the success criteria for restoration; and (6) establishment of a program for supplemental compensatory mitigation for even temporal impacts—which exceeds the requirements of USEPA and the USACE’s 2008 mitigation rule. The mitigation for temporal impacts will compensate at three percent of the rate for permanent impacts for the duration of the temporary fill. Once the fills are removed, the mitigation rate will be applied for another year of stream impacts and another two years for wetlands. Impacts will be evaluated using the West Virginia Stream and Wetland Valuation Metric. The combination of the O&G CGP, enhanced erosion and sediment controls, frequent WVDEP inspections, and the Mitigation Framework will enable the USACE-regulated activities to comply with water quality standards, prevent any significant degradation of regulated waters, restore aquatic habitat in wetlands and streams, and provide additional compensatory mitigation for the temporary impacts.

The permanent discharge of fill material resulting in a loss of habitat will be mitigated through the use of the West Virginia Stream and Wetland Valuation Metric (SWVM) functional assessment tool designed to offset the functional loss of aquatic habitat. *See* W. Va. Code R. § 47-5A-6.2 (2014) and Compensatory Mitigation for Losses of Aquatic Resources, 33 C.F.R. § 332 (2008).

Permanent impacts to streams and wetlands were evaluated utilizing the West Virginia Stream and Wetland Valuation Metric (SWVM). The SWVM is a tool utilized to synthesize correlations derived from multiple established individual assessment methodologies. Information required for stream impacts includes: the extent of a proposed impact; a broad spectrum of physical, chemical and biological indicators; and other factors including temporal loss. Individual assessment methodologies utilized within the state of West Virginia and incorporated into the SWVM for streams include the USEPA Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers and the Stream Condition Index for West Virginia Wadeable Streams, as well as water quality data utilized by the WVDEP (Water Quality Data Sheet). These individual assessments are utilized together within the SWVM to interpret the physical, chemical and biological integrity of waters. The SWVM utilizes this data to generate an index score which is multiplied by the linear feet of impact to result in a unit score, which is offset through acquisition of credits via mitigation banks, in-lieu fee programs, or permittee responsible mitigation. Acquired credits offset the functions lost as a result of permanent impacts by implementing mitigation projects in the impact watershed or secondary service area watershed. To compensate for permanent stream and wetland impacts, as well as the conversion of some wetlands from “PFO”/“PSS” to “PEM,” the applicant proposes to utilize mitigation bank credits and in-lieu fee credits if necessary. The use of mitigation bank credits is identified as a preferred option in the mitigation hierarchy and appropriately complies with the Rules for Individual State Certification

of Activities Requiring a Federal Permit, W. Va. Code R. § 47-5A-6.2 (2014) and Compensatory Mitigation for Losses of Aquatic Resources, 33 C.F.R. § 332 (2008).

Project implementation will include the use of appropriate erosion and sedimentation control best management practices in accordance with the WVDEP O&G CGP requirements for all stream crossings and work in Waters of the United States. MVP's WVDEP O&G CGP requires implementation of BMPs throughout the entire Project that are equivalent to those required by the USEPA's Construction General Permit (CGP) for sites discharging to Tier 1 sediment impaired waters, Tiers 2 and Tier 3 waters. The use of appropriate BMPs was determined by USEPA in 2012 to ensure, "stormwater discharges being controlled as necessary to meet applicable water quality standards (which include state antidegradation requirements)." USEPA 2012 CGP Fact Sheet, § VIII.3.2.

Finally, MVP proposes three trenchless crossings of traditionally navigable waters in West Virginia. It proposes a guided conventional bore under the Elk River in Webster County, microtunneling beneath the Gauley River in Nicholas County, and a Direct Pipe crossing of the Greenbrier River in Summers County. MVP explains that these technologies are not reasonably expected to breach river bottoms, contribute to an "inadvertent return" of any drilling fluids, or otherwise result in a discharge. While WVDEP agrees with those assessments, it requires in the attached conditions that MVP adhere to its previously submitted inadvertent return plan for the three bores.

VII. Conclusion

State § 401 Certification, as required by Section 401(a)(1) of the Clean Water Act, is granted subject to the conditions contained in Attachment A. Certification shall be effective 15 days from the date of this letter. Affected parties may request a hearing in accordance with Rules for Individual State Certification of Activities Requiring a Federal Permit, W. Va. Code R. § 47-5A-7 (2014).

Sincerely,

Katheryn Emery, P.E.
Acting Director

cc: Robert J. Cooper
Mountain Valley Pipeline, LLC.
2200 Energy Drive
Canonsburg, PA 15317

US Army Corps of Engineers, Huntington District – Adam Fannin
US Army Corps of Engineers, Pittsburgh District – Tyler Bintrim
US Army Corps of Engineers, Pittsburgh District – Jared Pritts
US Environmental Protection Agency – Christine Mazzarella
US Fish and Wildlife Service – Jennifer Norris



west virginia department of environmental protection

Division of Water and Waste Management
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Charleston, West Virginia 25304-2345
Phone: 304-926-0495
Fax: 304-926-0496

Jim Justice, Governor
Austin Caperton, Cabinet Secretary
www.dep.wv.gov

July 14, 2017

MOUNTAIN VALLEY PIPELINE, LLC
625 LIBERTY AVE, ST 1700
PITTSBURGH, PA 15222

Re: General Permit Registration No. WVR310667
Mountain Valley Pipeline Project, * Counties,
Disturbed Acres (4214)

Dear Permittee:

Attached is a copy of your completed registration form for your activity with the above assigned registration number. You are now authorized to operate under General Permit No. WV0116815. This registration form should be kept with your copy of the General Permit. You should carefully read the contents of the permit and become familiar with all requirements needed to remain in compliance with the permit.

Although you should be aware of all the terms and conditions of this permit, we wish to advise you of the following important requirements:

1. In accordance with Section G.4 of the General Permit, you have developed a complete storm water pollution prevention plan. This plan is to be retained on site and be available for review by the Director or the Director's authorized representative as of the date of your coverage by the General Permit, which is the date of this letter.
2. The erosion control measures approved by this agency for this project shall be maintained in proper condition to individually and collectively perform the functions for which they were designed. In order to ensure the efficiency and proper maintenance of these measures, the permittee shall make sufficiently frequent, periodic inspections to detect any impairment of the designed stability, capacity or environmental requirements of the approved measures. The permittee shall take immediate steps to correct any such impairment found to exist.
3. If this Stormwater Pollution Prevention Plan (SWPPP) proves to be ineffective in controlling erosion and the sediment in storm water discharges associated with industrial/construction activities, or site conditions change, the Permittee shall amend the SWPPP and install appropriate sediment and/or control devices in accordance with Section G.4.c) of this permit and the application instructions.
4. The current General Permit expires on May 13, 2018. If you wish to continue an activity regulated by this permit after the expiration date of the permit, provisions for coverage will be made during the public notice process for any new General Permit to be issued at that time.

5. Final stabilization means disturbed areas shall be covered by the appropriate permanent protection. Final stabilization includes: pavement; buildings; stable waterways (riprap, concrete, grass or pipe); a healthy, vigorous stand of perennial grass that uniformly covers at least 70 percent of the ground; stable outlet channels with velocity dissipation which directs site runoff to a natural watercourse; and any other approved structure or material.

Your annual permit fee has been assessed as \$1,500.00. You will be invoiced by this agency one month prior to the anniversary date of your original approval date. Failure to submit the annual fee within 90 days of the due date will render your permit void upon the date you are mailed a certified written notice to that effect. Please be advised that a pro-rated annual permit fee may be assessed upon the completion date and proper stabilization.

Issuance of this approval of the General Permit registration does not authorize any injury to persons or property or invasion of other private rights, or any infringement of federal, state or local law or rules.

The validity of this General Permit Registration is contingent upon payment of the applicable annual permit fee, as required by Chapter 22, Article 11, Section 10 of the Code of West Virginia.

Your efforts toward preventing the degradation of our natural resources are greatly appreciated. If you have any questions, please contact Sharon Mullins of this Division at (304) 926-0499 extension 1132 or at sharon.a.mullins@wv.gov.

Scott G. Mandirola
Director
WV DEP-Division of Water & Waste Mgt.
601 57th St SE
Charleston, WV 25304-2345
Phone: (304) 926-0495
Fax: (304) 926-0463

* Wetzel, Harrison, Doddridge, Lewis, Braxton, Webster, Nicholas, Greenbrier, Fayette, Summers, and Monroe Counties



Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Ann F. Jennings
Secretary of Natural and Historic Resources

David K. Paylor
Director
(804) 698-4000

VWP Individual Permit Number 21-0416

Effective Date: December 20, 2021

Expiration Date: December 19, 2031

VIRGINIA WATER PROTECTION PERMIT ISSUED PURSUANT TO THE STATE WATER CONTROL LAW AND SECTION 401 OF THE CLEAN WATER ACT

In compliance with § 401 of the Clean Water Act, as amended (33 USC § 1341) and the State Water Control Law and regulations adopted pursuant thereto, the board has determined that there is a reasonable assurance that this VWP permit, if complied with, will protect instream beneficial uses, will not violate applicable water quality standards, and will not cause or contribute to a significant impairment of state waters or fish and wildlife resources. In issuing this VWP permit, the board has not taken into consideration the structural stability of any proposed activities.

Permittee: Mountain Valley Pipeline, LLC

Address: 2200 Energy Drive, Canonsburg, PA 15317

Project Name: Mountain Valley Pipeline Project

Project Location: In Virginia, the project consists of approximately 107 miles of pipeline and 51 miles of access roads in Giles, Craig, Montgomery, Roanoke, Franklin, and Pittsylvania Counties.

Project Description: The permittee is constructing a 42-inch diameter natural gas pipeline approximately 304 miles in length, running from Wetzel County, West Virginia to Transco Village in Pittsylvania County, Virginia. The portion of the project located within Virginia consists of approximately 107 miles of pipeline and 51 miles of access roads in Giles, Craig, Montgomery, Roanoke, Franklin, and Pittsylvania Counties. Permitted activities shall be conducted as described in the Joint Permit Application dated February 19, 2021, received on March 1, 2021, and supplemental materials, revisions and clarifications received through August 17, 2021.

Authorized Surface Water Impacts:

This permit authorizes the surface water impacts identified in **Table 1 Stream Impacts**, and **Table 2 Wetland Impacts**, attached to this permit in Appendix 1. In summary, this permit authorizes a total of 9.41 acres of impacts to surface waters consisting of 5.90 acres of wetlands and 3.51 acres (17,128 linear feet) of streams.

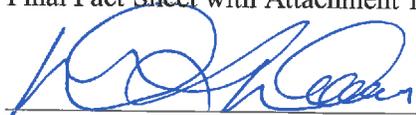
Impact Type	Surface Water Type	Impact Authorized	
		Square Feet	Linear Feet
Permanent	Palustrine Emergent Wetland (PEM)	1,707	N/A
	Stream Channel	441	63
	<i>Subtotal</i>	<i>2,148</i>	<i>63</i>
Conversion	PFO to PEM	51,826	N/A
	PSS to PEM	32,948	N/A
	<i>Subtotal</i>	<i>84,774</i>	<i>N/A</i>
Temporary	Palustrine Emergent Wetland (PEM)	170,409	N/A
	Stream Channel	152,684	17,065
	<i>Subtotal</i>	<i>323,093</i>	<i>17,065</i>
TOTAL		410,015 (9.41 Acres)	17,128

Authorized surface water impacts shall be as depicted on the materials provided in the application as Attachment H-3, entitled Virginia Plan and Profile Crossing Drawings, and Attachment B, entitled Table B-1 Virginia Stream Impacts, and Table B-2 Virginia Wetland Impacts, dated February 22, 2021, with latest revision date of May 14, 2021, received May 14, 2021.

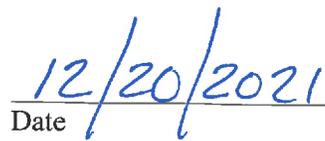
Approved Compensation:

The Joint Permit Application provides documentation of compensatory mitigation for wetland and stream crossings. The applicant has provided compensation for the proposed permanent and conversion wetland impacts through the purchase of 7.1 wetland credits from Banister Bend Farm, LLC Wetland Mitigation Bank in Pittsylvania County, Virginia, purchase agreement dated November 30, 2017. The permittee has provided compensation for the proposed permanent stream impacts through the purchase of 298 stream credits from Graham and David Mitigation Bank, LLC in Montgomery County, Virginia, purchase agreement dated November 30, 2017. The applicant has provided documentation of a reserved purchase of 0.014 wetland credits from Thompson Place Stream and Wetland Mitigation Bank in Blacksburg, VA, credit availability letter dated August 17, 2021. The Applicant has provided the Comprehensive Stream and Wetland Monitoring, Restoration and Mitigation Framework (*Mitigation Framework*) that addresses restoration of temporarily impacted areas.

The permitted activity shall be in accordance with this Permit Cover Page, Part I - Special Conditions, Part II - General Conditions, Appendix 1-Impact Tables, Appendix 2-TOYR, *Mitigation Framework*, and Final Fact Sheet with Attachment 1-Impact Locations.



David L. Davis, CPWD, PWS
 Director, Office of Wetlands and Stream Protection


 Date



Commonwealth of Virginia

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Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director
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April 9, 2021

Mr. Cory Chalmers
Senior Environmental Coordinator
Equitrans Midstream Corporation
2200 Energy Drive
Canonsburg, PA 15317

Transmitted electronically: CChalmers@equitransmidstream.com

Re: Mountain Valley Pipeline, LLC
Annual Standards and Specifications for Erosion & Sediment Control and Stormwater
Management

Dear Mr. Chalmers:

The Virginia Department of Environmental Quality (DEQ) hereby approves the Annual Standards and Specifications for Erosion & Sediment Control (ESC) and Stormwater Management (SWM) for Mountain Valley Pipeline, LLC (MVP) as revised through March 31, 2021. This coverage is effective from April 15, 2021 to April 14, 2022.

Please note that your approved Annual Standards and Specifications include the following requirements:

1. In addition to MVP's internal review process, site specific ESC (9VAC25-840-40) and SWM (9VAC25-870-55) plans must be submitted to DEQ for review and approval;
2. ESC variance requests must be submitted to DEQ and will be reviewed in accordance with ESC (9VAC25-840-50) requirements;
3. SWM exception requests must be submitted to DEQ and will be reviewed in accordance with SWM (9VAC25-870-57) requirements;
4. Initial draft and final site specific ESC and SWM plan(s), and supporting documents must be posted on MVP's website for public view;
5. Inspection reports conducted by MVP as well as complaint logs and complaint responses must be submitted to DEQ in accordance with Section 2.0 (General Requirements) of your Annual Standards and Specifications; and

Mr. Cory Chalmers
Re: Mountain Valley Pipeline LLC
April 9, 2021
Page 2 of 2

6. The following information must be submitted to DEQ at least two weeks in advance of the commencement of land-disturbing activities for each separate land disturbance construction area spread for this project. Notifications shall be sent by email to StandardsandSpecs@deq.virginia.gov.
- i. Spread number;
 - ii. Spread location (including nearest intersection, latitude and longitude, access point, traversed localities);
 - iii. On-site project manager name and contact information;
 - iv. Responsible Land Disturber (RLD) name and contact information;
 - v. DEQ-certified ESC and SWM inspector name and contact information;
 - vi. Spread description;
 - vii. Acreage of disturbance for spread; and
 - viii. Spread start and finish date.

To ensure compliance with approved specifications, the Virginia Erosion and Sediment Control Law, and the Virginia Stormwater Management Act, DEQ staff will conduct random site inspections, respond to complaints, and provide on-site technical assistance with specific erosion and sediment control and stormwater management measures and plan implementation.

Please contact Larry Gavan (Larry.Gavan@deq.virginia.gov or 804-698-4040) should you have any questions concerning your Annual Standard and Specifications requirements.

Sincerely,



Andrew J. Hammond, II
Director of Water Permits

Cc: Melanie Davenport, DEQ-CO
Jerome Brooks, DEQ-CO
Larry Gavan, DEQ-CO
Brian Clauto, Equitrans

Case Decision Information:

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have thirty days from the date of service (the date you actually received this decision or the date it was mailed to you, whichever occurred first) within which to appeal this decision by filing a notice of appeal in accordance with the Rules of the Supreme Court of Virginia with the Director, Department of Environmental Quality. In the event that this decision is served on you by mail, three days are added to that period.



Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

1111 E. Main Street, Suite 1400, Richmond, Virginia 23219

P.O. Box 1105, Richmond, Virginia 23218

(800) 592-5482

www.deq.virginia.gov

Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director
(804) 698-4000

April 15, 2020

Mr. Brian M. Clauto
Senior Environmental Coordinator
Equitrans Midstream Corporation
2200 Energy Drive
Canonsburg, PA 15317

Transmitted electronically: BClauto@equitransmidstream.com

Re: Mountain Valley Pipeline LLC
Annual Standards and Specifications for Erosion & Sediment Control and Stormwater
Management

Dear Mr. Clauto:

The Virginia Department of Environmental Quality (DEQ) hereby approves the Annual Standards and Specifications for Erosion & Sediment Control (ESC) and Stormwater Management (SWM) for Mountain Valley Pipeline (MVP) LLC as revised through April 2020. This coverage is effective from April 15, 2020 to April 14, 2021.

Please note that your approved Annual Standards and Specifications include the following requirements:

1. In addition to MVP's internal review process, site specific ESC (9VAC25-840-40) and SWM (9VAC25-870-55) plans must be submitted to DEQ for review and approval;
2. ESC variance requests must be submitted to DEQ and will be reviewed in accordance with ESC (9VAC25-840-50) requirements;
3. SWM exception requests must be submitted to DEQ and will be reviewed in accordance with SWM (9VAC25-870-57) requirements;
4. Initial draft and final site specific ESC and SWM plan(s), and supporting documents must be posted on MVP's website for public view;
5. Inspection reports conducted by MVP as well as complaint logs and complaint responses must be submitted to DEQ in accordance with Section 2.0 (General Requirements) of your Annual Standards and Specifications; and

Mr. Brian Clato
Re: Mountain Valley Pipeline LLC
April 15, 2020
Page 2 of 2

6. The following information must be submitted to DEQ at least two weeks in advance of the commencement of land-disturbing activities for each separate land disturbance construction area spread for this project. Notifications shall be sent by email to StandardsandSpecs@deq.virginia.gov.
 - i. Spread number;
 - ii. Spread location (including nearest intersection, latitude and longitude, access point, traversed localities);
 - iii. On-site project manager name and contact information;
 - iv. Responsible Land Disturber (RLD) name and contact information;
 - v. DEQ-certified ESC and SWM inspector name and contact information;
 - vi. Spread description;
 - vii. Acreage of disturbance for spread; and
 - viii. Spread start and finish date.

To ensure compliance with approved specifications, the Virginia Erosion and Sediment Control Law, and the Virginia Stormwater Management Act, DEQ staff will conduct random site inspections, respond to complaints, and provide on-site technical assistance with specific erosion and sediment control and stormwater management measures and plan implementation.

Please contact Ben Leach (804-698-4037) should you have any questions concerning your Annual Standard and Specifications requirements.

Sincerely,



Andrew J. Hammond, II
Director of Water Permits

Cc: Justin Curtis, AquaLaw
James Golden, DEQ-CO
Melanie Davenport, DEQ-CO
Jerome Brooks, DEQ-CO
Ben Leach, DEQ-CO
Larry Gavan, DEQ-CO
Hannah Zegler, DEQ-CO

Case Decision Information:

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have thirty days from the date of service (the date you actually received this decision or the date it was mailed to you, whichever occurred first) within which to appeal this decision by filing a notice of appeal in accordance with the Rules of the Supreme Court of Virginia with the Director, Department of Environmental Quality. In the event that this decision is served on you by mail, three days are added to that period.



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 1111 E. Main Street, Suite 1400, Richmond, Virginia 23219

Mailing address: P.O. Box 1105, Richmond, Virginia 23218

www.deq.virginia.gov

Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director

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

June 20, 2018

Mr. Brian Clauto
Senior Environmental Coordinator
EQT Corporation
555 Southpointe Blvd, Suite 200
Canonsburg, PA 15317

Transmitted electronically to: BClauto@eqt.com

Re: Mountain Valley Pipeline LLC
Project Location: MVP Transco Interconnect Plan (Supportive Ancillary Areas)
DEQ SWM #: MVP-18-02
Erosion and Sediment Control (ESC) and Stormwater Management (SWM) Plans

Dear Mr. Clauto:

The Department of Environmental Quality (DEQ) received combined Stormwater Management and Erosion & Sediment Control Plans for supportive ancillary areas identified as MVP Transco Interconnect Plan on September 14, 2017 and revised plans received on June 18, 2018. The plans received June 18, 2018 are found to be in accordance with the *Virginia Stormwater Management Act and Regulations* and the *Virginia Erosion and Sediment Control Law and Regulations* and are approved. This approval authorizes MVP to begin land disturbing activities consistent with these plans. **No modifications, updates or additions may be made to the approved Plans without obtaining prior approval from DEQ. Additionally, approval of the ESC and SWM Plans does not relieve the owner and/or operator of complying with all other federal, state, or local laws and regulations.**

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have thirty (30) days from the date you received this decision within which to appeal this decision by filing a notice of appeal in accordance with the Rules of the Supreme Court of Virginia with the Director, Virginia Department of Environmental Quality.

It is the responsibility of the owner and/or operator to ensure that the project is constructed in accordance with the approved Plans and accompanying specifications. Upon completion of the project, the owner and/or operator will be required to submit construction record drawings for all

June 20, 2018

Re: DEQ SW#: MVP-18-02

Page 2

permanent stormwater management facilities (i.e., post-development best management practices) constructed in accordance with the approved Plans.

Please contact Mr. Benjamin Leach at 804-698-4037 or Benjamin.leach@deq.virginia.gov if you have any questions about this letter.

Sincerely,

A handwritten signature in blue ink that reads "Jaime B. Robb". The signature is written in a cursive style and is positioned above the typed name.

Jaime B. Robb, Manager
Office of Stormwater Management

Cc: Benjamin Leach, DEQ-CO
Jerome Brooks, Water Compliance Manager

Enclosure



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 629 East Main Street, Richmond, Virginia 23219

Mailing address: P.O. Box 1105, Richmond, Virginia 23218

www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

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

December 8, 2017

Certified Mail

John Centofanti
Corporate Director, Environmental Affairs
Mountain Valley Pipeline, LLC
EQT Plaza, Suite 1700
625 Liberty Avenue
Pittsburgh, PA 15222-3111

Re: Issuance 401 Water Quality Certification
No. 17-001

Dear Mr. Centofanti:

Enclosed is Section 401 Water Quality Certification No. 17-001 issued to Mountain Valley Pipeline, LLC (MVP) on December 8, 2017.

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have thirty days from date of service (the date you actually received this decision or the date it was mailed to you, whichever occurred first) within which to appeal this decision by filing a notice of appeal in accordance with the Rules of the Supreme Court with the Director, Department of Environmental Quality. In the event that this decision is served on you by mail, three days are added to that period.

Alternatively, any owner aggrieved by any action of the State Water Control Board taken without a formal hearing, or by inaction of the Board, may petition in writing for a formal hearing of such owner's grievance, provided a petition requesting such hearing is filed with the Board. Said petition must meet the requirements set forth in 9VAC25-230-130 (Procedural Rule No. 1 – Petition for formal hearing). In cases involving actions of the Board, such petition must be filed within thirty days after notice of such action is mailed to such owner by certified mail.

If you have any questions about this Certification, please contact me at (804) 698-4038 or Melanie.Davenport@deq.virginia.gov.

Sincerely,



Melanie D. Davenport, Director
Water Permitting Division

Enclosure 401 Certification No, 17-001



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 629 East Main Street, Richmond, Virginia 23219

Mailing address: P.O. Box 1105, Richmond, Virginia 23218

www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

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

CERTIFICATION No. 17-001

401 Water Quality Certification Issued To

Mountain Valley Pipeline, LLC
625 Liberty Avenue, Suite 1700
Pittsburgh, PA 15222

Pursuant to Guidance Memo No. GM17-2003
Interstate Natural Gas Infrastructure Projects -
Procedures for Evaluating and Developing Additional Conditions for Section 401 Water Quality
Certification Pursuant to 33 USC § 1341 ("401" Certification)

I. CERTIFICATION

The State Water Control Board finds that, subject to the additional conditions set out in Section V below, there is reasonable assurance that the Mountain Valley Pipeline, LLC activities covered by this Certification will be conducted in a manner that will not violate applicable Water Quality Standards in 9 VAC 25-260-5, *et seq.*, and will comply with the applicable provisions of 33 U.S.C. §§ 1311, 1312, 1313, 1316, and 1317.

II. DEFINITIONS

The following terms as used in this Certification shall have the following meaning:

"Annual Standards and Specifications" means the program for linear utility projects implementing the requirements of the Stormwater Management Act (Va. Code § 62.1-44.15:24, *et seq.*) and Erosion and Sediment Control Law (Va. Code § 62.1-44.15:51, *et seq.*).

"Board" means State Water Control Board.

“Certification” means Clean Water Act Section 401 Water Quality Certification developed in accordance with Guidance Memo No. GM17-2003, Interstate Natural Gas Infrastructure Projects – Procedures for Evaluating and Developing Additional Conditions for Section 401 Water Quality Certification Pursuant to 33 USC § 1341 (“401” Certification).

“Construction material or waste material” means solid waste as defined in the Solid Waste Management Regulations (9 VAC 20-81-95).

“Corps” means U.S. Army Corps of Engineers.

“Department” means the Virginia Department of Environmental Quality.

“Environmental Impact Statement” or “EIS” means the Final Environmental Impact Statement (FEIS) issued by FERC on June 23, 2017.

“FERC” means the Federal Energy Regulatory Commission.

“Guidance” means Guidance Memo No. GM17-2003, Interstate Natural Gas Infrastructure Projects - Procedures for Evaluating and Developing Additional Conditions for Section 401 Water Quality Certification Pursuant to 33 USC § 1341 (“401” Certification) dated May 19, 2017.

“Karst feature” means any sinkhole, sinkhole lineament, cave, cavern, swallet, spring, or similar feature found in an area identified as an area of karst geology characterized by the presence of soluble bedrock such as limestone, dolomite, marble or gypsum. Karst features shall include all such features identified in Appendix L of the EIS and any subsequently identified features in areas of karst geology.

“Owner” means Mountain Valley Pipeline, LLC (MVP) a joint venture between EQT Midstream Partners, LP and affiliates of NextEra US Gas Assets, LLC; Con Edison Gas Midstream, LLC; WGL Midstream; and RGC Midstream, LLC.

“Project” means the Virginia portion of a pipeline project approximately 303 miles in length and 42-inches in diameter to transport up to 2.0 MMDth/d of natural gas from an interconnect point in Wetzel County, West Virginia, to an interconnect with an existing pipeline in Pittsylvania County, Virginia including approximately 106 miles of pipeline, 58 miles of Project access roads, and appurtenances which will be located within Virginia and traverse portions of Giles County, Craig County, Montgomery County, Roanoke County, Franklin County and Pittsylvania County. The 401 Water Quality Certification applies to the location of pipeline right of way, access roads, and appurtenances as described in the EIS and any changes thereto subsequently approved by FERC.

“Riparian buffer” means a vegetated area near a stream, usually forested, which helps shade and partially protect a stream from the impact of adjacent land uses.

III. SCOPE OF CERTIFICATION

This Certification addresses Project activities in upland areas outside of the Corps jurisdictional areas under 33 U.S.C. § 1344 and water withdrawal activities that are exempt from coverage under the Virginia Water Protection Permit Program Regulation (9 VAC 25-210-10, *et seq.*). In the manner and to the extent described herein, this includes all proposed upland activities associated with the construction, operation, maintenance, and repair of the pipeline, any components thereof or appurtenances thereto, and related access roads and rights-of-way as well as certain project-related surface water withdrawals. This Certification covers all relevant upland Project activities within the route identified in the Environmental Impact Statement.

As this Certification and the conditions contained in Section V are intended to address Project activities that are outside the jurisdictional scope of the Virginia Water Protection Permit Program Regulation, this Certification shall not be interpreted as limiting or otherwise relieving the Owner of any conditions for any portion of the Project that are imposed pursuant to the Virginia Water Protection Permit Program Regulation, to any permit issued by the Corps or Virginia Marine Resources Commission in response to the February 26, 2016 joint permit application, or to any other separate state or federal permit, license, or approval required for the Project.

In addition, this Certification operates in conjunction with other regulatory actions including: (a) regulations adopted for land disturbing activities pursuant to the Stormwater Management Act (Va. Code § 62.1-44.15:24, *et seq.*) and Erosion and Sediment Control Law (Va. Code § 62.1-44.15:51, *et seq.*); and, (b) all requirements of the Annual Standards and Specifications applicable to the Project approved by the Department on June 20, 2017. These completed regulatory actions remain in full force and effect, and this Certification shall not be interpreted as limiting, modifying, or otherwise relieving the Owner of any conditions imposed pursuant thereto.

Pursuant to 33 U.S.C. § 1341 (a)(3), the Board reserves the right to impose further conditions if any existing plans and/or mitigation measures are amended by the Owner and/or FERC that may materially reduce the water quality protection provided thereunder.

IV. INFORMATION EXAMINED

In developing this Certification and the additional conditions imposed herein, the Board and Department have considered the record relevant to water quality considerations associated with the Project, including but not limited to:

1. All applicable FERC documents, including Draft and Final Environmental Impact Statements issued by FERC and the associated docket materials including all Appendices, and the FERC order granting a Certificate of Public Convenience and Necessity (Certificate) on October 13, 2017;
2. The Department's initial Request for Information (RFI) dated May 19, 2017 in accordance with the Guidance, the Department's subsequent June 15, 2017 RFI

- and the Owner's June 1, 2017, and June 22, 2017 responses including but not limited to requested supplemental responses dated August 8, 2017, October 27, 2017, and November 2 and 6, 2017;
3. Proceedings of the multi-agency technical work session held June 6-7, 2017 (Lexington, Virginia);
 4. Documents submitted for approval by the Department pursuant to requirements of the Stormwater Management Act (Va. Code § 62.1-44.15:24, *et seq.*) and Erosion and Sediment Control Law (Va. Code § 62.1-44.15:51, *et seq.*);
 5. Corps Nationwide Permit 12 and Norfolk District Regional Conditions;
 6. Guidance Memo No. GM17-2003, Interstate Natural Gas Infrastructure Projects- Procedures for Evaluating and Developing Additional Conditions for Section 401 Water Quality Certification Pursuant to 33 USC § 1341 ("401" Certification); and,
 7. Public comments submitted during the public comment period, including both written (electronic or paper copy) and oral comments provided during the August 8 and 9, 2017 public hearings.

V. CONDITIONS

In consideration of the recommendations of the Department, the Board finds that there are additional reasonable and prudent conditions that will provide the Commonwealth with an increased degree of assurance that upland Project activities which may result in a discharge to surface waters will be conducted in a manner that will not violate applicable water quality standards. This Certification is only valid provided the Owner complies with the following conditions, limitations, and/or requirements:

1. The Owner shall follow the measures detailed in its June 1, 2017 and June 22, 2017 responses to the Department's May 19, 2017 and June 15, 2017 Requests for Information including but not limited to requested supplemental responses dated August 8, 2017, October 27, 2017, and November 2 and 6, 2017.
2. Riparian Buffer Requirements
 - a. Removal of riparian buffers not directly associated with the Project's construction activities is prohibited. Disturbance and removal of riparian buffers from Project-related upland land disturbing activities that would occur within 50 feet of any perennial, intermittent, or ephemeral surface waters shall be avoided where possible, and minimized to the maximum extent practicable if 50 feet is not possible. The Owner shall notify the Department of any and all instances in which it believes 50 feet is not possible and shall proceed only where the Department concurs with the Owner's use of less than 50 feet of buffer. Removal of riparian buffers not associated with crossings shall not be allowed where stream bank stability under normal flow conditions would be compromised.

- b. The construction limit of disturbance (LOD) in upland areas approaching waterbody and wetland crossings shall be reduced from 125 feet to 75 feet wide and shall apply 50 feet from each side of the stream or wetland crossing to minimize the extent of riparian buffer disturbance. For any upland area approaching a waterbody or wetland crossing where this reduced LOD is not possible, notification of FERC approval (and Corps approval, if required) shall be provided to the Department prior to initiating land disturbing activity in that area.
- c. No refueling, hazardous materials storage, equipment maintenance, or equipment parking will take place within 100-feet of the waterbody or wetland crossing, except as allowed by the approved Annual Standards and Specifications.

3. Karst Terrain Requirements

- a. An addendum to the Karst Hazard Assessment (February 2017), and any subsequent revisions or addenda to the same approved by FERC, will be provided to the Department upon completion of field survey activities and final pipeline alignments, and prior to land disturbing activities, that address those properties in Virginia where the Owner could not previously conduct karst surveys due to land access restrictions.
- b. The Owner shall follow the measures as detailed in the Karst Mitigation Plan (March 2017), and any subsequent revisions or addenda to the same approved by FERC.
- c. To further evaluate flow paths for karst features in the vicinity of the project, the Owner shall develop a Supplemental Karst Evaluation Plan to be submitted to the Department for review and concurrence prior to initiation of land disturbing activities in karst terrain. The Department, with assistance from the Virginia Department of Conservation and Recreation (DCR) identified areas of concern in Attachment B of the Department's June 15, 2017 request letter. The Owner will conduct contingency planning in accordance with the findings and conclusions of the Supplemental Plan, as appropriate, in order to monitor and mitigate a potential accidental release or spill during construction in Virginia's karst terrain.
- d. The Owner shall: (1) conduct a survey to identify wells, cisterns, springs, and other surface waters within 1,000 feet of the project centerline in areas known to have karst topography; and, (2) conduct one water quality sampling event to evaluate wells and springs used for human consumption and located between 500 feet to 1000 feet from the project centerline. The sampling shall include the parameters identified in the Water Resources Identification and Testing Plan (February 2017), and any subsequent revisions or addenda to the same approved by FERC. The survey and/or water quality sampling event shall be conducted by the Owner at the request of a property owner and only if the property owner provides permission for access. This survey and/or water quality sampling event shall be conducted before the pipeline is placed into operation. The Owner must complete any survey and water quality evaluation requests received at least 30 days prior to placing the project in service.

- e. The Owner shall provide a financial responsibility demonstration to the Department in the amount of five million dollars (\$5,000,000), to support the Complaint Resolution Process contained in the Water Resources Identification and Testing Plan (February 2017) in the event a private water supply used for human consumption is impacted from project construction activities.

This demonstration requirement may be satisfied by any of the financial assurance mechanisms that are set forth in 9 VAC 25-650-90 through 9 VAC 25-650-130. The mechanism or combination of mechanisms shall not be accessible by third parties and shall be used by the Department to implement the Water Resources Identification and Testing Plan when necessary due to the Owner's failure to do the same.

The mechanism or combination of mechanisms shall be submitted to the Department for review and approval and must contain such wording and terms as specified by the Department to satisfy this condition.

The demonstration, having been approved by the Department, shall be made available prior to initiation of land disturbing activities in karst terrain and shall be maintained until 180 days after all land disturbing activity associated with the construction of the pipeline, and related access roads and rights-of-way have achieved final stabilization as required by the Erosion and Sediment Control Law (Va. Code § 62.1-44.15:51, *et seq.*). The Department will notify the Owner when the conditions to release the financial demonstration have been met.

4. Surface Water Withdrawals

- a. Any surface water withdrawals for the purposes of hydrostatic testing shall not violate applicable Water Quality Standards and shall be managed so that no more than 10% of the instantaneous flow rate from the channel is removed; the intake screens shall be designed so that screen openings are not larger than 1 millimeter and the screen face intake velocities are not greater than 0.25 feet per second.
- b. Any surface water withdrawals for the purposes of horizontal directional drilling or dust control that do not exceed 10,000 gallons per day from non-tidal waters or two million gallons per day from tidal waters shall not violate applicable Water Quality Standards and shall be managed so that no more than 10% of the instantaneous flow rate from the channel is removed and the intake screens shall be designed so that screen openings are not larger than 1 millimeter and the screen face intake velocities are not greater than 0.25 feet per second.
- c. Daily withdrawals from horizontal directional drilling or dust control activities that exceed 10,000 gallons per day from non-tidal waters and two million gallons per day from tidal waters must comply with the requirements of the Virginia Water Protection Permit Program Regulation. The Owner shall record and track the daily volumes of water withdrawn for horizontal directional drilling or dust control activities and make such records available during inspection or upon request by the Department.

- d. Hydrostatic test water shall be released to upland areas through energy dissipating dewatering devices. The energy dissipating dewatering devices must be sized to accommodate the rate and volume of release and be monitored and regulated to prevent erosion and over pumping of the energy dissipating dewatering devices. There shall be no direct point source discharge or intentional indirect discharge of hydrostatic test water to surface waters. The upland discharge of hydrostatic test waters shall be monitored in accordance with the General Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation for Discharges from Petroleum Contaminated Sites, Groundwater Remediation and Hydrostatic Tests (9 VAC 25-120-10, *et seq.*) (“VPDES General Permit”). The Owner shall record and track the daily volumes of water withdrawn for hydrostatic testing activities and make such records available during inspection or upon request by the Department. In the event of an inadvertent indirect discharge to surface waters, the Owner shall be responsible for ensuring that such discharge complies with all requirements of the VPDES General Permit, including the requirement to notify the Department within 14 days.
5. The Owner shall implement water quality monitoring in accordance with the Upland Construction Water Quality Monitoring Plan (May 31, 2017, revised June 19, 2017).
6. The Owner shall implement the measures identified in the Spill Prevention, Control, and Countermeasure (SPCC) Plan (submitted with the June 1, 2017 response to the Department and additional information submitted June 22, 2017), and any subsequent revisions or addenda to the same approved by FERC.
7. All construction and installation associated with the Project, except as permitted by the Corps, shall be accomplished in such a manner that construction material or waste material shall not be placed into any perennial, intermittent, or ephemeral surface waters or karst features.
8. The Owner shall implement the measures intended to minimize the potential for discharges of soil or rock as detailed in the General Blasting Plan (February 2017) and the Landslide Mitigation Plan Revision 4 (February 2017), and any subsequent revisions or addenda to the same approved by FERC. The Owner shall notify the Department immediately, but no later than 24 hours after discovery, if blasting or landslide activity results in unpermitted discharges of soil or rock to any perennial, intermittent, or ephemeral surface waters. Any potential impacts to karst features will be addressed in accordance with the Karst Mitigation Plan.
9. The Owner shall follow the measures intended to minimize the potential for impacts as detailed in the Acid Forming Materials Mitigation Plan (May 2017), and any subsequent revisions or addenda to the same approved by FERC.

10. The Project, including all relevant records, is subject to inspection at reasonable hours and intervals by the Department or any authorized representative of the Department to determine compliance with this Certification.
11. The Owner shall provide the Department with written or electronic notification at least 10 business days prior to any planned Construction Spread pre-construction conferences.
12. The Owner shall immediately notify the Department of any modification of this Project and shall demonstrate in a written statement that said modifications will not violate any conditions listed in this Certification. If such demonstration cannot be made, the Owner shall apply for a modification of this Certification.
13. The Owner shall comply with the requirements of the Stormwater Management Act (Va. Code § 62.1-44.15:24, *et seq.*) and Erosion and Sediment Control Law (Va. Code § 62.1-44.15:51, *et seq.*) and the Virginia Water Protection Permit Program Regulations (9 VAC 25-210-10, *et seq.*). The enforceability under this Certification is in addition to the independent enforcement authority of each individual program and/or permit.
14. This Certification is subject to revocation for failure to comply with the above conditions after a proper hearing. Any unpermitted or unauthorized direct or indirect discharge to State waters shall be subject to enforcement under the State Water Control Law.
15. The terms and conditions of this Certification shall remain in effect until 180 days after all land disturbing activity associated with the construction, operation, maintenance, and repair of the pipeline, and related access roads and rights-of-way have achieved final stabilization as required by the Erosion and Sediment Control Law (Va. Code § 62.1-44.15:51, *et seq.*).
16. This Certification is binding on the Owner and any successors in interest, designees and assigns, jointly and severally.

VI. CONCLUSION

The additional conditions contained in Section V of this Certification along with the requirements imposed by the VWP regulation, the Corps Section 404 permitting requirements, and prior regulatory actions associated with the approval and requirements of the June 2017 Annual Standards and Specifications, and the April 7, 2017 Section 401 Water Quality Certification of the Corps Nationwide Permit 12 provide reasonable assurance that water quality standards will not be violated. The conditions included in this Certification for upland areas are in addition to any other federal or state permit or regulatory requirements with which the Project must comply, including federal resource agency requirements embodied in the FERC certificate.

This Certification constitutes the Commonwealth's final decision on the upland activities associated with the construction, operation, maintenance, and repair of the Project under the requirement of Clean Water Act § 401. The provisions of this Certification are severable and

should any provision(s) of this Certification be declared invalid or unenforceable, the remainder of the Certification, including without limitation any additional conditions imposed hereunder, shall continue in full force and effect. The Commonwealth reserves its right to review this certification decision and take any appropriate action in accordance with 33 U.S.C. § 1341(a)(3). This Certification applies solely to upland activities authorized by FERC and shall not waive or otherwise impair or affect the authority of the Board to require additional certification under state or federal law.

By: Melanie A. Daneyport

Date: December 8, 2017

Attachment H

EQM Gathering Opco, LLC
2200 Energy Drive
Canonsburg, PA 15317

SECRETARY'S CERTIFICATE

I, NATHANIEL D. DEROSE, Corporate Secretary of EQM Gathering Opco, LLC, a Delaware limited liability company (the Company), do hereby certify that Robert J. Cooper was elected a Senior Vice President of the Company, effective November 13, 2018, to serve until his successor is duly elected and qualified and that said resolution continues in full force and effect as of this date.

WITNESS the hand of the undersigned this 24th day of March 2022.



Nathaniel D. DeRose
Assistant Corporate Secretary

Since April 6, 2018, the members of Mountain Valley Pipeline, LLC (Mountain Valley), have been: MVP Holdco, LLC (MVP Holdco), US Marcellus Gas Infrastructure, LLC (US Marcellus), VED NPI IV, LLC, WGL Midstream, Inc., RGC Midstream, LLC and Con Edison Gas Pipeline and Storage, LLC.

Earlier applications were inconsistent in discussing the members of Mountain Valley, sometimes making reference the corporate parent of the actual member entity or referencing affiliates. As noted by the Service:

- in Attachment A to the 07/2019 SF-299 application, Mountain Valley's members were listed as EQT Midstream Partners, LP and affiliates of NextEra Energy, Inc., Con Edison Gas Midstream LLC, WGL Holdings, Inc., and RGC Midstream, LLC;
- in Attachment A, page 1 and page 12, of the 05/2020 SF-299, Mountain Valley's members were listed as EQM Midstream Partners, LP, NextEra Capital Holdings, Inc., Con Edison Gas Midstream LLC, WGL Midstream Holdings, Inc., and RGC Midstream, LLC; and
- in Attachment H of the 05/2020 SF-299, Mountain Valley's members were listed as: EQT Midstream Partners, LP, NextEra US Gas Assets, LLC, Con Edison Transmission, Inc., WGL Midstream, Inc. (AltaGas) and RGC Midstream, LLC.

EQM Midstream Partners, LP was formerly known as EQT Midstream Partners, LP. Both of these entity names were referenced in the 07/2019 SF-299 and the 05/2020 SF-299 applications. EQM Midstream Partners, LP is actually the parent company of MVP Holdco, one of the members in Mountain Valley.

NextEra Energy, Inc. and its subsidiaries NextEra Energy Capital Holdings, Inc. and NextEra US Gas Assets, LLC were referenced in the 07/2019 SF-299 and the 05/2020 SF-299 applications. They are all affiliates of US Marcellus (one of the members in Mountain Valley) and NextEra Energy Capital Holdings, Inc. is its corporate parent.

Con Edison Gas Pipeline and Storage, LLC, a member of Mountain Valley, was formerly known as Con Edison Gas Midstream LLC (its name was changed in January 2016), which was the entity name referenced in the 07/2019 SF-299 and the 05/2020 SF-299 applications. Con Edison Transmission, Inc., which also was referenced in the 05/2020 SF-299 application, is the parent company of Con Edison Gas Pipeline and Storage, LLC, the member entity.

WGL Holdings, Inc., which is owned by AltaGas Ltd., is the parent company of WGL Midstream, Inc., a member of Mountain Valley. The reference to "WGL Midstream Holdings, Inc." in the 05/2020 SF-299 application appears to have been an error in attempting to reference "WGL Midstream, Inc." (the correct member entity name).

In both the 07/2019 SF-299 and the 05/2020 SF-299 applications, RGC Midstream, LLC was correctly listed as a member of Mountain Valley.

Delaware

PAGE 1

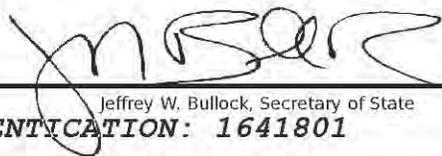
The First State

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF FORMATION OF "MOUNTAIN VALLEY PIPELINE, LLC", FILED IN THIS OFFICE ON THE TWENTY-SECOND DAY OF AUGUST, A.D. 2014, AT 11:02 O'CLOCK A.M.

5580929 8100

141099897




Jeffrey W. Bullock, Secretary of State
AUTHENTICATION: 1641801

DATE: 08-22-14

**CERTIFICATE OF FORMATION
OF
MOUNTAIN VALLEY PIPELINE, LLC**

The undersigned, being authorized to execute and file this Certificate, hereby certifies that:

- FIRST:** The name of the limited liability company (hereafter referred to as the "Company") is Mountain Valley Pipeline, LLC.
- SECOND:** The address of the registered office of the Company is: Corporate Trust Center 1209 Orange Street, in the City of Wilmington, County of New Castle, State of Delaware. The name of the registered agent at such address is The Corporation Trust Company.
- THIRD:** As permitted by Section 18-215 of the Limited Liability Company Act, the Company may have one or more series. The debts, liabilities, obligations and expenses incurred, contracted for or otherwise existing with respect to a particular series, whether now existing or hereafter established, shall be enforceable against the assets of that series only, and not against the assets of the Company generally or any other series thereof, and none of the debts, liabilities, or obligations and expenses incurred, contracted for, or otherwise existing with respect to the Company generally or any other series thereof shall be enforceable against the assets of the particular series in question.

IN WITNESS WHEREOF, the undersigned has executed this Certificate of Formation this 21st day of August, 2014.



Nicole H. King Yohe, Authorized Person

Delaware

PAGE 1

The First State

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY "MOUNTAIN VALLEY PIPELINE, LLC" IS DULY FORMED UNDER THE LAWS OF THE STATE OF DELAWARE AND IS IN GOOD STANDING AND HAS A LEGAL EXISTENCE SO FAR AS THE RECORDS OF THIS OFFICE SHOW, AS OF THE NINETEENTH DAY OF NOVEMBER, A.D. 2014.

AND I DO HEREBY FURTHER CERTIFY THAT THE ANNUAL TAXES HAVE NOT BEEN ASSESSED TO DATE.

5580929 8300

141430724

You may verify this certificate online
at corp.delaware.gov/authver.shtml




Jeffrey W. Bullock, Secretary of State
AUTHENTICATION: 1880950

DATE: 11-19-14

Commonwealth OF Virginia



State Corporation Commission

CERTIFICATE OF FACT

I Certify the Following from the Records of the Commission:

That Mountain Valley Pipeline, LLC, a limited liability company organized under the law of Delaware, obtained a certificate of registration to transact business in Virginia from the Commission on September 17, 2014; and

That it is registered to transact business in the Commonwealth of Virginia as of the date set forth below.

Nothing more is hereby certified.

*Signed and Sealed at Richmond on this Date:
July 12, 2019*



Joel H. Peck

Joel H. Peck, Clerk of the Commission

State of West Virginia



Certificate

I, Mac Warner, Secretary of State of the State of West Virginia, hereby certify that

MOUNTAIN VALLEY PIPELINE, LLC

was duly authorized under the laws of this state to transact business in West Virginia as a foreign limited liability company on September 18, 2014.

The company is filed as an at-will company, for an indefinite period.

I further certify that the company has not been revoked or administratively dissolved by the State of West Virginia nor has the West Virginia Secretary of State issued a Certificate of Cancellation or Termination to the company.

Accordingly, I hereby issue this Certificate of Authorization

CERTIFICATE OF AUTHORIZATION

Validation ID:4WV87_HQT32



*Given under my hand and the
Great Seal of the State of
West Virginia on this day of*

July 12, 2019

Mac Warner

Secretary of State

EX-10.1 2 a18-15536_1ex10d1.htm EX-10.1

Exhibit 10.1

*Portions of this Exhibit have been redacted pursuant to a request for confidential treatment under Rule 24b-2 of the General Rules and Regulations under the Securities Exchange Act. Omitted information marked “[***]” in this Exhibit has been filed with the Securities and Exchange Commission together with such request for confidential treatment.*

**THIRD AMENDED AND RESTATED
LIMITED LIABILITY COMPANY AGREEMENT**

OF

MOUNTAIN VALLEY PIPELINE, LLC

A Delaware Series Limited Liability Company

April 6, 2018

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**THIRD AMENDED AND RESTATED
LIMITED LIABILITY COMPANY AGREEMENT
OF
MOUNTAIN VALLEY PIPELINE, LLC**

This THIRD AMENDED AND RESTATED LIMITED LIABILITY COMPANY AGREEMENT (this “*Agreement*”) OF MOUNTAIN VALLEY PIPELINE, LLC, dated as of April 6, 2018 (the “*Effective Date*”), is adopted and agreed to by Mountain Valley Pipeline, LLC, a Delaware limited liability company (the “*Company*”), MVP Holdco, LLC, a Delaware limited liability company (“*EQT*”), US Marcellus Gas Infrastructure, LLC, a Delaware limited liability company (“*USG*”), VED NPI IV, LLC, a Delaware limited liability company (“*Vega Carryco*”), WGL Midstream, Inc., a Delaware corporation (“*WGL*”), RGC Midstream, LLC, a Virginia limited liability company (“*Roanoke*”), and Con Edison Gas Pipeline and Storage, LLC, a New York limited liability company (“*Con Edison*”), and each Person from time to time admitted to the Company as a Member in accordance with the terms hereof.

RECITALS

WHEREAS, on August 22, 2014, the Company was formed upon the filing of the Delaware Certificate (as hereinafter defined) in accordance with the Act (as hereinafter defined) for the purpose of developing, constructing, owning, and operating the Mainline Facilities (as defined herein) and EQT, as the Company’s initial member, entered into a written agreement governing the affairs of the Company and the conduct of its business (the “*Initial Agreement*”);

WHEREAS, on August 28, 2014, EQT, USG and the Company entered into that certain First Amended and Restated Limited Liability Company Agreement of the Company (the “*First Amended and Restated Agreement*”) to make certain provisions regarding the affairs of the Company and the conduct of its business and the rights and obligations of the Members on the terms and subject to the conditions set forth therein;

WHEREAS, on March 10, 2015, EQT, USG, Vega Midstream MVP LLC (“*Vega*”), Vega Carryco, WGL and the Company entered into that certain Second Amended and Restated Limited Liability Company Agreement of the Company (the “*Second Amended and Restated Agreement*”) to (a) admit Vega, Vega Carryco and WGL as Members of the Company and (b) make certain

additional provisions regarding the affairs of the Company and the conduct of its business and the rights and obligations of the Members on the terms and subject to the conditions set forth therein;

WHEREAS, on January 21, 2016, in connection with the execution and delivery by Con Edison of a joinder to the Second Amended and Restated Agreement (the “*Con Edison Joinder*”), pursuant to which Con Edison became a Member of the Company, EQT, USG and the Company entered into that certain First Amendment to Second Amended and Restated Limited Liability Company Agreement of the Company (the “*First Amendment*”) to, among other things, [***];

WHEREAS, on October 24, 2016, in connection with the consummation of the Disposition by Vega of its Membership Interest to WGL, WGL, Vega and Vega Carryco, and EQT, USG and the Company, entered into that certain Second Amendment to Second Amended and Restated Limited Liability Company Agreement of the Company (the “*Second Amendment*”) to revise,

among other things, certain distribution rights contained in Section 5.01 of the Second Amended and Restated Agreement;

WHEREAS, on April 6, 2018, the Delaware Certificate was amended and restated in order to add a provision related to designating the Company a “series” limited liability company in accordance with the Act; and

WHEREAS, the Members desire to amend and restate the Second Amended and Restated Agreement to, among other things, (a) provide for the ability to construct, own, operate or lease Additional Transportation Facilities (as hereinafter defined) in addition to the Mainline Facilities, (b) modify the capital structure of the Company to create different Series of Membership Interests with respect to the Mainline Facilities and any Additional Transportation Facilities and to allow for the issuance of such Series of Membership Interests and (c) make certain additional provisions regarding the affairs of the Company and the conduct of its business and the rights and obligations of the Members on the terms and subject to the conditions set forth herein.

NOW THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Company and the Members agree as follows:

ARTICLE 1 DEFINITIONS

1.01 Definitions. As used in this Agreement, the following terms have the respective meanings set forth below or set forth in the Sections referred to below:

AAA — has the meaning set forth in Section 11.05(a).

Act — means the Delaware Limited Liability Company Act.

Additional Contribution/Loan — has the meaning set forth in Section 4.06(a)(ii).

Additional Contribution/Loan Members — has the meaning set forth in Section 4.06(a)(ii).

Additional Series — has the meaning set forth in Section 3.01(c).

Additional Series Management Committee — has the meaning sets forth in Section 6.02.

Additional Series Management Committee Member — has the meaning set forth in Section 6.02.

Additional Series Member — has the meaning set forth in Section 3.01(c).

Additional Transportation Facilities — means additional pipeline, compression and related facilities developed, constructed, owned and managed by the Company or a Series other than the Mainline Facilities or any such facilities that have been previously approved in accordance with the terms of this Agreement.

Adjusted Capital Account — means, with respect to each Series, the Capital Account maintained for each Member as provided in Section 4.05, (a) increased by (i) an amount equal to such Member's allocable share of Minimum Gain, with respect to each Series, as computed in accordance with the applicable Treasury Regulations, and (ii) the amount that such Member is deemed to be obligated to restore, with respect to each Series, pursuant to Treasury Regulation Section 1.704-1(b)(2)(ii)(c), if any, and (b) reduced by the adjustments provided for in Treasury Regulation Section 1.704-1(b)(2)(ii)(d)(4)-(6), with respect to such Series. The foregoing definition of Adjusted Capital Account is intended to comply with the provisions of Treasury Regulation Section 1.704-1(b)(2)(ii)(d) and shall be interpreted consistently therewith.

Affected Facilities — has the meaning set forth in Section 6.03(c).

Affiliate — means, (a) with respect to any Person, (i) each entity that such Person Controls; (ii) each Person that Controls such Person, including, in the case of a Member, such Member's Parent; and (iii) each entity that is under common Control with such Person, including, in the case of a Member, each entity that is Controlled by such Member's Parent; provided that, with respect to any Member, an Affiliate shall include (x) a limited partnership or a Person Controlled by a limited partnership if such Member's Parent has the power to appoint the general partner of such limited partnership, or such general partner is otherwise is Controlled by such Member's Parent, or (y) a limited liability company or a Person controlled by a limited liability company if such Member's Parent has the power to appoint the managing member or manager (or, if more than one manager, a majority of managers) of the limited liability company, or such managing member or manager(s) are Controlled by such Member's Parent; provided, further, that, for purposes of this Agreement, the Company shall not be an Affiliate of any Member; and (b) specifically with respect to EQT, (i) EQT Corporation, a Pennsylvania corporation, and those Persons referred to in clause (a) hereof with respect to EQT Corporation and (ii) EQM and those Persons referred to in clause (a) hereof with respect to EQM.

Affiliate's Outside Activities — has the meaning set forth in Section 6.05(a).

Agreement — has the meaning set forth in the Preamble.

Alternate Representative — means, with respect to a given Management Committee Member, an additional senior officer of such Management Committee Member identified by such Management Committee Member to the other Management Committee Member(s).

Applicable Adjustment Series — has the meaning set forth in Section 4.06(a)(ii).

Appraiser — has the meaning set forth in Section 13.11(c).

Approved Precedent Agreement — means each Precedent Agreement approved by the applicable Management Committee in accordance with the applicable provisions of Schedule I.

Arbitration — has the meaning set forth in Section 11.05(a).

Arbitration Invoking Party — has the meaning set forth in Section 11.05(b).

Arbitration Notice — has the meaning set forth in Section 11.05(b).

Arbitration Noticed Party — has the meaning set forth in Section 11.05(b).

Assignee — means any Person that acquires a Membership Interest or any portion thereof through a Disposition; provided, that an Assignee shall have no right to be admitted to the Company as a Member except in accordance with Section 3.03(b)(iii). Subject to the Preferential Rights set forth in Section 3.03(b)(ii), the Assignee of a dissolved Member is the shareholder, partner, member or other equity owner or owners of the dissolved Member to whom such Member's Membership Interest is assigned by the Person conducting the liquidation or winding-up of such Member. The Assignee of a Bankrupt Member is (a) the Person or Persons (if any) to whom such Bankrupt Member's Membership Interest is assigned by order of the bankruptcy court or other Governmental Authority having jurisdiction over such Bankruptcy, or (b) in the event of a general assignment for the benefit of creditors, the creditor to which such Membership Interest is assigned.

ATF FERC Application — means, with respect to a given Additional Transportation Facility, the document pursuant to which application for a certificate(s) of public convenience and necessity is made under Section 7 of the NGA to the FERC by the

Company for authority to construct, own, acquire and operate, and provide service on, such Additional Transportation Facility.

ATF FERC Certificate — means, with respect to a given ATF FERC Application, a FERC Certificate issued by the FERC pursuant to such ATF FERC Application.

ATF FERC Response Date — means, with respect to a given ATF FERC Certificate, the date that is 30 Days following the date upon which the FERC has issued such ATF FERC Certificate.

Authorizations — means licenses, certificates, permits, orders, approvals, determinations and authorizations from Governmental Authorities having valid jurisdiction.

Available Cash — means, with respect to each Series and with respect to any Quarter ending prior to the termination of such Series, and without duplication:

- (a) the sum of all cash and cash equivalents with respect to such Series on hand at the end of such Quarter (excluding any Capital Contributions received by such Series from the Members), less
- (b) the amount of any cash reserves with respect to such Series that is necessary or appropriate in the reasonable discretion of the Management Committee of such Series to (i) provide for the proper conduct of the business of such Series (including reserves for future maintenance capital expenditures and for anticipated future credit needs of such Series), [***] or (ii) comply with applicable law or any loan agreement, security agreement, mortgage, debt instrument or other agreement or obligation to which such Series, or the Company with respect to such Series, is a party or by which it is bound or its assets are subject.

Notwithstanding the foregoing, “Available Cash” with respect to the Quarter in which a termination of the Series occurs and any subsequent Quarter shall be deemed to equal zero. For the avoidance of doubt, Available Cash with respect to a Series shall be determined without regard to Available Cash with respect to any other Series or any of the items set forth in clauses (a) and (b) with respect to the Company but not any Series.

Bankruptcy or Bankrupt — means, with respect to any Person, that (a) such Person (i) makes a general assignment for the benefit of creditors; (ii) files a voluntary bankruptcy petition; (iii) becomes the subject of an order for relief or is declared insolvent in any federal or state bankruptcy or insolvency proceedings; (iv) files a petition or answer seeking for such Person a reorganization, arrangement, composition, readjustment, liquidation, dissolution, or similar relief under any Law; (v) files an answer or other pleading admitting or failing to contest the material allegations of a petition filed against such Person in a proceeding of the type described in subclauses (i) through (iv) of this clause (a); or (vi) seeks, consents to, or acquiesces in the appointment of a trustee, receiver, or liquidator of such Person or of all or any substantial part of such Person’s properties; or (b) against such Person, a proceeding seeking reorganization, arrangement, composition, readjustment, liquidation, dissolution, or similar relief under any Law has been commenced and 120 Days have expired without dismissal thereof or with respect to which, without such Person’s consent or acquiescence, a trustee, receiver, or liquidator of such Person or of all or any substantial part of such Person’s properties has been appointed and 90 Days have expired without the appointment’s having been vacated or stayed, or 90 Days have expired after the date of expiration of a stay, if the appointment has not previously been vacated.

Book Depreciation — means, with respect to any Company or Series asset for each fiscal year or other period, an amount equal to the depreciation, amortization or other cost recovery deduction allowable with respect to such asset for such year or other period for federal income tax purposes, except that if the Book Value of an asset differs from its adjusted basis for federal income tax purposes at the beginning of such year or other period, Book Depreciation shall be an amount which bears the same ratio to such beginning Book Value as the federal income tax depreciation, amortization or other cost recovery deduction for such year or other period bears to such beginning adjusted tax basis; provided, however, that, if the adjusted tax basis of the asset is zero, Book Depreciation shall be determined under any reasonable method selected by the Management Committee; provided, further, if such asset is subject to adjustments under the remedial allocation method of Treasury Regulation Section 1.704-3(d), Book Depreciation shall be determined under Treasury Regulation Section 1.704-3(d)(2).

Book Value — means, with respect to any Company or Series asset, such asset’s adjusted basis for U.S. federal income tax purposes, except as follows:

(a) the initial Book Value of any asset contributed by a Member to the Series shall be the net agreed gross fair market value of such asset;

(b) the respective Book Values of all Company assets with respect to a Series shall be adjusted to equal their gross fair market values, as determined pursuant to Section 4.05(b), as of the time of any Revaluation Event with respect to such Series;

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(c) the Book Value of any Company or Series asset distributed to any Member shall be the net agreed gross fair market value of such asset on the date of distribution;

(d) the Book Values of Company or Series assets shall be increased (or decreased) to reflect any adjustments to the adjusted basis of such assets pursuant to Section 734(b) or Section 743(b) of the Code, but only to the extent that such adjustments are taken into account in determining Capital Accounts pursuant to Treasury Regulation Section 1.704-1(b)(2)(iv)(m); provided, however, that Book Values shall not be adjusted pursuant to this subsection (d) to the extent an adjustment occurs pursuant to subsection (b) as a result of a Revaluation Event in connection with a transaction that would otherwise result in an adjustment pursuant to this subsection (d); and

(e) if the Book Value of an asset has been determined or adjusted pursuant to subsections (a), (b) or (d) above, such Book Value shall thereafter be adjusted by the Book Depreciation taken into account with respect to such asset for purposes of computing Net Profit and Net Loss (rather than by the depreciation, amortization or other cost recovery deduction computed for federal income tax purposes).

Breaching Member — means a Member that, as of any date, (a) has committed a failure or breach of the type described in the definition of “Default,” (b) has received a written notice with respect to such failure or breach of the type described in such definition of “Default,” and (c) has not cured such failure or breach as of the applicable cure period set forth in such definition of “Default.”

Business Day — means any day other than a Saturday, a Sunday, or a holiday on which national banking associations in the State of Delaware are closed.

[***]

Capital Account — means, with respect to each Series, the account maintained by the Company for each Member of such Series in accordance with Section 4.05.

Capital Budget — means, with respect to each Series, (a) the Construction Budget for any Facilities applicable to such Series, (b) the capital budget associated with the Facilities applicable to such Series covered by any Approved Precedent Agreement, and (c) the annual capital budget for the Series relating to the Facilities applicable to such Series that is approved (or deemed approved) by the applicable Management Committee in accordance with this Agreement. Each Capital Budget shall cover all items that are classified as capital items under Required Accounting Practices.

Capital Call — has the meaning set forth in Section 4.01(a)(i).

Capital Contribution — means, with respect to a Member and in respect of a Series, the amount of money and the net agreed fair market value of any property (other than money) contributed to such Series by such Member. Any reference in this Agreement to the Capital Contribution(s) of a Member shall include a Capital Contribution(s) of its predecessors in interest. For the avoidance of doubt, the Capital Contributions of a Member in respect of a Series shall be

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determined without regard to the Capital Contributions of a Member with respect to other Series of Membership Interests held by such Member.

Certified Public Accountants — means a nationally recognized independent public accounting firm selected from time to time by the Management Committee.

Change of Control — means:

(a) with respect to any Member, the sale of substantially all of the assets of such Member or an event (such as a Disposition of voting securities or other equity interests of such Member) that causes such Member to cease to be Controlled by such Member's then Parent; provided that the term "Change of Control" shall not include any of the following events:

(i) with respect to a Founding Member of a given Series, an event that causes such Member's then Parent to be Controlled by another Person; provided, however, that such an event shall constitute a "Change of Control" with respect to any Series of which such Member is a Member but is not a Founding Member;

(ii) a Disposition of the Membership Interests held by, or the equity or assets of, such Member to an Affiliate of such Member or such Member's then Parent, or any other event, including any corporate reorganization, merger, combination or similar transaction, that results in such Member being Controlled by an Affiliate of such Member's then Parent, including, in each case, a Disposition to a limited partnership whose general partner is Controlled by an Affiliate of such Member or its then Parent;

(iii) in the case of a Member that is a publicly traded partnership or is Controlled by a publicly traded partnership, any Disposition of units or issuance of new units representing limited partner interests by such publicly traded partnership, whether to an Affiliate or an unrelated party and whether or not such units or interests are listed on a national securities exchange or quotation service so long as the general partner of such publicly traded partnership is Controlled by an Affiliate of such Member or its Parent; and

(iv) [***];

(b) with respect to an Operator, an event (such as a Disposition of voting securities or other equity interests of substantially all the assets of such Operator) that causes, directly or indirectly, such Operator to be Controlled by another Person, subject to Section 3.03(b)(v)(D). With respect to an Operator, "Change of Control" shall not include an event (i) that causes such Operator to be Controlled by an Affiliate of such Operator or an Affiliate of such Operator's then Parent or (ii) that causes the Parent of such Operator to be Controlled by another Person so long as with respect to clause (ii) above the applicable Management Committee determines, [***] that, after giving effect to such event,

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such Operator has the experience, safety record, creditworthiness, and financial wherewithal generally acceptable within the midstream natural gas industry and is and will be able to perform its obligations under the applicable COM Agreement; and

(c) notwithstanding the foregoing, and for the avoidance of doubt, any event that (i) constitutes a Change of Control under clause (a) of this definition of Change of Control or (ii) is expressly excluded from this definition of Change of Control pursuant to clauses (a)(i), (a)(ii), (a)(iii) or (a)(iv) above shall not be deemed a Disposition for purposes of Section 3.03 of this Agreement, other than for purposes of Section 3.03(b)(iv); provided, however, that Dispositions or issuances described in clause (a)(iii) shall not be deemed a Disposition for purposes of Section 3.03(b)(iv).

Change Exercise Notice — has the meaning set forth in Section 3.03(b)(v)(A).

Change Purchasing Member — has the meaning set forth in Section 3.03(b)(v)(A).

Change Unexercised Portion — has the meaning set forth in Section 3.03(b)(v)(A).

Changing Member — has the meaning set forth in Section 3.03(b)(v)(A).

Claim — means any and all judgments, claims, causes of action, demands, lawsuits, suits, proceedings, Governmental investigations or audits, losses, assessments, fines, penalties, administrative orders, obligations, costs, expenses,

liabilities and damages (whether actual, consequential or punitive), including interest, penalties, reasonable attorney's fees, disbursements and costs of investigations, deficiencies, levies, duties, imposts, remediation and cleanup costs, and natural resources damages.

Code — means the Internal Revenue Code of 1986, as amended.

COM Agreement — means (a) with respect to Series A, the Existing COM Agreement and (b) with respect to any other Series, any agreement entered into from time to time by such Series or the Company on behalf of such Series relating to the construction, operation and management of any of the Facilities owned by or allocated to such Series as specified on the Series Schedule (which, for the avoidance of doubt, may be the same COM Agreement applicable with respect to another Series).

COM Approval Matters — means (a) with respect to the Existing COM Agreement, all matters requiring the approval of the Company or providing for the exercise of rights by the Company, including, without limitation, those set forth in Sections 3.1, 3.2, 3.4, 3.5, 3.6, 4.2, 4.4, 5.1, 5.2, 7.1(b), 7.2, 8.2, and 8.3, Article 9, Sections 13.2 and 13.4, Article 15, Article 17, Section 18.6 and 18.9, Exhibit A, and Exhibit B thereto and (b) with respect to any other COM Agreement, any matters designated as "COM Approval Matters" in the applicable COM Agreement.

Company — has the meaning set forth in the Preamble.

Con Edison — has the meaning set forth in the Preamble, or any permitted transferee of any of Con Edison's Membership Interest pursuant to [Article 3](#) of this Agreement.

Con Edison Joinder — has the meaning set forth in the Recitals.

Confidential Information — means all information and data (including all copies thereof) that is furnished or submitted by any of the Members, their Affiliates, or Operator, whether oral, written, or electronic, to the other Members, their Affiliates, or Operator in connection with the Facilities and the resulting information and data obtained from those studies, including market evaluations, market proposals, service designs and pricing, pipeline system design and routing, cost estimating, rate studies, identification of permits, strategic plans, legal documents, environmental studies and requirements, public and governmental relations planning, identification of regulatory issues and development of related strategies, legal analysis and documentation, financial planning, gas reserves and deliverability data, studies of the natural gas supplies for the Facilities, and other studies and activities to determine the potential viability of the Facilities and their design characteristics, and identification of key issues. Notwithstanding the foregoing, the term "Confidential Information" shall not include any information that:

- (a) is in the public domain at the time of its disclosure or thereafter, other than as a result of a disclosure directly or indirectly by a Member or its Affiliates in contravention of this Agreement;
- (b) as to any Member or its Affiliates, was in the possession of such Member or its Affiliates prior to the execution of this Agreement and not subject to a separate confidentiality restriction;
- (c) has been independently acquired or developed by a Member or its Affiliates without violating any of the obligations of such Member or its Affiliates under this Agreement; or
- (d) is received from a third-party source on a non-confidential basis, provided that such third-party source is not known to be subject to an obligation of confidentiality and would not reasonably have been expected to know that the information was to be kept confidential from the applicable party.

Construction Budget — means, with respect to a Series, the then-approved capital budget covering the design, engineering, procurement, construction and installation of the Facilities applicable to such Series, as may be amended from time to time.

Contributing/Loan Member — has the meaning set forth in [Section 4.06\(a\)](#).

Control, Controls or Controlled — means the possession, directly or indirectly, through one or more intermediaries, of the following:

(a) (i) in the case of a corporation, 50% or more of the outstanding voting securities thereof; (ii) in the case of a limited liability company, general partnership or venture, the right to 50% or more of the distributions therefrom (including liquidating distributions); (iii) in the case of a trust or estate, including a statutory trust, 50% or more of the beneficial interest therein; (iv) in the case of a limited partnership (A) the right to 50% or more of the distributions therefrom (including liquidating distributions), (B) where the general partner of such limited partnership is a corporation, ownership of 50% or more

of the outstanding voting securities of such corporate general partner, (C) where the general partner of such limited partnership is a partnership, limited liability company or other entity (other than a corporation or limited partnership), the right to 50% or more of the distributions (including liquidating distributions) from such general partner entity, or (D) where the general partner of such limited partnership is a limited partnership, Control of the general partner of such general partner in the manner described under subclause (B) or (C) of this clause, or (v) in the case of any other entity, 50% or more of the economic or beneficial interest therein; or

(b) in the case of any entity, the power or authority, through ownership of voting securities, by contract or otherwise, to exercise predominant control over the management of the entity.

Control Notice — has the meaning set forth in Section 3.03(b)(v)(A).

Covered Person — has the meaning set forth in Section 6.07(a).

Credit Assurance — has the meaning set forth in Section 4.07(a).

Day — means a calendar day, provided that if any period of Days referred to in this Agreement shall end on a Day that is not a Business Day, then the expiration of such period shall be automatically extended until the end of the next occurring Business Day.

Deadlock — has the meaning set forth in Section 11.01.

Default — means, with respect to any Member:

(a) the failure of such Member to contribute, within [***] Days of the date required pursuant to Section 4.06, all or any portion of a Capital Contribution that such Member is required to make to a Series as provided in this Agreement; or

(b) the failure of a Member to comply in any material respect with any of its other agreements, covenants or obligations under this Agreement, or the failure of any representation or warranty made by a Member in this Agreement to have been true and correct in all material respects at the time it was made;

in the case of each of clause (a) and (b) above if such breach is not cured by the applicable Member within [***] Days of its receiving written notice of such breach from any other Member (or, if a breach of clause (b) is not capable of being cured within such [***]-Day period, if such Member fails to promptly commence substantial efforts to cure such breach or to prosecute such curative efforts to completion with continuity and diligence). The Management Committee governing matters with respect to the Series to which such failure relates may, but shall have no obligation to, extend the foregoing [***]-Day and [***]-Day periods, as determined in the Sole Discretion of the Representatives of such Management Committee.

Default Rate — means a rate per annum equal to the lesser of (a) a varying rate per annum equal to the sum of (i) the prime rate as published in *The Wall Street Journal*, with

adjustments in that varying rate to be made on the same date as any change in that rate is so published, *plus* (ii) [***]% per annum, and (b) the maximum rate permitted by Law.

Delaware Certificate — means the Certificate of Formation of the Company that was filed with the Office of the Secretary of State of Delaware on August 22, 2014, as amended on December 22, 2014, as amended and restated on or about March 10, 2015, as further amended and restated on or about the date hereof, and as may be further amended from time to time.

Delaware Courts — has the meaning set forth in [Section 11.03](#).

Demand Event — has the meaning set forth in [Section 4.07\(b\)](#).

Diluted Member — has the meaning set forth in [Section 3.03\(b\)\(ii\)\(B\)](#).

Dispose, Disposing, or Disposition — means, with respect to any asset (including a Membership Interest or any portion thereof), a sale, assignment, transfer, conveyance, gift, exchange or other disposition of such asset, whether such disposition be voluntary, involuntary or by operation of Law (and, with respect to a Membership Interest, any derivative or similar arrangement whereby a portion or all of the economic interests in, or risk of loss or opportunity for gain with respect to, such Membership Interest is transferred or shifted to another Person), including the following: (a) in the case of an asset owned by a natural person, a transfer of such asset upon the death of its owner, whether by will, intestate succession or otherwise; (b) in the case of an asset owned by an entity, (i) a merger or consolidation of such entity (other than where such entity is the survivor thereof) or (ii) a distribution of such asset by such entity to its shareholders, partners, members, or other equity owners, including in connection with the dissolution, liquidation, winding-up or termination of such entity (unless, in the case of dissolution, such entity's business is continued without the commencement of liquidation or winding-up); and (c) a disposition in connection with, or in lieu of, a foreclosure of an Encumbrance; but such terms shall not include the creation of an Encumbrance.

Disposing Member — has the meaning set forth in [Section 3.03\(b\)\(ii\)\(A\)](#).

Disposition Notice — has the meaning set forth in [Section 3.03\(b\)\(ii\)\(A\)](#).

Dispute — has the meaning set forth in [Section 11.01](#).

Disputing Member — has the meaning set forth in [Section 11.01](#).

Dissolution Event — has the meaning set forth in [Section 12.01](#).

Economic Risk of Loss — has the meaning assigned to that term in Treasury Regulation Section 1.752-2(a).

Effective Date — has the meaning set forth in the Preamble.

Encumber, Encumbering, or Encumbrance — means the creation of a security interest, lien, pledge, mortgage or other encumbrance, other than a Permitted Encumbrance, whether such encumbrance be voluntary, involuntary or by operation of Law.

EQM — means EQT Midstream Partners, LP, a Delaware limited partnership.

EQT — has the meaning set forth in the Preamble, or any permitted transferee of any of EQT's Membership Interest pursuant to [Article 3](#) of this Agreement.

[***]

Exchange — means any public exchange, such as the New York Stock Exchange, American Stock Exchange, The NASDAQ Stock Market or other similar listed securities exchange.

Existing COM Agreement — means the Amended and Restated Construction, Operation and Management Agreement between the Company and EQM Gathering Opco, LLC, dated June 16, 2015, as may be amended or restated from time to time.

Existing Operator — means EQM Gathering Opco, LLC, a Delaware limited liability company, or any successor thereto.

Facilities — means the Mainline Facilities and any Additional Transportation Facilities, and “**Facility**” shall refer to any one of the foregoing.

Fair Market Value — means (a) the fair market cash value of the Membership Interest of the Changing Member as determined pursuant to the terms of Section 13.11(b) or (c), as applicable, or (b) the fair market cash value of the consideration to be paid to the Disposing Member pursuant to the proposed Disposition as determined pursuant to the terms of Section 13.11(a) or (c), as applicable.

FERC — means the Federal Energy Regulatory Commission or any Governmental Authority succeeding to the powers of such commission.

FERC Certificate — means the certificate(s) of public convenience and necessity issued by the FERC.

Financing Commitment — means the definitive agreements between one or more financial institutions or other Persons and the Company or the Financing Entity pursuant to which such financial institutions or other Persons agree, subject to the conditions set forth therein, to lend money to, or purchase securities of, the Company or the Financing Entity, the proceeds of which shall be used to finance all or a portion of the Mainline Facilities or any Additional Transportation Facility or to repay loans made by the Members pursuant to Section 4.02.

Financing Entity — means a corporation, limited liability company, trust, or other entity that may be organized for the purpose of issuing securities, the proceeds from which are to be advanced directly or indirectly to the Company to finance all or a portion of the Mainline Facilities or any Additional Transportation Facility.

First Amended and Restated Agreement — has the meaning set forth in the Recitals.

First Amendment — has the meaning set forth in the Recitals.

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FMV Notice — has the meaning set forth in Section 13.11(c).

Founding Members — means (a) with respect to Series A, EQT, USG and any of their respective Affiliates that are Members of Series A (and any limited partnership or master limited partnership to which such Members’ Membership Interests have been assigned pursuant to Section 3.03(e) or Section 3.03(f) of this Agreement) and (b) with respect to any other Series, each Member designated as such on the applicable Series Schedule and any of their respective Affiliates that are Members of such Series; provided, however, that, in each case, a Member shall automatically cease to constitute a Founding Member or have any of the rights applicable to Founding Members as set forth in this Agreement with respect to such Series from and after the time that such Member and its Affiliates that are Members of such Series collectively own Membership Interests of such Series having a Sharing Ratio with respect to such Series of less than [***]%.

FPL — has the meaning set forth in Section 6.05(f).

GAAP — means United States generally accepted accounting principles.

Gas Transportation Service Agreements — means the gas transportation service agreements by and between the Company or its designee and the Shippers for the transportation of natural gas through the Mainline Facilities or any Additional Transportation Facility.

General Buy-out Right — has the meaning set forth in Section 3.03(b)(v)(A).

General Preferential Right — has the meaning set forth in Section 3.03(b)(ii)(A).

Governmental Authority (or Governmental) — means a federal, state, local or foreign governmental authority; a state, province, commonwealth, territory or district thereof; a county or parish; a city, town, township, village or other municipality; a district, ward or other subdivision of any of the foregoing; any executive, legislative or other governing body of any of the foregoing; any agency, authority, board, department, system, service, office, commission, committee, council or other administrative or regulatory body of any of the foregoing; including the FERC, any Exchange, any court or other judicial body; and any officer, official or other representative of any of the foregoing.

[***]

Indebtedness — means any amount (absolute or contingent) payable by the Company or any Series as debtor, borrower, issuer, guarantor or otherwise, pursuant to (a) an agreement or instrument involving or evidencing money borrowed, the advance of credit, a conditional sale or a transfer with recourse or with an obligation to repurchase; (b) indebtedness of a third party guaranteed by or secured by (or for which the holder of such indebtedness has an existing right, contingent or otherwise, to be secured by) any lien on assets owned or acquired by the Company or any Series, whether or not the indebtedness secured thereby has been assumed; (c) purchase-money indebtedness and capital lease obligations; (d) an interest rate protection agreement, foreign currency exchange agreement or other hedging arrangement; or (e) a letter of credit issued for the account of the Company or any Series.

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Indemnified Body — has the meaning set forth in Section 3.01(h).

Indemnifying Series — has the meaning set forth in Section 3.01(h).

Initial Agreement — has the meaning set forth in the Recitals.

Initial Operating Budget — means, (a) with respect to Series A, an Operating Budget covering the 12-month period following the In-Service Date with respect to the Mainline Facilities, as approved by the Series A Management Committee on February 11, 2015, and (b) with respect to any other Series, an Operating Budget covering the 12-month period following the In-Service Date with respect to such Additional Transportation Facility applicable to such Series, as approved by the applicable Management Committee in connection with the approval of such Additional Transportation Facility, in each case as may be amended from time to time.

Investment Grade — means, with respect to any Person, having debt rated as investment grade by at least two of the three nationally-recognized ratings agencies, being at least [***] for Moody's Investor Services and at least [***] for each of Standard & Poor's and Fitch Ratings.

In-Service Date — means, with respect to a Facility, the date of the placing of such Facility in service.

Law — means any applicable constitutional provision, statute, act (including the Act), code (including the Code), law, regulation, rule, ordinance, order, decree, ruling, proclamation, resolution, judgment, decision, declaration, or interpretative or advisory opinion or letter of a Governmental Authority having valid jurisdiction.

Letter of Credit — means an irrevocable, unconditional, transferable standby letter of credit in form and substance satisfactory to the applicable Management Committee for the benefit of the Company or any Series, issued by a United States bank or a foreign bank with a United States branch, with United States based assets of at least \$10,000,000,000 and a rating of "[***]" or better from Standard & Poor's Ratings Service or a rating of "[***]" from Moody's Investor Service.

Mainline Facilities — means (a) approximately 300 miles of pipeline having a capacity of approximately 2.0 Bcf/day and expected to be 42 inches in diameter and certain compression facilities, as described in the FERC Certificate for such facilities, if and as amended from time to time, together with any upgrades thereto, extending from the tailgate of the MarkWest Mobley plant in Smithfield, West Virginia to Transco Station 165 near Chatham, Virginia; (b) constructing or installing any pipeline that would loop (as such term is commonly used in the natural gas pipeline industry) the facilities described in clause (a) above; (c) installing or upgrading any compression with respect to the facilities described in clause (a) above; and (d) increasing the transportation capacity of the facilities described in clause (a) above through the installation of greater capacity pipe, looping, or similar improvements.

Management Committee — means the Series A Management Committee or any Additional Series Management Committee, as the context requires.

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Management Committee Member — means any Series A Management Committee Member or any Additional Series Management Committee Member, as the context requires.

Material Contracts — means any of the following contracts, agreements, letter agreements or other instruments to which the Company or any Series is or becomes a party after the Effective Date: engineering, procurement and construction contracts, contracts for the construction of the Facilities, contracts for the procurement of pipe, compression and associated equipment and any other contracts that require expenditures by the Company or any Series in excess of [***] Dollars (\$[***]) in the aggregate or provide for revenue to the Company or any Series in excess of [***] Dollars (\$[***]), in each case, subject to the approval of the Management Committee(s) governing matters with respect to the Facility or Facilities to which such contracts, agreements, letter agreements or other agreements relate, in each case in accordance with the applicable provisions of the Series Schedules.

Matured Financing Obligation — means the Company's or a Series' debt for borrowed money (including any related interest, costs, fees, hedge unwind costs or other repayment obligations) that has become due (including by acceleration or any full or partial mandatory repayment thereof) under any Financing Commitment.

Member — means any Person executing this Agreement as of the date of this Agreement as a member of a Series or hereafter admitted to a Series as a member as provided in this Agreement, but such term does not include any Person who has ceased to be a member in the Company. For the avoidance of doubt, a Member must be a Member with respect to at least one Series, and no Person shall own a Membership Interest with respect to the Company only. Members of a Series shall be deemed to be members of the Company for purposes of the Act having such rights, powers and obligations as set forth herein with respect to each Series in which such Member owns a Membership Interest.

Member Nonrecourse Debt — has the meaning assigned to the term “partner nonrecourse debt” in Treasury Regulation Section 1.704-2(b)(4).

Member Nonrecourse Debt Minimum Gain — has the meaning assigned to the term “partner nonrecourse debt minimum gain” in Treasury Regulation Section 1.704-2(i)(2).

Member Nonrecourse Deductions — has the meaning assigned to the term “partner nonrecourse deductions” in Treasury Regulation Sections 1.704-2(i)(1) and 1.704-2(i)(2).

Membership Interests — has the meaning set forth in Section 3.01(a).

Minimum Gain — means, with respect to each Series, (a) with respect to Nonrecourse Liabilities associated with the Series, the amount of gain that would be realized by the Company with respect to the Series if it disposed of (in a taxable transaction) all Company properties with respect to the Series that are subject to the Nonrecourse Liabilities in full satisfaction of the Nonrecourse Liabilities, computed in accordance with Treasury Regulation Section 1.704-2(d), or (b) with respect to each Member Nonrecourse Debt, the amount of gain that would be realized by the Company with respect to the Series if it disposed of (in a taxable transaction) the Company property with respect to the Series that is subject to such Member

Nonrecourse Debt in full satisfaction of such Member Nonrecourse Debt, computed in accordance with Treasury Regulation Section 1.704-2(i).

Necessary Regulatory Approvals — means all Authorizations as may be required (but excluding Authorizations of a nature not customarily obtained prior to commencement of construction of facilities) in connection with (a) the formation of the Company; (b) with respect to the Mainline Facilities, (i) the construction, acquisition and operation of the Mainline Facilities and (ii) the transportation of the natural gas to be transported under the applicable Gas Transportation Service Agreements through the Mainline Facilities, including the FERC Certificate for the Mainline Facilities; and (c) with respect to an Additional Transportation Facility, (i) the construction, acquisition and operation of such Additional Transportation Facility and (ii) the transportation of natural gas to be transported under the applicable Gas Transportation Service Agreements through such Additional Transportation Facility, including the ATF FERC Certificate relating to such Additional Transportation Facility.

Net Profit or Net Loss — means, with respect to any fiscal year or other period and with respect to a Series, the net income or net loss of such Series for such period determined in accordance with U.S. federal income tax accounting principles and Section 703(a) of the Code (including any items that are separately stated for purposes of Section 702(a) of the Code), with the following adjustments (without duplication):

- (a) any income of such Series that is exempt from U.S. federal income tax shall be included as income;
- (b) any expenditures of such Series that are described in Section 705(a)(2)(B) of the Code or treated as so described pursuant to Treasury Regulation Section 1.704-1(b)(2)(iv)(i) shall be treated as current expenses;
- (c) if such Series' assets are distributed to the Members in kind, such distributions shall be treated as sales of such assets for cash at their respective fair market values in determining Net Profit and Net Loss;
- (d) in the event the Book Value of any asset of such Series is adjusted pursuant to a Revaluation Event, the amount of such adjustment shall be taken into account as gain or loss from the disposition of such asset for purposes of computing Net Profit or Net Loss for the fiscal year or other relevant period in which such adjustment occurs;
- (e) to the extent an adjustment to the adjusted tax basis of any asset of such Series pursuant to Section 734(b) of the Code is required pursuant to Treasury Regulation Section 1.704-1(b)(2)(iv)(m)(4) to be taken into account in determining Capital Accounts as a result of a distribution other than in liquidation of a Member's Membership Interest, the amount of such adjustment shall be treated as an item of gain (if the adjustment increases the basis of the asset) or loss (if the adjustment decreases the basis of the asset) from the disposition of the asset and shall be taken into account in computing Net Profit and Net Loss;
- (f) gain or loss resulting from any disposition of any asset of such Series with respect to which gain or loss is recognized for federal income tax purposes shall be computed by

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reference to the Book Value of the asset disposed of, notwithstanding that the adjusted tax basis of such property differs from its Book Value;

- (g) in lieu of the depreciation, amortization and other cost recovery deductions taken into account in computing federal taxable income or loss, there shall be taken into account Book Depreciation for such fiscal year or other period; and
- (h) all items of income, gain, loss or deduction specially allocated pursuant to Section 5.02(b) shall be excluded from the determination of Net Profit or Net Loss.

To the extent Net Profit or Net Loss, or items thereof, are not allocable to any particular Series, such items should be allocated among the various Series by the Series A Management Committee in its discretion.

New Member — means a Person admitted as a Member after the Effective Date pursuant to the terms and conditions of this Agreement.

NGA — means the Natural Gas Act of 1938, as amended.

Non-Changing Founding Member — has the meaning set forth in Section 3.03(b)(v)(D).

Non-Contributing/Loan Member — has the meaning set forth in Section 4.06(a).

Non-Disposing Founding Member — has the meaning set forth in Section 3.03(b)(ii)(A).

Nonrecourse Deductions — has the meaning assigned that term in Treasury Regulation Sections 1.704-2(b) and 1.704-2(c).

Nonrecourse Liabilities — means, with respect to any Series, nonrecourse liabilities (or portions thereof) associated with the Series for which no Member bears the economic risk of loss, as determined under Treasury Regulation Sections 1.704-2(b)(3) and 1.752-1(a)(2).

Operating Budget — means, with respect to a Series, the Initial Operating Budget and each subsequent annual operating budget for the Series that is approved (or deemed approved) by the applicable Management Committee in accordance with this Agreement. Each Operating Budget shall cover all items that are classified as non-capital items under Required Accounting Practices.

Operator — means the Existing Operator and/or any other operator designated under a COM Agreement. The Operator under each COM Agreement shall be the same as the Operator under the Existing COM Agreement unless the Operator under the Existing COM Agreement consents otherwise.

[***]

Operator Preferential Right — has the meaning set forth in Section 3.03(b)(ii)(D).

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Outstanding Capital Contributions — means, with respect to each Series and with respect to any Member as of the time of any determination and with respect to each Series, the excess, if any, of (a) the aggregate Capital Contributions previously made by such Member with respect to the Series, over (b) the aggregate distributions previously made by the Company to such Member with respect to the Series pursuant to Article 5.

Owner Performance Rights — means (a) with respect to the Existing COM Agreement, the matters set forth in Section 4.4 thereto and (b) with respect to any other COM Agreement, any matters designated as “Owner Performance Rights” in the applicable COM Agreement for such Series.

Parent — means (a) with respect to a Member, the Person that directly or indirectly ultimately Controls such Member, as set forth in Schedule I, which shall be promptly updated by a Member upon any change to the identity of such Member’s Parent, or (b) with respect to an Operator, the Person that ultimately Controls such Operator.

Parent Decision Makers — means the chief executive officer of the Parent of each Founding Member with respect to the applicable Series or another senior executive officer designated in writing by the chief executive officer of the Parent of such Founding Members (a copy of which writing to be delivered promptly to the non-delivering Member(s)).

Partnership Representative — has the meaning set forth in Section 8.03(g).

Performance Assurances — has the meaning set forth in Section 4.01(b).

Permitted Encumbrance — means (a) liens for taxes or assessments not yet due or not yet delinquent or, if delinquent, that are being contested in good faith in the normal course of business; (b) easements, rights-of-way, servitudes, permits, surface leases, and other rights in respect of surface operations, pipelines, grazing, logging, canals, ditches, reservoirs or the like, and easements for streets, alleys, highways, pipelines, telephone lines, power lines, railways, and other easements and rights-of-way, on, over or in respect of any properties that do not materially impair the use of the assets of, or the operation of the business of, the Company; and (c) rights reserved to or vested in any municipality or governmental, statutory, or public authority to control or regulate any properties in any manner, and all applicable Laws of any Governmental Authority.

Person — has the meaning assigned that term in Section 18-101(11) of the Act and also includes a Governmental Authority and any other entity.

Precedent Agreement — means any agreement between the Company or a Series and a prospective shipper of natural gas through the Mainline Facilities or any Additional Transportation Facility that involves the commitment by such shipper to pay demand charges in return for a firm transportation obligation on the part of the Company or Series, in each case subject to the satisfaction of one or more conditions precedent.

Preferential Exercise Notice — has the meaning set forth in Section 3.03(b)(ii)(A).

Preferential Purchasing Member — has the meaning set forth in Section 3.03(b)(ii)(A).

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Preferential Right — means, collectively, the General Preferential Right, the Shipper Assignee Preferential Right, the Second Shipper Assignee Preferential Right and the Operator Preferential Right.

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[***]

Project Schedule — means (a) with respect to Series A, a schedule containing milestones and including details to support all major development, engineering, procurement, construction, commissioning and testing activities of the Mainline Facilities during the period prior to the In-Service Date for the Mainline Facilities, as approved by the Series A Management Committee on February 11, 2015, and (b) with respect to each other Series, a schedule containing milestones and including details to support all major development, engineering, procurement, construction, commissioning and testing activities of any Additional Transportation Facility applicable to such Series during the period prior to the In-Service Date for such Additional Transportation Facility, as approved by the applicable Management Committee in connection with the approval of such Additional Transportation Facility, in each case as may be amended from time to time.

Qualified Guarantor — means, with respect to a Member, such Member's Parent or a subsidiary of such Member's Parent, in each case, so long as such Person is Investment Grade.

Quarter — unless the context requires otherwise, means a fiscal quarter of the Company.

Related Party Matter — means (a) any occurrence or circumstance where (i) the Company or a Series, on the one hand, and a Member or an Affiliate of such Member, on the other hand, propose to enter into, terminate, or amend a contract or arrangement with each other, including, without limitation, a Gas Transportation Service Agreement, a Precedent Agreement, a COM Agreement, or any other contract or arrangement, or (ii) any Member believes that a dispute has arisen between the Company or a Series and an Affiliate of any Member under a Gas Transportation Service Agreement, a Precedent Agreement, a COM Agreement, or any other contract or arrangement, or (iii) a matter with respect to enforcement under any such Gas Transportation Service Agreement, Precedent Agreement, COM Agreement, or other contract or arrangement is involved; (b) making any determination as to the suitability of a Qualified Guarantor of a Member or substitution of a successor Qualified Guarantor of such Member; (c) the appointment of any Operator or Shipper that is an Affiliate of a Member; (d) any decision by the Company or a Series to exercise any of Owner Performance Rights under an applicable COM Agreement while an Affiliate of a Member is the Operator under such COM Agreement; or (e) making any determination, not to be unreasonably withheld, with respect to the suitability of an Operator pursuant to clause (b) of the definition of Change of Control.

Representative — means, with respect to a given Management Committee Member, a senior officer of such Management Committee Member identified by such Management Committee Member to the other Management Committee Member(s). The term "**Representative**"

shall also refer to any Alternate Representative that is actually performing the duties of the applicable Representative.

Required Accounting Practices — means the accounting rules and regulations, if any, at the time prescribed by the Governmental Authorities under the jurisdiction of which the Company is at the time operating and, to the extent of matters not covered by such rules and regulations, generally accepted accounting principles as practiced in the United States at the time prevailing for companies engaged in a business similar to that of the Company.

Revaluation Event — has the meaning set forth in [Section 4.05\(b\)](#).

Roanoke — has the meaning set forth in the Preamble, or any permitted transferee of any of Roanoke's Membership Interest pursuant to [Article 3](#) of this Agreement.

Rules — has the meaning set forth in [Section 11.05\(a\)](#).

Second Amended and Restated Agreement — has the meaning set forth in the Recitals.

Second Amendment — has the meaning set forth in the Recitals.

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[***]

[***]

Selection Notice — has the meaning set forth in Section 11.05(c).

Series — has the meaning set forth Section 3.01(c).

Series A Management Committee — has the meaning set forth in Section 2.02 of Schedule I-A.

Series A Management Committee Member — has the meaning set forth in Section 2.01 of Schedule I-A.

Series A Member — mean a Member holding Series A Membership Interests from time to time, in its capacity as such and not in its capacity as the holder of any other Series of Membership Interests.

Series A Membership Interests — has the meaning set forth in Section 3.01(b).

Series Schedule — has the meaning set forth in Section 3.01(d).

Sharing Ratio — means, with respect to a Series and subject in each case to adjustments in accordance with this Agreement or in connection with Dispositions of Membership

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Interests, (a) in the case of a Member executing this Agreement as of the date of this Agreement or a Person acquiring such Member's Membership Interest, the percentage specified for that Member as its Sharing Ratio in respect of the applicable Series on Schedule I with respect to a Series, and (b) in the case of Membership Interests issued pursuant to Section 3.04, the Sharing Ratio in respect of the applicable Series established pursuant thereto; provided that the total of all Sharing Ratios in respect of a particular Series shall always equal 100%. For the avoidance of doubt, Sharing Ratios shall be determined separately with respect to each Series, and each Member's Sharing Ratio(s) shall be determined separately with respect to each Series held thereby.

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[***]

[***]

Shippers — means each Person that (a) has entered into a Gas Transportation Service Agreement with the Company or its designee (or, if applicable, a Precedent Agreement relating thereto) to provide transportation of natural gas through a Facility and (b) meets the criteria for creditworthiness determined by the Management Committee governing matters with respect to such Facility.

Side Letters — means any letter or other agreement entered into between the Company or a Series and a Member or a prospective Member that is related to such Member's or prospective Member's Membership Interest or rights and obligations relating thereto.

Sole Discretion — means, with respect to any Representative, such Representative's sole and absolute discretion, with or without cause, subject to such conditions as such Representative shall deem appropriate and without taking into account the interests of, and without incurring liability to, the Company, any other Member or Representative, or any Affiliate, officer or employee of the Company or any other Member.

Subject Contract — has the meaning set forth in Section 4.07(a).

Supermajority Interest — means (a) with respect to the Company (and not any particular Series) and such other matters as set forth in Section 6.03, and with respect to Series A, the approval of the Representatives of the Series A Founding Members representing greater than [***]% of the Sharing Ratios of the Series A Founding Members in respect of Series A Membership Interests, and (b) with respect to each Additional Series, the approval of the Representatives of the Founding Members of such Additional Series representing greater than [***]% of the Sharing Ratios of such Founding Members in respect of such Additional

Series; provided, however, that, in each case, in the event there are no longer any Founding Members with respect to a Series, “Supermajority Interest” with respect to the applicable Series shall require the approval of the Representatives of the Members of such Series representing greater than [***]% of the Sharing Ratios in respect of such Series.

Target Capital Account Amount — has the meaning set forth in Section 5.02(a).

Tax Matters Member — has the meaning set forth in Section 8.03(a).

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Term — has the meaning set forth in Section 2.07.

Total Event Demand Amount — has the meaning set forth in Section 4.07(b).

Treasury Regulations — means the regulations (including temporary regulations) promulgated by the United States Department of the Treasury pursuant to and in respect of provisions of the Code. All references herein to sections of the Treasury Regulations shall include any corresponding provision or provisions of succeeding, similar or substitute, temporary or final Treasury Regulations.

USG — has the meaning set forth in the Preamble, or any permitted transferee of any of USG’s Membership Interest pursuant to Article 3 of this Agreement.

Vega — has the meaning set forth in the Recitals.

Vega Carryco — has the meaning set forth in the Preamble, or any permitted transferee of any of Vega Carryco’s Membership Interest pursuant to Article 3 of this Agreement.

[***]

WGL — has the meaning set forth in the Preamble, or any permitted transferee of any of WGL’s Membership Interest pursuant to Article 3 of this Agreement.

Withdrawal, or **Withdrawn** — means or refers to the withdrawal, resignation, or retirement of a Member from a Series or the Company. Such terms shall not include any Dispositions of Membership Interests (which are governed by Sections 3.03(a) and (b)), even though the Member making a Disposition may cease to be a Member as a result of such Disposition.

Withdrawn Member — has the meaning set forth in Section 10.03.

Other terms defined herein have the meanings so given them.

1.02 Interpretation. Unless the context requires otherwise: (a) the gender (or lack of gender) of all words used in this Agreement includes the masculine, feminine and neuter; (b) references to Articles and Sections refer to Articles and Sections of this Agreement; (c) references to Exhibits refer to the Exhibits attached to this Agreement, each of which is made a part hereof for all purposes; (d) references to Laws refer to such Laws as they may be amended from time to time, and references to particular provisions of a Law include any corresponding provisions of any succeeding Law; (e) references to money refer to legal currency of the United States of America; (f) the definitions given for terms in this Article 1 and elsewhere in this Agreement shall apply to both the singular and plural forms of the terms defined, (g) the conjunction “or” shall be understood in its inclusive sense (i.e., and/or); (h) the words “hereby”, “herein”, “hereunder”, “hereof” and words of similar import refer to this Agreement as a whole (including any Exhibits and Schedules hereto) and not merely to the specific section, paragraph or clause in which such word appears; and (i) the word “including” and words of similar import when used in this Agreement will mean “including, without limitation,” unless otherwise specified.

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ARTICLE 2 ORGANIZATION

2.01 Formation. The Company has been organized as a Delaware series limited liability company by the filing of the Delaware Certificate and execution of the Initial Agreement as of August 22, 2014.

2.02 Name. The name of the Company is Mountain Valley Pipeline, LLC, and all Company business shall be conducted in that name or such other names that comply with Law as the Series A Management Committee may select.

2.03 Registered Office; Registered Agent; Principal Office in the United States; Other Offices. The registered office of the Company required by the Act to be maintained in the State of Delaware shall be the office of the initial registered agent named in the Delaware Certificate or such other office (which need not be a place of business of the Company) as the Series A Management Committee may designate in the manner provided by Law. The registered agent of the Company in the State of Delaware shall be the initial registered agent named in the Delaware Certificate or such other Person or Persons as the Series A Management Committee may designate in the manner provided by Law. The principal office of the Company in the United States shall be at such place as the Series A Management Committee may designate, which need not be in the State of Delaware, and the Company shall maintain records there or such other place as the Series A Management Committee shall designate and shall keep the street address of such principal office at the registered office of the Company in the State of Delaware. The Company may have such other offices as the Series A Management Committee may designate.

2.04 Purposes. The purposes of the Company are (a) to plan, design, construct, acquire, own, finance, maintain, and operate the Facilities (including through the ownership of equity interests of a Person who owns any Facilities), (b) to market the services of the Facilities, (c) to engage in the transmission of natural gas through the Facilities, (d) to lease any of the Facilities or any capacity thereon, (e) to lease capacity in pipelines or related facilities owned or leased by third parties and (f) to engage in any activities directly or indirectly relating thereto, including the Disposition of any of the Facilities.

2.05 No State Law Partnership. The Members intend that the Company shall be a limited liability company and, except as provided in Article 8 with respect to U.S. federal income tax treatment (and other tax treatment therewith), the Company shall not be a partnership (including a limited partnership) or joint venture, and no Member shall be a partner or joint venture of any other Member, for any purposes, and this Agreement may not be construed to suggest otherwise.

2.06 Foreign Qualification. Prior to the Company's conducting business in any jurisdiction other than Delaware, the Series A Management Committee shall cause the Company to comply, to the extent procedures are available and those matters are reasonably within the control of the Series A Management Committee, with all requirements necessary to qualify the Company as a foreign limited liability company in that jurisdiction. At the request of the Series A Management Committee, each Member shall execute, acknowledge, swear to, and deliver all certificates and other instruments conforming with this Agreement that are strictly necessary to

qualify, continue, and terminate the Company as a foreign limited liability company in all such jurisdictions in which the Company may conduct business; provided, that no such certificate or instrument shall create any liability on behalf of such Member.

2.07 Term. The period of existence of the Company (the "*Term*") commenced on August 22, 2014 and shall end at such time as a certificate of cancellation is filed with the Secretary of State of Delaware in accordance with Section 12.04.

2.08 Title to Property. All assets, property and rights of the Company shall be owned or leased by the Company and all assets, property and rights of each Series shall be owned or leased by such Series, except that the Company shall own or lease assets, property and rights of a Series (a) where the Company is required to own or lease such assets, property, and rights on behalf of such Series in order to comply with applicable Law or (b) as otherwise determined by the Series A Management Committee and the Additional Series Management Committee of such Series, acting together, and, except with respect to assets, property or rights of the Company or any Series leased or licensed to the Company or a Series by a Member (subject to the terms hereof), no Member shall have any ownership interest in such assets, property or rights in its individual name or right, and each Member's Membership Interest shall be personal property for all purposes. Subject to Section 3.01(b), the Company shall hold all assets, property and rights of the Company or any Series in the name of the Company or such Series, as the case may be, and not in the name of any Member.

ARTICLE 3 MEMBERSHIP INTERESTS; DISPOSITIONS OF INTERESTS

3.01 Capital Structure.

(a) The capital structure of the Company shall consist of one or more series of limited liability company interests called “**Membership Interests**,” which shall represent, with respect to any Member and with respect to each Series, (i) that Member’s status as a Member of such Series; (ii) that Member’s share of the income, gain, loss, deduction, and credits of, and the right to receive distributions from, such Series; (iii) any [***] to which that Member is entitled pursuant to Section 4.06(c); (iv) all other rights, benefits, and privileges enjoyed by that Member (under the Act, this Agreement, or otherwise) in its capacity as a Member of such Series, including that Member’s rights to vote, consent, and approve amendments to this Agreement pursuant to Section 13.05; (v) a Member’s rights, if any, to participate in the management of such Series through any Management Committee; and (vi) all obligations, duties, and liabilities imposed on that Member (under the Act or this Agreement or otherwise) in its capacity as a Member of such Series, including any obligations to make Capital Contributions to such Series to the extent set forth in Article 4.

(b) As of the Effective Date, the Membership Interests consist of one Series, referred to as “**Series A Membership Interests**,” provided, that concurrently with the execution hereof an Additional Series referred to as “**Series B Membership Interests**” has been approved by the Series A Management Committee (or the predecessor thereof prior to the execution of this Agreement). Set forth on Schedule I-A are, with respect to each Series A Member, such Series A Member’s name, notice information, Series A Membership Interests, applicable Sharing Ratios,

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Parent, Representatives (if applicable) and certain other information with respect thereto. The information regarding the ownership of Series A Membership Interests set forth on Schedule I-A may be updated by the Series A Founding Members from time to time to reflect certain administrative changes thereto (e.g., changes in the applicable Sharing Ratio upon a Disposition of Series A Membership Interests pursuant to this Agreement or changes to a Series A Member’s contact information) without approval of any other Member.

(c) The Series A Management Committee (or the predecessor thereof prior to the execution of this Agreement, in the case of Series existing on the date of this Agreement) may, in the Sole Discretion of the Representatives thereto, from time to time, authorize additional Series pursuant to Section 18-215(b) of the Act (each, a “**Series**”), and the Additional Series Management Committee of the applicable Additional Series may, subject to and in accordance with Section 3.04, issue Membership Interests of the applicable Additional Series, in connection with Additional Transportation Facilities, each of which Additional Series shall be designated by a sequential letter (e.g., Series B Membership Interests, Series C Membership Interests, etc.) (each, an “**Additional Series**,” and each Member holding a Membership Interest of an Additional Series, in its capacity as such and not in its capacity as the holder of any other Series of Membership Interests, an “**Additional Series Member**”). In connection with the authorization of each Additional Series pursuant to this Section 3.01(c), the Series A Management Committee shall append a new sequential Series Schedule (e.g., Schedule I-B, Schedule I-C, etc.) hereto describing (i) the Additional Transportation Facilities to which such Additional Series relates, (ii) any specific governance rights held by Additional Series Members, including any Management Committee rights with respect to such Additional Series, (iii) obligations, duties and liabilities accruing to each Additional Series Member in respect of the development of the Additional Transportation Facilities to which such Additional Series relates, (iv) any Performance Assurances required to be delivered to the Company by or on behalf of the Additional Series Members, including the timing of the delivery of, and the amount of, such Performance Assurances, and (v) any other rights, benefits, privileges, obligations, duties or liabilities accruing to Members holding Membership Interests of such Additional Series not otherwise provided for in this Agreement. Legal title to any assets allocated to a Series may be held in the name of such Series or in the Company’s name (on behalf of such Series), as may be determined by the Series A Management Committee and the Additional Series Management Committee of such Series, acting together, in accordance with Section 2.08. The Series A Founding Members shall have preemptive rights to acquire their pro rata share of any Membership Interests issued in any Additional Series on such terms as determined by the Series A Management Committee. Each Series A Founding Member’s pro rata share shall be determined based on their Sharing Ratio in Series A then in effect. Except as otherwise provided in this Agreement or otherwise agreed in writing between the Company, upon the approval of the Series A Management Committee, and an applicable Member being granted such right, no Member other than the Series A Founding Members shall have the right to participate in any Additional Series or to be issued Membership Interests of any Additional Series, and any such participation or issuance shall be determined by the Series A Management Committee. For the avoidance of doubt, the provisions of each Series Schedule shall affect only the preferences, rights, powers and duties attributable to Membership Interests of the Series to which such Series Schedule relates and shall not affect Membership Interests of any other Series unless explicitly stated to the contrary.

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(d) Each Series shall have a Facility or Facilities attributable thereto, and all revenues, costs, expenses, liabilities and other similar metrics with respect to such Facility or Facilities shall be attributable only to such Series. Each Series shall also have designated on Schedule I for each such Series (a “**Series Schedule**”) the Facility or Facilities applicable to such Series and

any other information or provisions related to such Series. Subject to applicable Law, each Member hereby fully waives its right to access, receive or otherwise view any Series Schedule pertaining to a Series of which such Member does not own any Membership Interests. Schedule I-A sets forth the Facility or Facilities applicable to Series A Membership Interests and certain other information or provisions related to the Series A Membership Interests. For the avoidance of doubt, the Members agree that all Capital Contributions made prior to the date hereof and other actions, assets, expenses, liabilities and other metrics related to the Mainline Facilities shall be allocated and attributable only to Series A.

(e) Separate and distinct records shall be maintained for each Series and the assets and liabilities associated with each Series shall be held and accounted for separately from the other assets and liabilities of any other Series for all purposes. Each Series may open a separate bank account for such Series. The Membership Interests of each Series shall have the terms, preferences, powers, rights, and obligations as set forth herein and as may be otherwise set forth on the Series Schedule adopted for such Series by the Series A Management Committee or as determined by the Additional Series Management Committee of such Additional Series in accordance with Section 3.04. Each Member shall have such Sharing Ratio in Series A as set forth on Schedule I-A and shall have such Sharing Ratio in each such Additional Series as set forth on any Series Schedule adopted by the Series A Management Committee for such Additional Series with the written resolution authorizing the applicable Additional Series, and this Agreement shall accordingly be amended with each such Additional Series Schedule. The Sharing Ratios set forth on each Series Schedule may be revised upon the issuance of additional Membership Interests by each such Additional Series, in accordance with this Section 3.01(e), Section 3.03(d) and/or Section 3.04. In the case of any such Additional Series that is not treated as a separate partnership for U.S. federal tax purposes (if so determined by the Series A Management Committee), the Series Schedule for such Series shall either provide that any or all of Sections 4.05, 5.02, 5.03, 8.02 or 8.03 hereof do not apply to such Series or shall otherwise provide how such Sections (or any other Sections hereof) are modified with respect to such Series, as agreed to by the Members holding Membership Interests in such Series; provided that, so long as a Series generates, or can reasonably be expected to generate, income for U.S. federal income tax purposes that is or would be exclusively “qualifying income” (as such term is defined pursuant to Section 7704 of the Code), such Series shall not be treated other than as a separate partnership (or disregarded as an entity separate from a separate partnership) for U.S. federal tax purposes. All profits, losses and other items generated by assets allocated to a Series shall inure to the benefit of only the Members holding Membership Interests in such Series in accordance with Section 5.02. Subject to Article 12, a Series may not be terminated and its affairs wound up pursuant to Section 18-215(k) of the Act without the affirmative vote of a Supermajority Interest of the Representatives with respect to such Series.

(f) All debts, liabilities, obligations and expenses incurred, contracted for or otherwise existing with respect to each Series shall be enforceable against the assets of such Series only and not against the assets of the Company generally or any other Series, and none of the debts, liabilities, obligations, or expenses incurred, contracted for, or otherwise existing with respect to

the Company generally or any other Series shall be enforceable against the assets of such Series. Any Person extending credit to, contracting with, or otherwise having any claim against any Series may look only to the assets of that Series to satisfy any such obligation or claim and shall have no claim or right to any assets allocated to or belonging to any other Series or the Company generally. Notice of this limitation on liabilities to Series has been set forth in the Delaware Certificate, and the statutory provisions of Section 18-215 of the Act (and the statutory effect under Section 18-215 of setting forth such notice in the Certificate of Formation) shall be applicable to the Company and each Series that may be established.

(g) To the extent there are any liabilities, obligations or expenses that are applicable to the Company as a whole, the Series A Management Committee shall determine the portion of such liabilities, obligations or expenses to be satisfied, discharged or paid by each Series [***].

(h) In the event that the Company or one or more Series (each, an “*Indemnified Body*”) are made a party to any claim, dispute, or litigation or otherwise incurs any loss or expense as a result of, or in connection with, any obligations or liabilities of any other Series (the “*Indemnifying Series*”), the Indemnifying Series shall indemnify, defend, hold harmless and reimburse each Indemnified Body for such loss, liability, damage, cost and expense to which such Indemnified Body shall become subject (including reasonable attorneys’ and accountants’ fees and expenses).

3.02 Representations, Warranties and Covenants.

(a) Each Member (as of the Effective Date), each New Member (as of such Person’s date of admission as a Member) and each time a Member or New Member becomes a Member of an Additional Series (as of the date such Person becomes a Member of such Additional Series) hereby represents, warrants, and covenants to the Company and to each other Member that the following statements are true and correct:

(i) that such Member is duly incorporated, organized, or formed (as applicable), validly existing, and (if applicable) in good standing under the Law of the jurisdiction of its incorporation, organization, or formation; if required by applicable Law, that such Member is duly qualified and in good standing in the jurisdiction of its principal place of business, if different from its jurisdiction of incorporation, organization, or formation; and that such Member has the requisite power and authority to execute and deliver this Agreement and to perform its obligations hereunder, and all necessary actions by the board of directors, officers, shareholders, managers, members, partners, trustees, beneficiaries, or other applicable Persons necessary for the due authorization, execution, delivery, and performance of this Agreement (including the applicable Series Schedules) by that Member have been duly taken;

(ii) that such Member has duly executed and delivered this Agreement and/or the applicable Series Schedules, as the case may be, and the other documents that this Agreement contemplates that such Member will execute, and they each constitute the valid and binding obligation of such Member enforceable against it in accordance with their respective terms (except as may be limited by bankruptcy, insolvency or similar Laws of

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general application and by the effect of general principles of equity, regardless of whether considered at law or in equity); and

(iii) that such Member's authorization, execution, delivery, and performance of this Agreement and/or the applicable Series Schedules, as the case may be, does not and will not (A) conflict with, or result in a breach, default or violation of, (1) the organizational documents of such Member, (2) any contract or agreement to which that Member is a party or is otherwise subject, or (3) any Law, writ, injunction or arbitral award to which such Member is subject; or (B) other than the ATF FERC Applications and the Necessary Regulatory Approvals that the Members have agreed to obtain pursuant to Article 7 and the applicable Series Schedule, require any consent, approval, or authorization from, filing or registration with, or notice to, any Governmental Authority or other Person, unless such requirement has already been satisfied.

(b) The Company hereby represents and warrants, and the Company covenants, to each Member that the following statements are true and correct as of the Effective Date:

(i) (A) the Company is duly formed and is validly existing, and in good standing under the Act; (B) the Company has full power and authority to execute and deliver this Agreement and to perform its obligations hereunder (including the issuance of the Membership Interests to each Member), and all necessary actions by the Company's managers, members or other applicable Persons necessary for the due authorization, execution, delivery, and performance of this Agreement by the Company have been duly taken; and (C) the Company has, or upon execution had, as applicable, full power and authority to [***];

(ii) the issuance of the Membership Interests to each Member, as contemplated hereby, has been duly authorized by all requisite limited liability company action on the part of the Company and its members, managers or other applicable Persons, and such Membership Interests are validly issued and, subject only to the terms of Article 4, fully paid and nonassessable and, subject to the restrictions in Article 3, are being issued free and clear of any preemptive rights under the Act or other applicable law, the organizational documents of the Company, and any other contract to which the Company or its members, managers or other Person is bound or by which their property is subject;

(iii) no other Person has any right to acquire any Membership Interest or other equity interest in the Company or take part in the management of the Company; and

(iv) other than [***], the Company has not entered into any contract, agreement, or other arrangement with any Person regarding voting rights with respect to the Company.

3.03 Dispositions and Encumbrances of Membership Interests.

(a) **General Restriction.** A Member may not Dispose of or Encumber all or any portion of its Membership Interest except in strict accordance with this Section 3.03. References in this Section 3.03 to Dispositions or Encumbrances of a "Membership Interest" shall also refer to Dispositions or Encumbrances of a portion of a Membership Interest. Any attempted Disposition or Encumbrance of a Membership Interest, other than in strict accordance with this Section 3.03,

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shall be, and is hereby declared, null and void *ab initio*. The rights and obligations constituting a Membership Interest may not be separated, divided or split from the other attributes of a Membership Interest except as contemplated by the express provisions of this Agreement. The Members agree that the provisions of this Section 3.03 may be enforced by specific performance pursuant to Section 11.04.

(b) ***Dispositions of Membership Interests.***

(i) **General Restriction.** Subject to Sections 3.03(d), (e) and (f), no Member may Dispose of its Membership Interest in a Series without the prior written consent of (x) [***] the Series A Management Committee and (y) [***] of the Management Committee of such Series; provided, however, that no such consent shall be required (A) with respect to any Series A Founding Member with respect to any Series in which such Series A Founding Member owns Membership Interests, where such Disposition would not cause the Company or applicable Series to be treated as a publicly traded partnership subject to tax as an association for U.S. federal income tax purposes and (B) with respect to a [***] or any other Member (other than a Series A Founding Member), where such Disposition would not cause any adverse tax consequences to the Company, any Series or any Member, and would not cause the Company or applicable Series to be treated as a publicly traded partnership subject to tax as an association for U.S. federal income tax purposes. Subject to receiving the consent required in the foregoing sentence, if necessary, a Member may Dispose of its Membership Interest only by complying with all of the following requirements: (I) such Member must offer the Series A Founding Members the right to acquire such Membership Interest in accordance with Section 3.03(b)(ii), unless (1) the proposed Assignee is an Affiliate of the Disposing Member or the Representatives of the Series A Founding Members consent to the Disposition to such Assignee, which consent may be granted or withheld in the Sole Discretion of each such Representative or (2) the Disposition is made by EQT or USG in accordance with Sections 3.03(e) or (f); and (II) such Member must comply with the requirements of Section 3.03(b)(iv) and, if the Assignee is to be admitted as a Member, Section 3.03(b)(iii).

(ii) **Preferential Purchase Rights.**

(A) ***Preferential Purchase Rights.*** Subject to Section 3.03(b)(ii)(B), Section 3.03(b)(ii)(C) and Section 3.03(b)(ii)(D), if a Member desires to consummate a bona fide transaction that will result in the Disposition of all or a portion of its Membership Interest in a Series (whether or not the proposed Disposition is to another Member), then such Member (the “***Disposing Member***”) shall promptly give notice thereof (the “***Disposition Notice***”) to the Company and each Series A Founding Member; provided that this Section 3.03(b)(ii) shall not apply to a Disposition to an Affiliate of the Disposing Member or a Disposition in accordance with Section 3.03(d), [***], or Section 3.03(e) or Section 3.03(f). The Disposition Notice shall set forth all relevant information with respect to the proposed Disposition, including the name and address of the prospective acquirer, the precise Membership Interest and Series that is the subject of the Disposition, the price to be paid for such Membership Interest, and any other terms and conditions of the proposed Disposition. If any Member is a

Disposing Member but either or both of EQT and/or USG and their respective Affiliates are not the Disposing Member (such of EQT and/or USG and their respective Affiliates as is not a Disposing Member being referred to herein as the “***Non-Disposing Founding Member(s)***”), such Non-Disposing Founding Member(s) shall have the right (the “***General Preferential Right***”) to acquire, for the same purchase price, and on the same material terms and conditions, as are set forth in the Disposition Notice, some or all of the Membership Interest specified in the Disposition Notice; provided that, if the purchase price to be paid to the Disposing Member pursuant to the proposed Disposition is not entirely in cash, the purchase price for the Non-Disposing Founding Member(s) exercising the General Preferential Right shall be [***]. The Non-Disposing Founding Member(s) shall have [***] Business Days following receipt of the Disposition Notice (or if the price to be paid pursuant to such offer is not in cash, then [***] Business Days following [***], subject to any reasonable and necessary extension to obtain customary board approval, in which to notify the other Members (including the Disposing Member) whether such Non-Disposing Founding Member(s) desires to exercise its General Preferential Right. A notice in which a Non-Disposing Founding Member exercises such General Preferential Right is referred to herein as a “***Preferential Exercise Notice***” and as deliverer of a Preferential Exercise Notice, such Non-Disposing Founding Member is referred to herein as a “***Preferential Purchasing Member.***” The Preferential Purchasing Member(s) shall indicate in a

Preferential Exercise Notice whether the Preferential Purchasing Member(s) elects to purchase all of the Disposing Member's Membership Interest as set forth in the Disposition Notice or a portion thereof. In the event that more than one of EQT or USG (or their respective Affiliates) is a Preferential Purchasing Member, then each Preferential Purchasing Member shall indicate in a Preferential Exercise Notice whether it elects to purchase only its *pro rata* share of the Membership Interest offered in the Disposition Notice (based on its Sharing Ratio in the applicable Series) or whether such Preferential Purchasing Member elects to purchase a greater portion of such Membership Interest (up to the full amount thereof). If the Preferential Purchasing Member(s) elects to exercise the General Preferential Right to purchase the entire Membership Interest offered in the Disposition Notice (subject to proration based on the Preferential Purchasing Members' respective Sharing Ratios in the applicable Series in the event that Preferential Purchasing Members elected to purchase a greater number of Membership Interests than the amount offered), the Disposing Member and the Preferential Purchasing Member(s) shall close the acquisition of the Membership Interest in accordance with Section 3.03(b)(ii)(C). In the event that the Preferential Purchasing Member(s) elect to purchase less than the entire Membership Interest specified in the Disposition Notice, then the Disposing Member shall have the right to Dispose of the remaining amount of the unexercised

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portion of the Membership Interest in accordance with Section 3.03(b)(ii)(C).

(B) [***]

(C) [***]

(D) *Preferential Purchase Right Resulting from Disposition of Membership Interests Held by an Operator.* Notwithstanding the foregoing, for so long as an Operator is an Affiliate of a Member, if the Disposing Member is such Operator and the Assignee of such Disposing Member's Membership Interests is not an Affiliate of such Member (including, for the avoidance of doubt, in the event such Operator is an Affiliate of EQT or EQM, where the Assignee is not an Affiliate of either EQT or EQM), then such Disposing Member shall promptly deliver the Disposition Notice to the Non-Disposing Founding Members that are not Affiliates of such Operator, and such Non-Disposing Founding Members and their Affiliates shall have the right (the "**Operator Preferential Right**") to acquire a portion of the Membership Interests of the Disposing Member for the same purchase price and on the same material terms and conditions as are set forth in the Disposition Notice; provided that, if the purchase price to be paid to the Disposing Member pursuant to the proposed Disposition is not entirely in cash, the purchase price shall be [***]. The Non-Disposing Founding Members and their Affiliates shall have [***] Business Days following receipt of the Disposition Notice (or if the price to be paid pursuant to such offer is not in cash, then [***] Business Days following [***]), subject to any reasonable and necessary extension to obtain customary board approval, in which to notify the Disposing Member whether they desire to exercise the Operator Preferential Right. To the extent a Non-Disposing Founding Member or any of its Affiliates exercises its Operator Preferential Right, such Non-Disposing Founding Member (or its Affiliate) will be deemed a Preferential Purchasing Member. If the Non-Disposing Founding Member or any of its Affiliates elects to exercise the Operator Preferential Right to purchase the entire Membership Interest offered in the Disposition Notice, then the Disposing Member and the Non-Disposing Founding Member (or its Affiliate) shall close the acquisition of the Membership Interest in accordance with Section 3.03(b)(ii)(E). In the event that the Non-Disposing Founding Member (or its Affiliate) elects to purchase less than the entire Membership Interest specified in the Disposition Notice, then the Disposing Member shall have the right to Dispose of the remaining amount of the unexercised portion of the Membership Interest in accordance with Section 3.03(b)(ii)(E).

(E) *Closing.* If the Preferential Rights are exercised in accordance with Section 3.03(b)(ii)(A), 3.03(b)(ii)(B), 3.03(b)(ii)(D), as applicable, the closing of the purchase of the Membership Interest shall occur at the principal place of business of the Company no later than the

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[***] Day after the expiration of the [***]-Day period referred to in Section 3.03(b)(ii)(A), 3.03(b)(ii)(B), 3.03(b)(ii)(C) or Section 3.03(b)(ii)(D), as applicable, subject to such extensions as may be necessary to obtain all applicable Authorizations to the purchase (and in such instance, the fifth Business Day after the receipt of all such applicable Authorizations to the purchase), unless the Disposing Member and the Preferential Purchasing Member(s) agree upon a different place or date. At the closing, (1) the Disposing Member shall execute and deliver to the Preferential Purchasing Member(s) (aa) an assignment of the Membership Interest, in form and substance reasonably acceptable to the Preferential Purchasing Member(s) containing a general warranty of title as to such Membership Interest (including that such Membership Interest is free and clear of all Encumbrances, other than those permitted under Section 3.03(c)(ii)) and (bb) any other instruments reasonably requested by the Preferential Purchasing Member(s) to give effect to the purchase; and (2) the Preferential Purchasing Member(s) shall deliver to the Disposing Member in immediately-available funds the purchase price provided for in Section 3.03(b)(ii)(A), 3.03(b)(ii)(B), 3.03(b)(ii)(C) or Section 3.03(b)(ii)(D), as applicable. The Sharing Ratios in respect of the Series Disposed of and Capital Accounts of the Members shall be adjusted to reflect the effect of the purchase.

(F) *Waiver of Preferential Right.* If no Non-Disposing Founding Member, Diluted Member or Second Preferential Member, as applicable, delivers a notice of exercise of a Preferential Right, or if the Preferential Rights, as applicable, are not exercised in full pursuant to Section 3.03(b)(ii)(A), 3.03(b)(ii)(B), 3.03(b)(ii)(C) or 3.03(b)(ii)(D), the Disposing Member shall have the right, subject to compliance with the provisions of Sections 3.03(a) and (b), to Dispose of the portion of the Membership Interest described in the Disposition Notice that is not purchased pursuant to a Preferential Right, as applicable, to the proposed Assignee strictly in accordance with the terms of the Disposition Notice for a period of [***] Days after the expiration of the [***]-Day period referred to in such Section 3.03(b)(ii)(A), 3.03(b)(ii)(B), 3.03(b)(ii)(C) or Section 3.03(b)(ii)(D) (or, if later, the fifth Business Day after the receipt of all applicable Authorizations to the purchase). If, however, the Disposing Member fails so to Dispose of the Membership Interest within such [***]-Day period (or, if applicable, such fifth Business Day period), the proposed Disposition shall again become subject to the Preferential Rights.

(G) *Transfer of Operator Rights.* In connection with a Disposition of Membership Interests where the rights provided for in this Section 3.03(b)(ii) are not exercised or where such rights are waived pursuant to Section 3.03(b)(ii)(F), the Member with the right to appoint an Operator (which Member shall initially be EQT with respect to the Existing COM Agreement) may transfer such right to appoint such Operator to the assignee of such Membership Interests; provided, however, that, except

with respect to transfers to an Affiliate, any successor Operator appointed by the transferee of such right to appoint such Operator and the Parent of such Operator must have the experience, safety record, creditworthiness, and financial wherewithal generally acceptable within the midstream natural gas industry.

(iii) Admission of Assignee as a Member. An Assignee has the right to be admitted to the Company as a Member, with the Membership Interest in the applicable Series (and attendant Sharing Ratio) so transferred to such Assignee, only if such Disposition is effected in strict compliance with Sections 3.03(a) and (b) or is effected in accordance with Section 3.03(d), [***], or Section 3.03(e) or Section 3.03(f).

(iv) Requirements Applicable to All Dispositions and Admissions. In addition to the requirements set forth in Sections 3.03(b)(i), 3.03(b)(ii) and 3.03(b)(iii), any Disposition of a Membership Interest and any admission of an Assignee as a Member shall also be subject to the following requirements, and such Disposition (and admission, if applicable) shall not be effective unless such requirements are complied with; provided, that any of the following requirements may be waived if such waiver is approved by a Supermajority Interest of both the Representatives of the Series A Management Committee and the Representatives of the Management Committee governing matters relating the Series of Membership Interests being Disposed of (other than clause (A)(4), which shall only require the approval of a Supermajority Interest of the Representatives of the Series A Management Committee), in each case in their Sole Discretion:

(A) *Disposition Documents.* The following documents must be delivered to each Management Committee and must be satisfactory, in form and substance, to such Management Committee in its sole and absolute discretion:

(1) *Disposition Instrument.* A copy of the instrument pursuant to which the Disposition is effected.

(2) *Ratification of this Agreement.* An instrument, executed by the Disposing Member and its Assignee, containing the following information and agreements, to the extent they are not contained in the instrument described in Section 3.03(b)(iv)(A)(1): (aa) the notice address of the Assignee; (bb) if applicable, the Parent of the Assignee; (cc) the Sharing Ratios of the Disposing Member and its Assignee in respect of the Series Disposed of after the Disposition (which together must total the Sharing Ratio(s) of the Disposing Member in respect of the Series Disposed of before the Disposition); (dd) the Assignee's ratification of this Agreement, as modified by any applicable amendment, supplement or side letter hereto, and agreement to be bound by it, and its confirmation that the representations and warranties in Section 3.02 are true and correct with respect to it; (ee) [***] and (ff) representations and warranties by the Disposing Member and its Assignee (1) that the Disposition and admission is being made in accordance with all applicable Laws, (2) that the matter set

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forth in Section 3.03(b)(iv)(A)(3) is true and correct, and (3) that the Disposition and admission do not violate any Financing Commitment or any other agreement to which the Company is a party.

(3) *Securities Law Opinion.* Upon the reasonable request of either such Management Committee, unless the Membership Interest subject to the Disposition is registered under the Securities Act of 1933, as amended, and any applicable state securities Law, a favorable opinion of the Disposing Member's legal counsel, or, if so elected by either such Management Committee, the Company's legal counsel or other legal counsel acceptable to such Management Committee, to the effect that the Disposition and admission is being made pursuant to a valid exemption from registration under those Laws and in accordance with those Laws; provided that no such opinion shall be required in the case of a Disposition by a Member to an Affiliate or a Disposition made in accordance with Section 3.03(d), with respect to [***], or Section 3.03(e) or Section 3.03(f).

(4) *Tax Opinion.* A favorable opinion of the Disposing Member's legal counsel, or, if so elected by the Series A Management Committee, the Company's legal counsel or other legal counsel acceptable to the Series A Management Committee, to the effect that the Disposition is being made to a transferee that either (aa) is not a partnership, grantor trust, or Subchapter S corporation for United States federal income tax purposes, or (bb) is a partnership, grantor trust, or Subchapter S corporation for United States federal income tax purposes that is not part of a tiered arrangement, a principal purpose of which is to permit the Company or applicable Series to satisfy the 100 partner limitation set forth in Treasury Regulation Section 1.7704-1(h)(1)(ii); provided that no such opinion shall be required in the case of a Disposition by a Member to an Affiliate or a Disposition made in accordance with Section 3.03(d), with respect to [***], or Section 3.03(e) or Section 3.03(f).

(B) *Payment of Expenses.* The Disposing Member and its Assignee shall pay, or reimburse the Company for, all reasonable costs and expenses incurred by the Company in connection with the Disposition and admission, including the legal fees incurred in connection with the legal opinions referred to in Section 3.03(b)(iv)(A)(3) and (4), on or before the 10th Day after the receipt by that Person of the Company's invoice for the amount due. The Company will provide such invoice as soon as practicable after the amount due is determined but in no event later than [***] Days thereafter. If payment is not made by the date due, the Person owing that amount shall pay interest on the unpaid amount from the date due until paid at a rate per annum equal to the Default Rate.

(C) *No Release.* No Disposition of a Membership Interest shall effect a release of the Disposing Member from any liabilities to the

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Company or the other Members arising from events occurring prior to the Disposition.

(D) *Indebtedness of Company.* Any Disposition of all or any portion of the Membership Interest of a Member shall also include the Disposition of a proportionate share of the Indebtedness owed by the Company or applicable Series to the Disposing Member relating to the Membership Interests Disposed of. As long as this Agreement shall remain in effect, all evidences of Indebtedness of the Company owed to any of the Members shall bear an appropriate legend to indicate that it is held subject to, and may be Disposed of only in accordance with, the terms and conditions of this Agreement, and that such Disposition may be made only in conjunction with the Disposition of a proportionate part of such Member's Membership Interest. If such Indebtedness was incurred prior to the Effective Date, then such Indebtedness is deemed to have been incurred in connection with the Mainline Facilities and is therefore deemed to relate to Series A Membership Interests, and if such Indebtedness is incurred after the Effective Date, then such Indebtedness shall be deemed to relate to the Series for which such Indebtedness was incurred; provided, that if such Indebtedness applies to the Company as a whole then a portion of such Indebtedness shall be allocated to each Series by the Series A Management Committee.

(v) Change of Control.

(A) *General Buy-out Right.* Subject to Section 3.03(b)(v)(B), Section 3.03(b)(v)(C) and Section 3.03(b)(v)(D), in the event of a Change of Control, then the Member with respect to which the Change of Control has occurred (the "**Changing Member**") shall promptly (and in all events within [***] Business Days after entrance into a definitive agreement providing for a Change of Control) give notice thereof (the "**Control Notice**") to the Company and each Series A Founding Member. If the Control Notice is not given by the Changing Member as provided above and any other Member becomes aware of such Change of Control, such other Member shall have the right to give the Control Notice to the Changing Member, the Company and the other Members. Each of EQT and USG and their respective Affiliates (excluding the Changing Member and its Affiliates) shall have the right (the "**General Buy-out Right**") to acquire the Membership Interest of the Changing Member for [***] on the terms set forth herein. Each of EQT and USG and their respective Affiliates (excluding the Changing Member and its Affiliates) shall have the right (but not the obligation) to acquire all or any portion of the Membership Interest of the Changing Member that is equal to, [***]. Each of EQT and USG and their respective Affiliates (other than the Changing Member) shall have [***] Business Days, subject to any reasonable and necessary extension to obtain customary board approval, following the determination of [***] of such Membership Interest in which to notify each other Member and the

Changing Member whether it desires to exercise its General Buy-out Right. A notice in which EQT and/or USG or their respective Affiliates exercises such General Buy-out Right is referred to herein as a "**Change Exercise Notice**," and a Member that delivers a Change Exercise Notice is referred to herein as a "**Change Purchasing Member**." If, at the end of such [***]-Day period, there remains a portion of the Membership Interest for which such General Buy-out Right has not been exercised (a "**Change Unexercised Portion**"), then the Change Purchasing Members shall have an additional [***]-Day period in which to elect to purchase the remaining Change Unexercised Portion. The Changing Member and the Change Purchasing Members shall close the acquisition of the Membership Interest in accordance with Section 3.03(b)(v)(E). A Member that fails to exercise a right during any applicable period set forth in this Section 3.03(b)(v)(A) shall be deemed to have waived such right for the subject Change of Control, but not any right for future Changes of Control. If none of EQT or USG or their respective Affiliates exercises the General Buy-out Right, the Change of Control shall be effective and the successor in interest to the Changing Member shall be admitted as a Member upon compliance with Section 3.03(b)(iv).

(B) [***]

(C) [***]

(D) *Change of Control of Member That Is an Operator.* Notwithstanding the foregoing, [***].

(E) *Closing.* If the [***].

(F) *Definitions*. As used in this Section 3.03(b)(v), [***].

(c) ***Encumbrances of Membership Interest***. A Member may not Encumber its Membership Interest in a Series, except by complying with one of the following paragraphs:

(i) (A) such Member must receive the consent of [***] with respect to such Series (calculated without reference to the Sharing Ratio of any Founding Member of such Series that is the Encumbering Member), which consent (as contemplated by Section 6.02(f)(ii)) may be granted or withheld in the Sole Discretion of each applicable Representative; and (B) the instrument creating such Encumbrance must provide that any foreclosure of such Encumbrance (or Disposition in lieu of such foreclosure) must comply with the requirements of Sections 3.03(a) and (b); or

(ii) such Encumbrance is required by the terms of a Financing Commitment.

(d) [***]

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(e) ***EQT and Related Assignment Rights***. Notwithstanding anything in this Agreement to the contrary, EQT or its Affiliate that is a Member shall have the right from time to time to sell or assign (i) to EQM, whether or not Controlled by EQT or its then Parent, or (ii) to any limited partnership, master limited partnership, any other Person or arrangement treated as a partnership for U.S. federal income tax purposes, any entity treated as a disregarded entity from any of the foregoing for such purposes or other Person Controlled by EQT or its then Parent all or any part of the Membership Interest of a given Series then held by EQT or such Affiliates (provided that, in either case, if such sale or assignment occurs prior to the In-Service Date with respect to the Mainline Facilities or Additional Transportation Facilities, as applicable, associated with such Series, then, at the time of such sale or assignment, such Assignee provides the Company with replacement Performance Assurances, if applicable, meeting the requirements of Section 4.01(b)), and any such Assignee may further sell or assign such Membership Interest to any such Person, directly or indirectly through multiple sales or assignment among Affiliates, in each case, without any consent from USG or its Affiliates and without triggering any rights or restrictions under, or the provisions of, Section 3.03(b)(ii). EQT or such Affiliate shall promptly provide to the Company and USG copies of the assignment instrument and the ratification instrument associated with each such sale or assignment, and the Members shall amend Schedule I to reflect the Sharing Ratios in respect of such Series set forth in such ratification instrument.

(f) ***USG MLP and Related Assignment Rights***. Notwithstanding anything in this Agreement to the contrary, USG or its Affiliate that is a Member shall have the right from time to time to sell or assign to any limited partnership or master limited partnership or other Person Controlled by USG or its then Parent all or any part of the Membership Interest of a given Series then held by USG or such Affiliates (provided that, in either case, if such sale or assignment occurs prior to the In-Service Date with respect to the Mainline Facilities or Additional Transportation Facilities, as applicable, associated with such Series, then, at the time of such sale or assignment, such Assignee provides the Company with replacement Performance Assurances, if applicable, meeting the requirements of Section 4.01(b)), and any such Assignee may further sell or assign such Membership Interest to any such Person, directly or indirectly through multiple sales or assignments among Affiliates, in each case, without any consent from EQT or its Affiliates and without triggering any rights or restrictions under, or the provisions of, Section 3.03(b)(ii). USG or such Affiliate shall promptly provide to the Company and EQT copies of the assignment instrument and the ratification instrument associated with each such sale or assignment, and the Members shall amend Schedule I (or any applicable sub-schedule thereof) to reflect the Sharing Ratios in respect of such Series set forth in such ratification instrument.

3.04 Creation of Additional Membership Interests. With respect to each Series, Additional Membership Interests may be created and issued to existing Members holding Membership Interests in such Series, on such terms and conditions as [***] of the Management Committee of such Series may determine at the time of issuance. With respect to any Series, Additional Membership Interests may be created and issued to Persons who are not then Members of such Series, who shall thereupon be admitted to such Series as Members of such Series, with the consent of [***] of the Management Committee of such Series and the approval of [***] of the Series A Management Committee, with such Additional Membership Interests having such terms and conditions as [***] of the Management Committee of such Additional Series may determine at the time of admission. The terms of admission or issuance must specify the Sharing Ratios applicable thereto and may provide for the creation of different classes of Members with

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respect to such Series having different rights, powers and duties pursuant to Section 3.01(c). Any such admission is effective only after the New Member has executed and delivered to the Members an instrument containing the notice address of the New Member, the Assignee's ratification of this Agreement and agreement to be bound by it, and its confirmation that the representations and warranties in Section 3.02 are true and correct with respect to it. The provisions of this Section 3.04 shall not apply to Dispositions of Membership Interests or admissions of Assignees in connection therewith, such matters being governed by Sections 3.03(a) and (b).

3.05 Access to Information.

(a) Each Founding Member of a Series shall be entitled to receive any information that it may request concerning such Series; provided that this Section 3.05 shall not obligate the Company, any Management Committee, or an Operator to create any information that does not already exist at the time of such request (other than to convert existing information from one medium to another, such as providing a printout of information that is stored in a computer database), except as otherwise provided in Section 9.02. Each Founding Member of a Series shall also have the right, upon reasonable notice, and at all reasonable times during usual business hours to inspect the properties of the Series and to audit, examine, and make copies of the books of account and other records of the Series to discuss the Series' businesses and financial affairs. Such right may be exercised through any agent or employee of such Founding Member designated in writing by it or by an independent public accountant, engineer, attorney or other consultant so designated. The Founding Member making the request shall bear all costs and expenses incurred in any inspection, examination or audit made on such Founding Member's behalf. The Founding Members of a Series, and if the Operator with respect to the Facilities of such Series is an Affiliate thereof, such Operator agree to cause such Operator to, reasonably cooperate, and to cause their respective independent public accountants, engineers, attorneys or other consultants to reasonably cooperate, in connection with any such request. Confidential Information obtained pursuant to this Section 3.05(a) shall be subject to the provisions of Section 3.06.

(b) Each New Member shall be entitled to receive only the information and reports set forth in Section 9.02. Confidential Information received pursuant to this Section 3.05(b) shall be subject to the provisions of Section 3.06.

3.06 Confidential Information.

(a) Except as permitted by Section 3.06(b), (i) each Member shall keep confidential all Confidential Information and shall not disclose any Confidential Information to any Person, including any of its Affiliates, and (ii) each Member shall use the Confidential Information only in connection with the Facilities and the Company.

(b) Notwithstanding Section 3.06(a), but subject to the other provisions of this Section 3.06, a Member may make the following disclosures and uses of Confidential Information:

- (i) disclosures to another Member or to an Operator in connection with the Company;
- (ii) disclosures and uses that are approved in advance by the Series A Management Committee;

(iii) disclosures that may be required from time to time to obtain requisite Authorizations or financing for the Facilities, if such disclosures are approved in advance by the Series A Management Committee;

(iv) disclosures to an Affiliate of such Member, including the directors, officers, members, managers, employees, agents and advisors of such Affiliate, if such Affiliate has agreed to abide by the terms of this Section 3.06; provided, however, that in no event shall [***];

(v) disclosures to a Person that is not a Member or an Affiliate of a Member, if such Person has been retained by the Company, a Member, or an Operator to provide services in connection with the Company and has agreed to abide by the terms of this Section 3.06;

(vi) disclosures to a bona fide potential direct or indirect purchaser, or parent of such purchaser, of such Member's Membership Interest, if such potential purchaser has executed a confidentiality agreement in form and substance acceptable to the Series A Management Committee;

(vii) disclosures required, with respect to a Member or an Affiliate of a Member, pursuant to (A) the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder, (B) the Securities Exchange Act of

1934, as amended, and the rules and regulations promulgated thereunder, (C) any state securities Laws, or (D) any national securities exchange or automated quotation system; and

(viii) disclosures that a Member is legally compelled to make by deposition, interrogatory, request for documents, subpoena, civil investigative demand, order of a court of competent jurisdiction, or similar process, or otherwise by Law or that a Member makes to a Governmental Authority or regulatory authority pursuant to a regulatory request, examination, or audit; provided that, prior to any such disclosure, such Member shall, to the extent legally permissible:

(A) provide the Series A Management Committee with prompt notice of such requirements so that one or more of the Members may seek a protective order or other appropriate remedy or waive compliance with the terms of this Section 3.06(b)(viii); and

(B) cooperate with the Series A Management Committee and with the other Members in any attempt one or more of them may make to obtain a protective order or other appropriate remedy or assurance that confidential treatment will be afforded the Confidential Information; and in the event such protective order or other remedy is not obtained, or the other Members waive compliance with the provisions hereof, such Member agrees (1) to furnish only that portion of the Confidential Information that, in the opinion of such Member's counsel, such Member is legally required to disclose, and (2) to exercise all reasonable efforts to obtain assurance that confidential treatment will be accorded such Confidential Information.

(c) Each Member shall take such precautionary measures as may be required to ensure (and such Member shall be responsible for) compliance with this Section 3.06 by any of its Affiliates, and its and their directors, officers, employees and agents, and other Persons to which it may disclose Confidential Information in accordance with this Section 3.06.

(d) Promptly after any Withdrawal or Disposition by any Member of all of its Membership Interests pursuant to Sections 3.03 or 10.02, a Withdrawn Member or Disposing Member, as applicable, shall promptly destroy (and provide a certificate of destruction to the Company with respect to), or return to the Company, all Confidential Information in its possession. Notwithstanding the immediately preceding sentence, but subject to the other provisions of this Section 3.06, a Withdrawn Member or Disposing Member may retain for a stated period, but not disclose to any other Person, Confidential Information for the limited purposes of (i) explaining such Member's corporate decisions with respect to the applicable Facilities; (ii) preparing such Member's tax returns and defending audits, investigations and proceedings relating thereto; or (iii) in compliance with such Member's document retention policy; provided that the Withdrawn Member or Disposing Member must notify the Series A Management Committee in advance of such retention and specify in such notice the stated period of such retention.

(e) The Members agree that no adequate remedy at law exists for a breach or threatened breach of any of the provisions of this Section 3.06, the continuation of which unremedied will cause the Company and the other Members to suffer irreparable harm. Accordingly, the Members agree that the Company and the other Members shall be entitled, in addition to other remedies that may be available to them, to immediate injunctive relief from any breach of any of the provisions of this Section 3.06 and to specific performance of their rights hereunder, as well as to any other remedies available at law or in equity, pursuant to Sections 11.03 and 11.04.

(f) The obligations of the Members under this Section 3.06 (including the obligations of any Withdrawn Member) shall terminate on the [***] anniversary following the date on which such Member ceases to be a Member of the Company.

3.07 Liability to Third Parties. No Member or its Affiliates shall be liable for the debts, obligations or liabilities of the Company or any Series.

3.08 Use of Members' Names and Trademarks. The Company, a Series, the Members and their Affiliates shall not use the name or trademark of any Member or its Affiliates in connection with public announcements regarding the Company, or marketing or financing activities of the Company, without the prior written consent of such Member or Affiliate.

ARTICLE 4 CAPITAL CONTRIBUTIONS/LOANS

4.01 Capital Contributions.

(a) **Capital Calls.**

(i) The Management Committee governing with respect to a given Series shall issue or cause to be issued a written request to each Member holding Membership

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Interests of such Series for the making of Capital Contributions in respect of such Series at such times and in such amounts as such Management Committee shall approve or as determined pursuant to Section 4.01(a)(iii) (such written request referred to herein as a “**Capital Call**”) [***]. Capital Contributions shall be made by the Members in accordance with their respective Sharing Ratio(s) applicable to the Series to which the Capital Call relates. Such Capital Contributions shall be made in cash, unless a Supermajority Interest with respect to such Series elects to request non-cash Capital Contributions; provided, that any such Members that do not make such Capital Contributions in kind shall have the right to make such Capital Contributions in cash on a *pro rata* basis. All amounts timely received by the Company pursuant to this Section 4.01 shall be credited to the respective Member’s Capital Account with respect to such Series as of such specified date.

(ii) As to a Construction Budget, an Initial Operating Budget and any Capital Budget associated with any Facility covered by any Approved Precedent Agreement approved by the Management Committee governing matters with respect to such Facility in accordance with the applicable provisions of the Series Schedules, no further approval of [***] shall be required for the Capital Calls required to fund such budget or project as set forth therein, subject to the applicable provisions of the Series Schedules; rather, subject to and in accordance with the applicable COM Agreement, an Operator (in accordance with Section 4.01(a)(i)) shall issue written notices to the Company for such Capital Calls and, subject to the applicable provisions of the Series Schedules, loans from Members, at such times and in such amounts necessary to fund the costs associated with such budget or project.

(iii) In connection with each individual Capital Call, the applicable Management Committee, by the affirmative vote of [***] of the applicable Representatives, will determine what portion (if any) of such funding will be made pursuant to Capital Contributions and what portion (if any) of such funding will be made by loans by the Members to the Company. Upon receipt of each notice issued by an Operator pursuant to Section 4.01(a)(ii), the Company shall issue written requests to each Member, consistent with the determination made pursuant to the preceding sentence, for the making of the Capital Contributions and/or loans required in connection with such notice.

(iv) Each Capital Call shall contain the following information:

(A) The total amount of Capital Contributions or loans requested from Members holding Membership Interests of the applicable Series;

(B) The amount of Capital Contribution or loans requested from the Member to whom the request is addressed, such amount to be in accordance with the Sharing Ratio of such Member in respect of the applicable Series;

(C) The purpose for which the funds are to be applied in such reasonable detail as the applicable Management Committee shall reasonably direct; and

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(D) The date on which payments of the Capital Contribution or loan shall be made (which date shall not be less than 30 Days following the date the Capital Call is given, unless a sooner date is reasonably determined to be necessary by the applicable Management Committee) and the method of payment, provided that such date and method shall be the same for each of the Members holding Membership Interests of the applicable Series.

(v) In the event the Management Committee governing matters with respect to a Facility fails to approve an Operating Budget with respect to such Facility within 30 Days of the submission of such Operating Budget to all of the Representatives on such Management Committee for approval, an Operator with respect to such Facility is authorized, subject to

Section 4.01(a)(ii), to issue a notice to the Members of the applicable Series, for the making of Capital Contributions and/or loans required to fund the costs associated with such Operating Budget in an amount consistent with the Operating Budget most recently approved by such Management Committee of such Series and including costs that do not exceed, for any line item, [***]% of the amount set forth for such line item in such most recently approved Operating Budget.

(vi) Each Member agrees that it shall make payments of its respective Capital Contributions or loans in accordance with Capital Calls issued pursuant to this Section 4.01.

(b) ***Performance Assurances.***

(i) Each Member shall deliver, or cause to be delivered on such Member's behalf to the Company performance assurances ("***Performance Assurances***") at the times and in the amounts specified on the Series Schedule relating to such Series appended by the Series A Management Committee to this Agreement pursuant to Section 3.01(c). Each such Series Schedule is incorporated herein by reference.

(ii) The Company (on behalf of a Series) shall be entitled to draw from the Performance Assurances of such Series in the event a Member fails to make payments of its respective Capital Contributions to such Series in accordance with Capital Calls issued pursuant to this Section 4.01. Unless otherwise specified on a Series Schedule, Performance Assurances shall be permitted to be in the form of one or more of (A) a full and unconditional written guarantee from a Qualified Guarantor, (B) a Letter of Credit or (C) cash collateral (with the ability to substitute from time to time among (A), (B) or (C)). For the avoidance of doubt, a Member's obligation to post Performance Assurances shall expire (and any obligations under any posted Performance Assurances shall terminate) on the applicable In-Service Date.

(c) ***Matured Financing Obligations.*** In addition to the authority granted to the Management Committee governing matters relating to a given Series in the other provisions of this Section 4.01 to issue Capital Calls, if within [***] Days prior to the date any Indebtedness of the Company relating to such Series will become a Matured Financing Obligation (or within [***] Days after any notice of acceleration of any such Indebtedness received prior to the maturity date thereof), (i) such Management Committee has not made a Capital Call for the payment of such amount that is (or is expected to be) a Matured Financing Obligation, and (ii) the Company has

been unable to secure refinancing for such Matured Financing Obligation on reasonably acceptable terms after negotiating in good faith to do so with third-party lender(s), then at any time thereafter, (1) either EQT or USG may, on behalf of such Management Committee, issue a Capital Call for cash in the amount required for the payment of such Matured Financing Obligation, and each Member holding Membership Interests of such Series shall be obligated to pay such Capital Call as provided in this Section 4.01, but such payment shall be made within [***] Days after the date the Capital Call is given (and not the [***]-Day period provided for in Section 4.01(a)(v)); provided that any failure by a Member to make a Capital Contribution with respect to a Capital Call made pursuant to this Section 4.01(c)(1) shall not constitute a Default under or breach of this Agreement; and (2) in the event any Member fails to make a Capital Contribution with respect to a Capital Call made pursuant to Section 4.01(c)(1), on or prior to such [***] Day, then each Founding Member holding Membership Interests of such Series shall have the right, but not the obligation, to pay the portion of the Capital Contribution owed and unpaid to permit the Company to discharge such Matured Financing Obligation. If any such Founding Member elects to pay such Matured Financing Obligation pursuant to Section 4.01(c)(2), then such Founding Member will be deemed to be an Additional Contribution/Loan Member with respect to such payment, and its payment of the Matured Financing Obligation shall be treated, at the election of such Additional Contribution/Loan Member, as one of either: (A) a Capital Contribution or loan resulting in the Additional Contribution/Loan Members receiving [***] or (B) a permanent Capital Contribution that results in an adjustment of the applicable Sharing Ratios of the non-contributing Member and such electing Founding Member in respect of such Series under Section 4.06(d). Notwithstanding anything to the contrary, no Member shall have any obligation to make Capital Contributions in respect of, or otherwise be subject to recourse or liability for, a Matured Financing Obligation under a Financing Commitment relating to a given Series except if such Member holds Membership Interests of such Series.

4.02 Loans.

(a) If pursuant to Section 4.01(a)(iii) a Management Committee of a Series determines as to any individual Capital Call from Members of such Series that all or a portion of such Capital Call shall be made by loans from the Members to such Series, then each Member receiving such Capital Call shall make a loan to the Company with respect to such Series at the time and in the amount and under such terms and conditions as such Management Committee of such Series shall approve by the affirmative vote

of a Supermajority Interest; provided that such Management Committee shall not call for loans rather than Capital Contributions if doing so would breach any Financing Commitment or other agreement of the Company.

(b) All amounts received from a Member after the date specified in Section 4.01(a)(iv) by the Company with respect to a Series pursuant to this Section 4.02 shall be accompanied by interest on such overdue amounts (and the default shall not be cured unless such interest is also received by the Company), which interest shall be payable to the Company with respect to such Series and shall accrue from and after such specified date at the Default Rate. Any such interest paid shall be treated as a penalty and shall not be considered part of the principal of the loan and shall not be repaid by the Company.

(c) In addition to the information required pursuant to Section 4.01(a)(iv), each written request issued pursuant to Section 4.02(a) shall contain all terms concerning the interest

rate, security, seniority, repayment and any other material terms of or otherwise related to such loans; provided that such terms shall be the same for each of the Members receiving such Capital Call.

(d) Each Member agrees that it shall make its respective loans in accordance with requests issued pursuant to this Section 4.02.

4.03 No Other Contribution or Loan Obligations. No Member shall be required or permitted to make any Capital Contributions or loans to the Company with respect to a Series except pursuant to this Article 4.

4.04 Return of Contributions. Except as expressly provided herein, a Member is not entitled to the return of any part of its Capital Contributions or to be paid interest in respect of either its Capital Account or its Capital Contributions. An unreturned Capital Contribution is not a liability of the Company or of any Member. A Member is not required to contribute or to lend any cash or property to the Company to enable the Company to return any Member's Capital Contributions.

4.05 Capital Accounts.

(a) A separate Capital Account shall be established and maintained for each Member with respect to such Member's Membership Interest in each Series. Each Member's Capital Account with respect to each Series shall be increased by (i) the amount of money contributed by that Member to the Company with respect to the Series; (ii) the initial Book Value of property contributed by that Member to the Company with respect to the Series (net of liabilities secured by such contributed property that the Company with respect to the Series is considered to assume or take subject to under Section 752 of the Code); (iii) allocations to that Member of Net Profit and items of income or gain with respect to the Series, including items specifically allocated to such Member with respect to the Series pursuant to Section 5.04(c); and (iv) the amount of any liabilities with respect to the Series assumed by such Member and shall be decreased by (v) the amount of money distributed to that Member by the Company with respect to the Series; (vi) the Book Value of property distributed to that Member by the Company with respect to the Series (net of liabilities secured by such distributed property that such Member is considered to assume or take subject to under Section 752 of the Code); (vii) allocations to that Member of Net Loss and items of loss or deduction with respect to the Series, including items specifically allocated to such Member pursuant to Section 5.04(c) and (viii) the amount of any liabilities of such Member assumed by the Company with respect to the Series. Except as provided in this Section 4.05 with respect to each separate Capital Account established with respect to each Series, a Member who has more than one Membership Interest with respect to the Series shall have a single Capital Account that reflects all such Membership Interests regardless of the time or manner in which such Membership Interests were acquired. Upon the Disposition of all or a portion of a Membership Interest with respect to the Series, the Capital Account with respect to the Series of the Disposing Member that is attributable to such Membership Interest shall carry over to the Assignee in accordance with the provisions of Treasury Regulation Section 1.704-1(b)(2)(iv)(l). The Capital Accounts shall not be deemed to be, nor have the same meaning as, the capital account of the Company under the NGA.

(b) In the discretion of the Management Committee governing with respect to a given Series, the Book Value of the Company's assets with respect to such Series shall be increased or decreased to reflect a revaluation of the property based on the fair market value of the property on the date of adjustment immediately prior to any of the following (each, a "**Revaluation Event**"): (i) the contribution of more than a *de minimis* amount of money or other property to the Company with respect to the Series by a new

or existing Member as consideration for a Membership Interest with respect to the Series or an increase in the applicable Sharing Ratio with respect to the Series, (ii) the distribution of more than a *de minimis* amount of money or other property by the Company with respect to the Series to a Member as consideration for a Membership Interest, or (iii) the liquidation of the Series. Whenever the fair market value of property is required to be determined pursuant to this Agreement (including the preceding sentence), the Operator operating the Facility or Facilities to which such property relates shall propose such a fair market value in a notice to the other Members. If any other Member disagrees with such determination, such Member shall notify the other Members of such disagreement within 10 Business Days of receiving such notice. If such Dispute is not resolved within 5 Business Days after such notice, any Member may submit such Dispute for binding appraisal in accordance with Section 13.11(c) by delivering a FMV Notice to the other Members.

This Section 4.05 is intended to comply with the capital account maintenance provisions of Treasury Regulation Section 1.704-1(b)(2)(iv) and will be applied and interpreted in accordance with such Treasury Regulations.

4.06 Failure to Make a Capital Contribution or Loan.

(a) **General.** If any Member fails to make a Capital Contribution as requested by a Management Committee (but excluding Capital Calls issued on behalf of such Management Committee pursuant to Section 4.01(c)) in a Capital Call validly and timely issued pursuant to Section 4.01 or a loan when required pursuant to Section 4.02(a) (each such Member being a “**Non-Contributing/Loan Member**”), and if such failure continues for more than [***] Days after the date on which it is due, the Members that have contributed their Capital Contribution or made their loan, as applicable, in respect of such Capital Call (each, a “**Contributing/Loan Member**”) may (without limitation as to other remedies that may be available, and in particular such other remedies shall include the right to specifically enforce the obligation of the Non-Contributing/Loan Member to make the required Capital Contribution or loan) thereafter elect to:

(i) treat the Non-Contributing/Loan Member’s failure as a Default by giving notice thereof to the Non-Contributing/Loan Member, in which event the provisions of this Agreement regarding the commission of a Default by a Member shall apply (but if the Capital Call is for the payment of a Matured Financing Obligation, the Default shall be immediate on the giving of such notice and the [***]-Day cure period contemplated in the definition of Default shall not apply); or

(ii) pay the portion of the Capital Contribution owed and unpaid by, or make the loan required from, the Non-Contributing/Loan Member (the “**Additional Contribution/Loan**”) in which event the Contributing/Loan Members that elect to fund the Non-Contributing/Loan Members’ share (the “**Additional Contribution/Loan Members**”) may treat the contribution or loan, as applicable as one of: (A) a Capital Contribution or loan, as

applicable, resulting in the Additional Contribution/Loan Members receiving [***] under Section 4.06(c), or (B) a permanent Capital Contribution that results in an adjustment of Sharing Ratios in respect of the Series to which the Additional Contribution/Loan relates (the “**Applicable Adjustment Series**”) under Section 4.06(d), as determined by the Additional Contribution/Loan Members as set forth below.

Notwithstanding anything to the contrary in this Agreement, if the Contributing/Loan Members make the election pursuant to Section 4.06(a)(ii), the provisions of Section 4.06(c) and Section 4.06(d) will be applied separately with respect to each Series. No Contributing/Loan Member shall be obligated to make either election under clause (i) or clause (ii) above. The decision of the Contributing/Loan Members to elect (i) or (ii) above shall be made by the determination of the Contributing/Loan Members holding [***]% of the applicable Sharing Ratios of all Contributing/Loan Members, but clause (ii) above may not be elected unless at such time of determination there is one or more Additional Contribution/Loan Members. The decision of the Additional Contribution/Loan Members to elect clause (ii)(A) or clause (ii)(B) above shall be made by the determination of the Additional Contribution/Loan Members holding [***]% of the applicable Sharing Ratios of all Additional Contribution/Loan Members. Unless and until such election is made, payment of the Additional Contribution/Loan shall be treated as a Priority Interest under Section 4.06(a)(ii)(A). [***]

(b) **Default.** If the Contributing/Loan Members make the election pursuant to Section 4.06(a)(i) above with respect to a failure to make a Capital Contribution to a Series and the Non-Contributing/Loan Member holds Membership Interests of any other Series, any distributions from the Company with respect to such other Series that would otherwise have been due and payable to the Non-Contributing/Loan Member absent such Non-Contributing/Loan Member’s failure to make such Capital Contribution shall be paid to the Series to which such failure relates until such time as such Series receives an amount equal to the shortfall resulting from such failure.

(c) [***]:

(i) [***]

(ii) [***] shall not alter the Sharing Ratios of the Members, nor shall [***] alter any distributions to the Contributing/Loan Members (in their capacity as Contributing/Loan Members, as opposed to their capacity as Additional Contribution/Loan Members) in accordance with their respective Sharing Ratios. Notwithstanding any provision in this Agreement to the contrary, a Member may not Dispose of all or a portion of [***] except to a Person to whom it Disposes all or the applicable *pro rata* portion of the Membership Interest of the Series to which such Priority Interest relates after compliance with the requirements of this Agreement in connection therewith.

(iii) For so long as any Additional Contribution/Loan Member holds [***] with respect to a Series, neither any Non-Contributing/Loan Member nor its Representative shall have the right to vote its Membership Interest (or Sharing Ratio(s)) under this Agreement with respect to any decision regarding distributions from the Company, and

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any distribution to which such Non-Contributing/Loan Member is entitled with respect to any Series shall be paid [***].

(iv) No Member that is a Non-Contributing/Loan Member may Dispose of its Membership Interest of the Applicable Adjustment Series unless, at the closing of such Disposition, either the Non-Contributing/Loan Member or the proposed Assignee pays [***]. No Assignee shall be admitted to the Company as a Member until compliance with this Section 4.06(c)(iv) has occurred.

(d) **Permanent Contribution.** If the Additional Contribution/Loan Members elect under Section 4.06(a)(ii) to have the Additional Contribution/Loan with respect to a Series treated as a permanent Capital Contribution, then the Sharing Ratios in respect of the Additional Contribution/Loan Members and the Non-Contributing/Loan Member will be automatically adjusted to equal each Member's total Capital Contributions in respect of the Applicable Adjustment Series when expressed as a percentage of all such Members' Capital Contributions (after giving effect to the Capital Contribution made by the Additional Contribution/Loan Members) in respect of such Series.

(e) **Further Assurance.** In connection with this Section 4.06, each Member shall execute and deliver any additional documents and instruments and perform any additional acts that may be necessary or appropriate to effectuate and perform the provisions of this Section 4.06.

(f) **Deemed Non-Contributing/Loan Member.** Notwithstanding anything to the contrary, for purposes of this Agreement the term "Non-Contributing/Loan Member" shall include any Member who (i) fails to duly elect to make a proposed Capital Call under Section 4.01 or a proposed loan pursuant to Section 4.02 and (ii) fails to fund such Capital Call or loan, in each case, to the extent necessary to cover the amount of any Matured Financing Obligation that is to become due within [***] Days or that has become due (by acceleration or otherwise).

4.07 **Credit Assurance.**

(a) Unless otherwise agreed to by [***], if the Series is required to provide a guaranty, letter of credit or other credit support (each a "**Credit Assurance**") to a counterparty under any contract or agreement (including an Approved Precedent Agreement) relating to a Facility approved by the Management Committee governing matters relating to such Facility prior to the In-Service Date of such Facility (each a "**Subject Contract**"), then each Member holding Membership Interests of the Series to which such Facility relates agrees to provide or cause to be provided (on behalf of the Series and within [***] Business Days of the Series' request) to such counterparty the required form of Credit Assurance in an amount equal to the product of (i) the total dollar amount of the obligations for which the Series is required to provide such Credit Assurance, and (ii) such Member's Sharing Ratio in respect of the applicable Series. As to any New Member, if at the time of admittance any Credit Assurance has been provided by the Members holding Membership Interests of the Series held by such New Member, then such New Member shall provide (on behalf of the Series and within [***] Business Days of the Series' request) to the applicable counterparty such Credit Assurance in the same form and in an amount equal to the product of (1) the total dollar amount of obligations for which the Series is required to provide

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such Credit Assurance and (2) such New Member's Sharing Ratio in respect of such Series. Any Credit Assurances posted by the then-current Members shall be reduced to reflect the New Member's Credit Assurances and in accordance with such Member's Sharing Ratio in respect of such Series.

(b) If a breach, default or other event occurs under a Subject Contract and the counterparty thereunder makes a demand or draw on one or more Credit Assurances for such breach, default or other event (a "***Demand Event***"), then a determination will be made as to the total dollar amount demanded or drawn by such counterparty for such Demand Event ("***Total Event Demand Amount***"). [***]

(c) If any Member [***], then such Member [***].

ARTICLE 5 DISTRIBUTIONS AND ALLOCATIONS

5.01 Distributions. With respect to each Series, within [***] Days following the end of each Quarter following the first In-Service Date applicable to the Facilities to which a Series relates, the Management Committee governing matters relating to such Series shall determine the amount of Available Cash with respect to such Series. For each applicable Series, an amount equal to 100% of Available Cash shall, subject to Section 18-607 of the Act, be distributed in accordance with this Article 5 to the applicable Members (other than a Breaching Member) in proportion to their respective Sharing Ratios in respect of such Series (at the time the amounts of such distributions are made); provided, however, that, if such Management Committee fails timely to determine the amount of Available Cash with respect to a Series, an amount equal to [***]% of the Available Cash with respect to the immediately preceding Quarter shall, subject to Section 18-607 of the Act, be distributed in accordance with this Article 5 to the Members (other than a Breaching Member) holding Membership Interests of such Series in proportion to their respective Sharing Ratios with respect to such Series (at the time the amounts of such distributions are made)

5.02 Allocations for Maintaining Capital Accounts.

(a) Except as otherwise provided herein, for purposes of maintaining the Capital Accounts pursuant to Section 4.05, Net Profit and Net Loss (and, to the extent necessary, individual items of income, gain, loss or deduction with respect to each Series) of or with respect to a Series for a fiscal year or other period shall be allocated among the Members with respect to each Series such that the Adjusted Capital Account (determined without regard to clause (b) of the definition of Adjusted Capital Account) balance of each Member with respect to the Series, immediately after making such allocation, and special allocations in Section 5.02(b), is, as nearly as possible, equal proportionately to such Member's Target Capital Account Amount. For these purposes, a Member's "***Target Capital Account Amount***" with respect to a Series equals the amount of distributions that would be made to such Member with respect to the Series pursuant to Section 5.01 if all of the Company's assets with respect to the Series were sold for cash at a price equal to their Book Value, all Company liabilities with respect to the Series were satisfied (limited with respect to each nonrecourse liability within the meaning of Treasury Regulation Section 1.704-2(b)(3) to the Book Value of the assets securing such liability) and all of the remaining assets of the Company with respect to the Series were distributed in accordance with Section 5.01

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to the Members immediately after such hypothetical sale of assets with respect to the Series. For the avoidance of doubt the items described in this Section 5.02 will be allocated to each Series as if such Series were a separate partnership for federal income tax purposes and shall be allocated to the Members associated with each Series on that basis.

(b) Notwithstanding the foregoing provisions of this Section 5.02, the following special allocations will be made:

(i) Nonrecourse Deductions with respect to each Series shall be allocated to the Members in proportion to their Sharing Ratios with respect thereto.

(ii) Member Nonrecourse Deductions with respect to any Series attributable to Member Nonrecourse Debt with respect to the Series shall be allocated to the Members bearing the Economic Risk of Loss for such Member Nonrecourse Debt as determined under Treasury Regulation Section 1.704-2(b)(4). If more than one Member bears the Economic Risk of Loss for such Member Nonrecourse Debt, the Member Nonrecourse Deductions attributable to such Member Nonrecourse Debt shall be allocated among the Members according to the ratio in which they bear the Economic Risk of Loss. This

Section 5.02(b)(ii) is intended to comply with the provisions of Treasury Regulation Section 1.704-2(i) and shall be interpreted consistently therewith.

(iii) Notwithstanding any other provision hereof to the contrary, if there is a net decrease in Minimum Gain with respect to any Series for an allocation period (or if there was a net decrease in Minimum Gain with respect to the Series for a prior allocation period and the Company did not have sufficient amounts of income and gain with respect to the Series during prior periods to allocate among the Members under this Section 5.02(b)(iii), items of income and gain with respect to the Series shall be allocated to each Member in an amount equal to such Member's share of the net decrease in such Minimum Gain (as determined pursuant to Treasury Regulation Section 1.704-2(g)(2)). This Section 5.02(b)(iii) is intended to constitute a minimum gain chargeback under Treasury Regulation Section 1.704-2(f) and shall be interpreted consistently therewith.

(iv) Notwithstanding any provision hereof to the contrary except Section 5.02(b)(iii) (dealing with Minimum Gain), if there is a net decrease in Member Nonrecourse Debt Minimum Gain with respect to any Series for an allocation period (or if there was a net decrease in Member Nonrecourse Debt Minimum Gain with respect to the Series for a prior allocation period and the Company did not have sufficient amounts of income and gain with respect to the Series during prior periods to allocate among the Members under this Section 5.02(b)(iv)), items of income and gain with respect to the Series shall be allocated to each Member in an amount equal to such Member's share of the net decrease in Member Nonrecourse Debt Minimum Gain (as determined pursuant to Treasury Regulation Section 1.704-2(i)(4)). This Section 5.02(b)(iv) is intended to constitute a partner nonrecourse debt minimum gain chargeback under Treasury Regulation Section 1.704-2(i)(4) and shall be interpreted consistently therewith.

(v) Notwithstanding any provision hereof to the contrary except Section 5.02(b)(i) and Section 5.02(b)(ii), no Net Loss or items of loss or deduction with respect to any

Series shall be allocated to any Member to the extent that such allocation would cause such Member to have a deficit Adjusted Capital Account balance (or increase any existing deficit Adjusted Capital Account balance) with respect to the Series at the end of the allocation period. All Net Loss and items of loss or deduction in excess of the limitation set forth in this Section 5.02(b)(v) shall be allocated to the Members with interests in the Series who do not have a deficit Adjusted Capital Account balance in proportion to their relative positive Adjusted Capital Accounts with respect to the Series but only to the extent that such Net Loss and items of loss or deduction do not cause any such Member to have a deficit Adjusted Capital Account balance with respect to the Series.

(vi) If any Member unexpectedly receives any adjustments, allocations or distributions described in Treasury Regulation Sections 1.704-1(b)(2)(ii)(d)(4), (5) or (6) resulting in or increasing an Adjusted Capital Account deficit for such Member with respect to any Series, items of income and gain with respect to the Series will be specially allocated to such Member in any amount and manner sufficient to eliminate, to the extent required by the Treasury Regulation, such Adjusted Capital Account deficit of the Member as quickly as possible; provided, however, that an allocation pursuant to this Section 5.02(b)(vi) shall be made only if and to the extent that such Member would have a deficit Adjusted Capital Account balance with respect to the Series after all other allocations provided for in this Article 5 have been tentatively made as if this Section 5.02(b)(vi) were not in this Agreement. The items of income or gain to be allocated will be determined in accordance with Treasury Regulation Section 1.704-1(b)(2)(ii)(d). This subsection (vi) is intended to qualify and be construed as a "qualifying income offset" within the meaning of Treasury Regulation Section 1.704-1(b)(2)(ii)(d) and will be applied and interpreted in accordance with such Treasury Regulations.

(vii) To the extent that an adjustment to the adjusted tax basis of any Company or Series asset pursuant to Sections 734(b) or 743(b) of the Code is required, pursuant to Treasury Regulation Section 1.704-1(b)(2)(iv)(m)(2) or Treasury Regulation Section 1.704-1(b)(2)(iv)(m)(4), to be taken into account in determining Capital Accounts as a result of a distribution to a Member in complete liquidation of its Membership Interest with respect to any Series, the amount of such adjustment to the Capital Accounts will be treated as an item of gain (if the adjustment increases the basis of the asset) or loss (if the adjustment decreases the basis of the asset), and such gain or loss will be specially allocated to the Members in accordance with Section 5.02(a) in the event that Treasury Regulation Section 1.704-1(b)(2)(iv)(m)(2) applies, or to the Members to whom such distribution was made in the event that Treasury Regulation Section 1.704-1(b)(2)(iv)(m)(4) applies.

5.03 Allocations for Tax Purposes.

(a) Except as provided in Section 5.03(b) and Section 5.03(c) or as otherwise required by the Code or Treasury Regulations, solely for federal income tax purposes, items of taxable income, gain, loss and deduction of the Company with respect to each Series for each fiscal year or other relevant period shall be allocated among the Members in the same manner as each correlative item of “book” income, gain, loss and deduction with respect to the Series is allocated to the Capital Accounts of the Members with respect to the Series pursuant to Section 5.02 and each tax credit shall be allocated to the Members in the same manner as the receipt or expenditure giving rise to such credit is allocated pursuant to Section 5.02.

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(b) Income, gain, loss, and deduction with respect to property contributed to the Company with respect to any Series by a Member or revalued pursuant to Treasury Regulation Section 1.704-1(b)(2)(iv)(f) shall be allocated among the Members in a manner that takes into account the variation between the adjusted tax basis of such property and its Book Value, as required by Section 704(c) of the Code and Treasury Regulation Section 1.704-1(b)(4)(i), using the remedial allocation method permitted by Treasury Regulation Section 1.704-3(d).

(c) Pursuant to Treasury Regulation Section 1.1245-1(e), to the extent the Company with respect to any Series recognizes gain as a result of a sale, exchange or other disposition of Company or Series assets which is taxable as recapture income under Sections 1245 or 1250 of the Code or unrecaptured Section 1250 gain under Section 1(h) of the Code, such recapture income shall be allocated among the Members with respect to the Series in the same proportion as the depreciation and amortization giving rise to such recapture income was allocable among the Members. In no event, however, shall any Member be allocated recapture income hereunder in excess of the amount of gain allocated to the Member under this Agreement. Any recapture income that is not allocated to a Member due to the gain limitation described in the previous sentence shall be allocated among those Members whose shares of total gain on the sale, exchange or other disposition of the property exceed their share of depreciation and amortization attributable to Company or Series assets, in proportion to their relative shares of the total allocable gain.

(d) The Members’ proportionate share of the “excess nonrecourse liabilities,” within the meaning of the Treasury Regulation Section 1.752-3(a)(3) with respect to each Series shall be allocated to the Members holding the Series in proportion to their respective Sharing Ratios with respect thereto.

(e) Allocations pursuant to this Section 5.03 are solely for federal (and, where applicable, state and local) tax purposes and shall not affect, or in any way be taken into account in computing, any Capital Account or share of income, gain, loss and other deduction described in Section 5.02 or distributions pursuant to any provision of this Agreement.

(f) The Members are aware of the income and other tax consequences of the allocations made by this Agreement and hereby agree to be bound by the provisions of this Agreement in reporting their shares of items of income, gain, loss, credit and deduction.

5.04 Varying Interests. All items of income, gain, loss, deduction or credit with respect to each Series shall be allocated, and all distributions shall be made, to the Persons shown on the records of the Company to have been Members with respect to the Series as of the last Day of the period for which the allocation or distribution is to be made. Notwithstanding the foregoing, if during any taxable year there is a change in any Member’s Sharing Ratio with respect to a Series, the Members agree that their allocable shares of such items with respect to the Series for the taxable year shall be determined based on any method determined by the Management Committee of such Series to be permissible under Code Section 706 and the related Treasury Regulations to take account of the Members’ varying Sharing Ratios with respect to the Series.

5.05 Amounts Withheld. The Company is authorized to withhold from payments and distributions to the Members and to pay over to any federal, state or local Governmental Authority

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any amounts required to be so withheld pursuant to the Code or any provisions of any applicable Law and shall allocate such amounts to the Members with respect to which such amounts were withheld. All amounts withheld pursuant to the Code or any provisions of any applicable Law with respect to any payment, distribution or allocation shall be treated for all purposes under this Agreement as amounts paid or distributed pursuant to this Article 5 to the Members with respect to which such amount was withheld. All taxes paid on behalf of such Member pursuant to this Section 5.05 in excess of any distributions otherwise payable to such Member shall, at the option of the Company, (a) be promptly paid to the Company with respect to the applicable Series by such Member or (b) be repaid by

reducing the amount of the current or next succeeding distribution or distributions which would otherwise have been made to such Member or, if such distributions are not sufficient for that purpose, by so reducing the proceeds of liquidation otherwise payable to such Member. Whenever the Company selects option (b) of the preceding sentence, such Member shall for all purposes of this Agreement be treated as having received a distribution under Section 5.01 of the amount of the tax payment. To the fullest extent permitted by law, each Member hereby agrees to indemnify and hold harmless the Company and the other Members from and against any liability for taxes (and related interest, penalties or additions to tax) with respect to income attributable to or distributions or other payments to such Member.

ARTICLE 6 MANAGEMENT

6.01 General. This Article 6 and Schedule I-A provide for the governance of matters relating to the Series A Membership Interests and, except if and to the extent otherwise provided on the applicable Series Schedule with respect to any Additional Series, the Company and, to the extent set forth herein, Additional Series through a “committee of the whole” referred to herein as the “*Series A Management Committee*.” Except as explicitly provided herein and on Schedule I with respect to matters relating to a specific Series, the management of each Series is fully vested in the Series A Management Committee. To facilitate the orderly and efficient management of the Series, the Series A Management Committee shall act (a) collectively as a “committee of the whole” pursuant to Section 6.02 and Article 2 of Schedule I-A, and (b) through the delegation of certain duties and authority to an Operator under a COM Agreement. Subject to the express provisions of this Agreement and, for the avoidance of doubt, except as provided on the applicable Series Schedule, each Member agrees that it will not exercise its authority under the Act to bind or commit the Company or any Series to agreements, transactions or other arrangements, or to hold itself out as an agent of the Company or any Series. This Agreement, including this Article 6, is subject in all respects to the provisions of the Side Letters and any rights set forth on Schedule I that have been approved and adopted in accordance with this Agreement.

6.02 Management Committee. This Article 6 and Schedule I-A provide for the governance of matters relating to the Series A Membership Interests and, except if and to the extent otherwise provided on each Additional Series Schedule with respect to a specific Series, the Company. Additionally, any Series Schedule relating to any Additional Series may provide for the formation of, and governance of matters relating to such Additional Series through, a “committee of the whole” comprised of one or more Representatives of each Member holding Membership Interests of such Additional Series (each such committee, an “*Additional Series Management Committee*,” and each Member entitled to participate in such Additional Series Management Committee at a given time, an “*Additional Series Management Committee Member*”); provided,

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however, that if any such Series Schedule does not provide for the formation of, or governance of matters relating to such Additional Series through, an Additional Series Management Committee, matters relating to such Additional Series shall be governed by the Series A Management Committee subject to any rights set forth on such Series Schedule that have been approved and adopted in accordance with this Agreement. Decisions or actions taken by any Management Committee in accordance with the provisions of this Agreement (for the avoidance of doubt, including any applicable Series Schedule) shall constitute decisions or actions by the Company and shall be binding on each Member, Representative, and employee of the Company. Each Management Committee shall conduct its affairs in accordance with the following provisions and the other provisions of this Agreement:

(a) ***Representatives.***

(i) Authority. Each Representative shall have the full authority to act on behalf of the Management Committee Member that designated such Representative; the action of a Representative at a meeting (or through a written consent) of the applicable Management Committee shall bind the Management Committee Member that designated such Representative; and the other Members of the applicable Series shall be entitled to rely upon such action without further inquiry or investigation as to the actual authority (or lack thereof) of such Representative. In addition, the act of an Alternate Representative shall be deemed the act of the Representative for which such Alternate Representative is acting, without the need to produce evidence of the absence or unavailability of such Representative.

(ii) DISCLAIMER OF DUTIES; INDEMNIFICATION. EACH REPRESENTATIVE SHALL REPRESENT, AND OWE DUTIES TO, ONLY THE MEMBER THAT DESIGNATED SUCH REPRESENTATIVE (THE NATURE AND EXTENT OF SUCH DUTIES BEING AN INTERNAL AFFAIR OF SUCH MEMBER), AND SHALL NOT OWE ANY DUTIES (INCLUDING FIDUCIARY DUTIES) TO THE COMPANY, ANY OTHER MEMBER OR REPRESENTATIVE, OR ANY AFFILIATE, OFFICER, OR EMPLOYEE OF THE COMPANY, ANY OTHER MEMBER, OR ANY OTHER PERSON. THE PROVISIONS OF SECTION 6.04 AND ANY OTHER APPLICABLE DISCLAIMERS OF

DUTIES SET FORTH ON SCHEDULE I SHALL ALSO INURE TO THE BENEFIT OF EACH MEMBER'S REPRESENTATIVE. THE COMPANY SHALL INDEMNIFY, PROTECT, DEFEND, RELEASE AND HOLD HARMLESS EACH REPRESENTATIVE FROM AND AGAINST ANY CLAIMS ASSERTED BY OR ON BEHALF OF ANY PERSON (INCLUDING ANOTHER MEMBER), OTHER THAN THE MEMBER THAT DESIGNATED SUCH REPRESENTATIVE, THAT ARISE OUT OF, RELATE TO, OR ARE OTHERWISE ATTRIBUTABLE TO, DIRECTLY OR INDIRECTLY, THE COMPANY OR SUCH REPRESENTATIVE'S SERVICE ON ANY MANAGEMENT COMMITTEE.

(iii) **Attendance.** Each Management Committee Member shall use all reasonable efforts to cause its Representative or Alternate Representative to attend each meeting of the Management Committee(s) of which it is a member, unless its Representative is unable to do so because of a "force majeure" event or other event beyond his reasonable control, in which event such Management Committee Member shall use all reasonable efforts

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to cause its Representative or Alternate Representative to participate in the meeting by telephone pursuant to Section 6.02(e).

(b) **Secretary.** A Management Committee may designate a Secretary of such Management Committee, who need not be a Representative or an employee of a Member or any Affiliate thereof.

(c) **Procedures.** The Secretary, or if no Secretary has been appointed, a person designated in writing by the Representatives, of a Management Committee shall maintain written minutes of each meeting held by such Management Committee. A Management Committee may adopt whatever rules and procedures relating to its activities as it may deem appropriate, provided that such rules and procedures shall not be inconsistent with or violate the provisions of this Agreement and the applicable Series Schedule.

(d) **Action by Written Consent.** Any action required or permitted to be taken at a meeting of a Management Committee may be taken without a meeting, without prior notice, and without a vote if a consent or consents in writing, setting forth the action so taken, is signed by the Representatives of the Management Committee Members acting through such Management Committee that could have taken the action at a meeting of such Management Committee.

(e) **Meetings by Telephone.** Representatives may participate in and hold such meeting by means of conference telephone, videoconference or similar communications equipment by means of which all persons participating in the meeting can hear each other. Participation in such a meeting shall constitute presence in person at such meeting, except where a Representative participates in the meeting for the express purpose of objecting to the transaction of any business on the ground that the meeting is not lawfully called or convened.

(f) **Subcommittees.** A Management Committee may create such subcommittees, and delegate to such subcommittees such authority and responsibility, and rescind any such delegations, as it may deem appropriate.

(g) **Officers.** The Series A Management Committee may designate one or more Persons to be officers of the Company. Any officers so designated shall have such titles and, subject to the other provisions of this Agreement, have such authority and perform such duties as the Series A Management Committee may delegate to them and shall serve at the pleasure of the Series A Management Committee and report to the Series A Management Committee.(1)

6.03 Certain Approval Matters.

(a) Notwithstanding any other provision of this Agreement, none of the following actions may be taken by, or on behalf of, the Company or any Series without first obtaining the approval of [***] the Representatives of the Series A Management Committee:

(i) with respect to the Company and each Series, conducting any activity or business that, in the reasonable judgment of the Existing Operator, acting in good

(1) Note to Draft: Discussion regarding appointment of officers for each Series ongoing.

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faith, may generate income for federal income tax purposes that may not be “qualifying income” (as such term is defined pursuant to Section 7704 of the Code) in excess of 5% of the gross income of the Company or such Series;

- (ii) any material tax elections or any material decisions relating to material tax returns pertaining to Series A, the Company as a whole or more than one Series, in each case, as determined in the reasonable judgment of the Existing Operator, acting in good faith;
- (iii) [***]
- (iv) selecting a different name for the Company, or making any change to the principal nature of the business of the Company;
- (v) approving accounting procedures for any Series in accordance with GAAP, or voluntarily changing or terminating the appointment of such Series’ accountants;
- (vi) on the occurrence of a Dissolution Event, the designation of a Member or other Person to serve as liquidator pursuant to Section 12.02 of the Agreement;
- (vii) the commencement, conduct or settlement of any suit, action or proceeding or arbitration involving the Company, in each case to the extent involving in excess of \$[***];
- (viii) termination of any Series pursuant to Section 12.01 of the Agreement;
- (ix) causing or permitting the Company or any Series to become Bankrupt (but this provision shall not be construed to require any Member to ensure the profitability or solvency of the Series);
- (x) causing or permitting the Company or any Series to merge, consolidate or convert into any other entity;
- (xi) approving any Additional Transportation Facility;
- (xii) approving Series Schedules to this Agreement relating to an Additional Series and the Additional Transportation Facility to which such Additional Series relates, including (A) the Members holding Membership Interests of such Additional Series and their respective Sharing Ratios in respect of such Additional Series, (B) any specific governance rights held by Additional Series Members thereunder, including any Management Committee with respect to such Additional Series, and (C) any Performance Assurances required to be delivered to the Company by or on behalf of such Additional Series Members, including the timing of the delivery of, and the amount of, such Performance Assurances; and
- (xiii) entering into, amending in any material respect, or terminating any Side Letter, or approving of the assignment of a Side Letter in accordance with the terms thereof, including any modifications thereto in connection with such assignment; provided,

however, that if such Side Letter or amendment thereof affects the terms of the Membership Interests of a Member in such a manner that such Side Letter or amendment would have required such Member’s approval pursuant to the terms of Section 13.05 of this Agreement or the applicable provisions of the Series Schedule relating to such Membership Interests had such Side Letter been effected as an amendment or modification of this Agreement or such Series Schedule, then such Side Letter or amendment thereof shall require such Member’s approval in accordance with the provisions of Section 13.05 of this Agreement or the comparable provision of such Series Schedule, as applicable.

(b) In any matter proposed to the Series A Management Committee pursuant to Sections 6.03(a)(i), (ii), and (v) (but only with respect to matters relating to internal accounting procedures) and (vii), the Representatives of USG and its Affiliates shall not unreasonably grant or withhold their vote, consent or approval.

(c) Notwithstanding any other provision of this Agreement or any Series Schedule but subject to the approval of a Supermajority Interest of the Representatives of the Series A Management Committee, one Series may use or expand (including

any expansion described in clauses (b)-(d) in the definition of “Mainline Facilities”) the assets of another Series without the approval of the Members or Management Committee of such other Series; provided that any such use or expansion is pursuant to arm’s-length terms and conditions and does not adversely affect the interests of the Members of such other Series as then in effect in such assets. The Series A Management Committee shall use its good faith efforts to allocate the benefits and liabilities with respect to such assets among the Series in proportion or relation to their use thereof. Without limiting the generality of the foregoing and by way of example only, subject to only the approval required pursuant to this Section 6.03(c), the Facilities of one Series (such Facilities, the “*Affected Facilities*”) may be expanded to increase the capacity of the Affected Facilities in order to permit the flow of commodities from upstream of the Affected Facilities to the Facilities of another Series that are located downstream of the Affected Facilities, with the benefits and liabilities of the original capacity inuring to the Series owning the Affected Facilities and the benefits and liabilities of the increased capacity inuring with respect to the Series owning the downstream Facilities.

6.04 No Duties; Disclaimer of Duties. Each Member acknowledges its express intent, and agrees with each other Member for the mutual benefit of all the Members, that

(a) to the fullest extent permitted by applicable Law, no Member, in its capacity as Member, nor any of such Member’s or any of its Affiliates’ respective employees, agents, directors, managers or officers shall have any fiduciary duty to the Company, any Series, any other Member or Representative or any other Person in connection with the business and affairs of the Company or Series or any consent or approval given or withheld pursuant to this Agreement; provided, however, that nothing herein shall eliminate the implied contractual covenant of good faith and fair dealing;

(b) to the fullest extent permitted by applicable Law, no Representative, in such Person’s capacity as a Representative, shall have any fiduciary duty to the Company, any Series, any Member (other than the Member that designated such Representative), any other Representative, or any other Person in connection with the business and affairs of the Company or Series or any consent or approval given or withheld pursuant to this Agreement; provided, however,

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that nothing herein shall eliminate the implied contractual covenant of good faith and fair dealing; and

(c) the provisions of this Section 6.04 will apply for the benefit of each Member, and no standard of care, duty, or other legal restriction or theory of liability shall limit or modify the right of each Member to act and direct its Representative to vote in the manner determined by the Member that designated such Representative in its Sole Discretion.

To the maximum extent permitted by applicable Law, each Member hereby releases and forever discharges each other Member and such other Member’s Representative from all liabilities that such other Member or its Representative might owe, under the Act or otherwise, to the Company, the releasing Member, or such releasing Member’s Representative on the ground that any decision of that other Member or such other Member’s Representative to grant or withhold any vote, consent or approval constituted the breach or violation of any standard of care, any fiduciary duty or other legal restriction or theory of liability applicable to such other Member or its Representative; provided, however, that nothing herein shall eliminate any Member’s liability for any act or omission that constitutes a bad faith violation of the implied contractual covenant of good faith and fair dealing. Notwithstanding anything in this Agreement to the contrary, nothing in this Section 6.04 shall limit or waive any claims against, actions, rights to sue, other remedies or other recourse of the Company, any Series, any Member or any other Person may have against any Member, Representative or employee of the Company or any Series for a breach of contract claim relating to any binding agreement (including this Agreement).

6.05 Business Opportunities.

(a) During the Term, except as otherwise provided in any applicable COM Agreement, any project involving the planning, design, construction, acquisition, ownership, maintenance, or operation of the Facilities may be conducted only by the Company through a Series and not by any Member or any Affiliate of a Member.

(b) A Member and each Affiliate of a Member may engage in and possess interests in other business ventures of any and every type and description, independently or with others, including ones in competition with the Company, with no obligation to offer to the Company, any other Member or any Affiliate of another Member the right to participate therein. Subject to the approval of the Series A Management Committee in accordance with Schedule I-A, the Company may transact business with any Member or Affiliate thereof. Without limiting the generality of the foregoing, the Members recognize and agree that their respective Affiliates currently engage in certain activities involving natural gas and electricity marketing and trading (including futures, options, swaps, exchanges of future positions for physical deliveries and commodity trading), gathering, processing, storage, transportation and distribution, electric generation, development and ownership, as well as other commercial activities related to natural gas and that these

and other activities by Members' Affiliates may be based on natural gas that is shipped through the Facilities or otherwise made possible or facilitated by reason of the Company's activities (herein referred to as "*Affiliate's Outside Activities*"). No Affiliate of a Member shall be restricted in its right to conduct, individually or jointly with others, for its own account any Affiliate's Outside Activities, and no Member or its Affiliates shall have any duty or obligation, express or implied, fiduciary or otherwise, to account to, or to share the results or profits

of such Affiliate's Outside Activities with, the Company, any other Member or any Affiliate of any other Member, by reason of such Affiliate's Outside Activities. The provisions of this Section 6.05(b), Sections 6.02(a)(ii), 6.04, 6.05(d), 6.05(e) and 6.07(a) and any other applicable disclaimers of duties set forth on Schedule I constitute an agreement to modify or eliminate, as applicable, fiduciary duties pursuant to the provisions of Section 18-1101 of the Act.

(c) Subject to Section 6.05(a) and (b), each Member:

(i) renounces in advance each and every interest or expectancy it or any of its Affiliates might be considered to have under the Act, at common law or in equity by reason of its membership in the Company in any business opportunity, or in any opportunity to participate in any business opportunity, in any business or industry in which any other Member or its Affiliates now or in the future engages, which is presented to the Company, to any other Member or any of its Affiliates or to any present or future partner, member, director, officer, manager, supervisor, employee, agent or representative of the Company or of any other Member or any of its Affiliates; and

(ii) waives and consents to [***].

(d) Subject to Section 6.05(a) and (b), the Company:

(i) renounces in advance each and every interest or expectancy it might be considered to have under the Act, at common law or in any business opportunity, or in any opportunity to participate in any business opportunity, in any business or industry in which any Member or any of its Affiliates now or in the future engages, which is presented to such Member or any of its Affiliates or to any present or future partner, member, director, officer, manager, supervisor, employee, agent or representative of such Member or any of its Affiliates; and

(ii) waives and consents to [***].

(e) Notwithstanding any other provision in this Agreement or the Series Schedules, the Representative of a Founding Member who is, or whose Affiliate is, involved in a Related Party Matter [***].

(f) [***]

(g) [***]

6.06 **Insurance Coverage.**

(a) **Operator Insurance.** Pursuant to each COM Agreement, the applicable Operator is required to carry and maintain or cause to be carried and maintained certain liability insurance coverages.

(b) **Claim for Property Loss or Damage.** In the event of actual loss or damage to a Series' property or any incident reasonably anticipated to give rise to a claim for loss or damage to the Series' property, the Series shall promptly provide written notice to the Members

holding Membership Interests of the Series to which such property relates of such loss, damage or incident. The Series shall take all actions necessary to provide proper and timely notification to its insurers of such loss, damage or incident. The Series shall be responsible for the preparation, submittal and negotiation of all insurance claims related to any loss, damage or incident involving the Series' property. The Members of such Series each agree to use all reasonable efforts to cooperate with each other and the Series in the

preparation, submittal and negotiation of all such claims by the Series, including, but not limited to, the assignment of adjusters and the provision and exchange of information related to any loss, damage or incident involving the Series' property.

(c) **Directors' and Officers' Liability.** Each Member shall carry and maintain Directors' and Officers' Liability insurance covering its own respective persons who are serving as officers, directors, Representatives or Management Committee members of a Series. Each Member shall also be responsible for insuring its respective Membership Interest in a Series for securities claims against such Series.

6.07 Indemnification.

(a) Subject to Section 6.07(b), to the fullest extent permitted by the Act, each Series shall indemnify and hold harmless each Representative and each Member and the managers, officers, directors, stockholders, partners, members, managers, employees, affiliates, representatives and agents of such Member, as well as each officer, employee, representative, and agent of such Series (individually, a "**Covered Person**") from and against any and all Claims in which the Covered Person may be involved, or threatened to be involved, as a party or otherwise, by reason of the fact that he or it is a Covered Person or which relates to or arises out of the Series or its property, business or affairs. A Covered Person shall not be entitled to indemnification under this Section 6.07(a) with respect to (i) any Claim with respect to which such Covered Person has engaged in fraud, willful misconduct, bad faith, or gross negligence or breach of this Agreement; or (ii) any Claim initiated by such Covered Person unless such Claim (A) was brought to enforce such Covered Person's rights to indemnification pursuant to this Section 6.07(a) or (B) was authorized or consented to by the Management Committee of such Series. Expenses incurred in defending any Claim by (y) a Representative or Member or any manager, officer, director, stockholder, partner, member, manager, or affiliate of any Member shall be paid by the Series and (z) any other Covered Person may be paid by the Series, but only upon the prior written approval of the Management Committee of such Series in its sole and absolute discretion, upon such terms and conditions, if any, as such Management Committee deems appropriate, in each case, in advance of the final disposition of such Claim upon receipt by the Series of an undertaking by or on behalf of such Covered Person to repay such amount if it shall be ultimately determined that such Covered Person is not entitled to be indemnified by the Series as authorized by this Section 6.07(a).

(b) Notwithstanding the obligations of the Series pursuant to Section 6.07(a) and subject to Section 6.07, each Member shall indemnify, protect, defend, release and hold harmless the Company, each Series and each other Member, its Representative, its Affiliates, and its and their respective directors, officers, trustees, employees and agents from and against any Claims asserted by or on behalf of any Person (including another Member) that result from a breach by the indemnifying Member of this Agreement (including any breach of a representation made by such Member in this Agreement; provided that this Section 6.07(b) shall not (i) apply to any

Claim or other matter for which a Member (or its Representative) has no liability or duty, or is indemnified or released, pursuant to Section 6.02(a)(ii), 6.04, 6.05(c) or 6.05(d) or any other disclaimers of duties set forth on Schedule I or (ii) cover or include any special, consequential, punitive or exemplary damages, except in the case where the indemnified Person is legally obligated to pay such damages to another Person pursuant to a Claim.

6.08 Limitation on Liability. EXCEPT IN CONNECTION WITH INDEMNIFICATION OBLIGATIONS ARISING FROM AN ACTION OR PROCEEDING BROUGHT BY A THIRD PARTY FOR AMOUNTS PAID OR OWING TO SUCH THIRD PARTY, EACH MEMBER AGREES THAT NO MEMBER SHALL BE LIABLE UNDER THIS AGREEMENT FOR EXEMPLARY, INDIRECT, INCIDENTAL, CONSEQUENTIAL, SPECIAL OR PUNITIVE DAMAGES WHICH IN ANY WAY ARISE OUT OF, RELATE TO, OR ARE A CONSEQUENCE OF, ITS PERFORMANCE OR NONPERFORMANCE HEREUNDER, OR THE PROVISION OF OR FAILURE TO PROVIDE ANY SERVICE HEREUNDER, INCLUDING, BUT NOT LIMITED TO, LOSS OF FUTURE PROFITS, BUSINESS INTERRUPTIONS, AND LOSS OF CUSTOMERS, WHETHER SUCH DAMAGES ARE ASSERTED IN AN ACTION BROUGHT IN CONTRACT, IN TORT OR PURSUANT TO SOME OTHER THEORY, AND WHETHER THE POSSIBILITY OF SUCH DAMAGES WAS MADE KNOWN OR WAS FORESEEABLE.

ARTICLE 7 DEVELOPMENT OF ADDITIONAL TRANSPORTATION FACILITIES

7.01 Employee Matters. To facilitate placing a Facility assigned to a Series in service, a Founding Member that is not, or does not have an Affiliate that is, the Operator with respect to such Facility shall have the right to have one employee located in such Operator's primary place of business with respect to such Facility and any construction or engineering site until the In-Service Date for such Facility and such employee shall have access to all construction and engineering offices related to such Facility and shall be

permitted to review, examine, and copy the books, records, plans, reports, forecasts, studies, budgets, and other information related to such Facility.

7.02 General Regulatory Matters.

(a) The Members acknowledge that either the Company will be a “natural gas company” as defined in Section 2(6) of the NGA or the assets of the Company will be operated by a “natural gas company” as defined in Section 2(6) of the NGA in accordance with the certificate of authority granted by the FERC.

(b) Each Member shall (i) cooperate fully with the Company, any Management Committee, USG, EQT, and the applicable Operator in securing the Necessary Regulatory Approvals, including supporting all ATF FERC Applications, and in connection with any reports prescribed by the FERC and any other Governmental Authority having jurisdiction over the Company; (ii) join in any eminent domain takings by the Company, to the extent, if any, required by Law; and (iii) without limiting or modifying Section 6.04 or 6.05, devote such efforts as shall be reasonable and necessary to develop and promote the Facilities for the benefit of the Company, taking into account such Member’s Sharing Ratio(s), resources, and expertise.

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ARTICLE 8 TAXES

8.01 Tax Returns. Except as otherwise required by any final Treasury Regulations, each Member, each Series and the Company shall treat each Series as an entity formed under local law for federal (and, where applicable, state and local) tax purposes and shall file tax returns for or with respect to each Series accordingly. The Existing Operator, or any successor Operator appointed in accordance with this Agreement, shall prepare and timely file (on behalf of the Company and any such Series) all federal, state and local tax returns required to be filed by the Company or with respect to such Series; provided that so long as USG is a Founding Member to which a material tax return relates, USG shall have the right to review and comment on such material return at least 25 Days prior to the relevant due date for such return (which return may be provided to USG in draft form) and that the Existing Operator (or such successor Operator) shall include any such timely received comments as are reasonable, subject to applicable Law and to any ethical obligations of a return preparer. Each Member shall furnish to the Existing Operator (or such successor Operator) all pertinent information in its possession relating to the Company’s operations and the operations of each Series that is necessary to enable the such tax returns to be timely prepared and filed. The Company shall bear the costs of the preparation and filing of its returns.

8.02 Tax Elections. The Company or each Series shall make, or has made, the following elections on the appropriate tax returns:

- (a) to adopt the calendar year as the Company’s and each Series’ fiscal and taxable year;
- (b) to adopt the accrual method of accounting;
- (c) to make the election described in Code Section 754 with respect to the first taxable year of the Company and each Series;
- (d) to elect to deduct or amortize the organizational expenses of the Company and each Series in accordance with Section 709(b) of the Code and to depreciate property pursuant to the most rapid depreciation or cost recovery method available; and
- (e) any other election the Series A Management Committee may deem appropriate or that the Existing Operator (or such successor Operator) is permitted to make without Management Committee approval in accordance with Section 6.03(a)(ii) and the provisions of any applicable Series Schedule.

Notwithstanding the foregoing, however, none of the Company, any Series or any Member shall make an election for the Company or any Series to be excluded from the application of the provisions of subchapter K of chapter 1 of subtitle A of the Code or elect for the Company or any Series to be treated as an association taxable as a corporation or any similar provisions of applicable state law and no provision of this Agreement shall be construed to sanction or approve such an election.

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8.03 Tax Matters Member.

(a) EQT shall serve as the “tax matters partner” of the Company and each Series pursuant to Section 6231(a)(7) of the Code, as in effect prior to amendment by the Bipartisan Budget Act of 2015 (the “**Tax Matters Member**”). The Tax Matters Member shall take such action as may be necessary to cause to the extent possible each other Member to become a “notice partner” within the meaning of Section 6223 of the Code prior to amendment by the Bipartisan Budget Act of 2015. The Tax Matters Member shall inform each other Member of all significant matters that may come to its attention in such capacity by giving notice thereof on or before the fifth Business Day after becoming aware thereof and, within that time, shall forward to each other Member copies of all significant written communications it may receive from a taxing authority in that capacity. If the Tax Matters Member ceases to be the Tax Matters Member, the Series A Management Committee shall appoint a successor Tax Matters Member.

(b) The Tax Matters Member shall provide any Member, upon reasonable request, access to accounting and tax information and schedules obtained thereby solely in such capacity as shall be necessary for the preparation by such Member of its income tax returns and such Member’s tax information reporting requirements.

(c) The Tax Matters Member and Partnership Representative shall take no action in such capacity without the authorization of the Management Committee of each affected Series, other than such action as may be required by Law. If the authorization has not been granted or denied before the date such action is required by Law, the Partnership Representative may take such action on such date, and if such action is taken, the Partnership Representative shall promptly provide notice thereof to the Management Committee of each affected Series. Any cost or expense incurred by the Tax Matters Member or the Partnership Representative in connection with its duties, including the preparation for or pursuance of administrative or judicial proceedings and in complying with Section 8.03(b), shall be paid by the Company.

(d) The Tax Matters Member shall not enter into any extension of the period of limitations for making assessments on behalf of the Members without first obtaining the consent of the Management Committee of each affected Series. The Tax Matters Member shall not bind any Member to a settlement agreement without obtaining the consent of such Member. Any Member that enters into a settlement agreement with respect to any partnership item (as described in Code Section 6231(a)(3) prior to amendment by the Bipartisan Budget Act of 2015) with respect to the Company or any Series shall notify the other Members of such settlement agreement and its terms within [***] Days from the date of the settlement.

(e) No Member shall file a request pursuant to Code Section 6227, as in effect prior to amendment by the Bipartisan Budget Act of 2015, for an administrative adjustment of Company items or items of any Series for any taxable year without first notifying the other Members no later than [***] Days prior to filing such request. If the Series A Management Committee consents to the requested adjustment, the Tax Matters Member shall file the request for the administrative adjustment on behalf of the Members. If such consent is not obtained within [***] Days from such notice, any Member, including the Tax Matters Member, may file a request for administrative adjustment on its own behalf. Any Member intending to file a petition under Code Sections 6226, 6228 or other Code Section, each as in effect prior to amendment by the

Bipartisan Budget Act of 2015, with respect to any item involving the Company or any Series shall notify the other Members of such intention and the nature of the contemplated proceeding. In the case where the Tax Matters Member is the Member intending to file such petition on behalf of the Company or any Series, such notice shall be given within a reasonable period of time to allow the other Members to participate in the choosing of the forum in which such petition will be filed.

(f) If any Member intends to file a notice of inconsistent treatment under Code Section 6222(b) as in effect prior to amendment by the Bipartisan Budget Act of 2015, such Member shall give reasonable notice under the circumstances to the other Members of such intent and the manner in which the Member’s intended treatment of an item is (or may be) inconsistent with the treatment of that item by the other Members.

(g) For any taxable year beginning on or after January 1, 2018 and for the Company and for each Series, the Tax Matters Member shall be, or shall designate, the Partnership Representative as that term is defined in Code Section 6223(a), as added by the Bipartisan Budget Act of 2015 (the “**Partnership Representative**”), and any other Persons necessary to conduct proceedings under Subchapter C of Chapter 63 of the Code (as amended by the Bipartisan Budget Act of 2015) for such year, and each Member shall take all actions necessary to cause such Person to be so designated in accordance with any procedures prescribed therefor. Each Party agrees that the Company and each Series shall, unless determined otherwise by the Management Committee of

each affected Series, in its reasonable discretion, elect the alternative method of paying any imputed underpayment resulting from any Company or Series adjustment as provided by Code Section 6226, as added by the Bipartisan Budget Act of 2015, and each Member shall take any and all actions necessary to effect such election, including but not limited to the filing by each Member of amended returns and the payment of any tax, including any interest, penalties, or additions to such tax, resulting from the imputed underpayment.

ARTICLE 9 BOOKS, RECORDS, REPORTS, AND BANK ACCOUNTS

9.01 Maintenance of Books.

(a) Each Operator shall keep or cause to be kept at the principal office of the Company or at such other location approved by the Series A Management Committee complete and accurate books and records of the Company and each Series, including all books and records necessary to provide to the Members any information required to be provided pursuant to Section 9.02, supporting documentation of the transactions with respect to the conduct of the Company's and Series' business and minutes of the proceedings of its Members and each Management Committee, and any other books and records that are required to be maintained by applicable Law.

(b) The books of account of the Company and each Series shall be (i) maintained since a fiscal year that is the calendar year, (ii) maintained on an accrual basis in accordance with Required Accounting Practices, and (iii) unless the Series A Management Committee decides otherwise, audited by the Certified Public Accountants at the end of each calendar year.

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9.02 Reports.

(a) With respect to each calendar year, each Operator shall prepare and deliver to each Member holding Membership Interests of a Series to which the Facility or Facilities operated by such Operator relate, on a per-Series basis:

(i) Within 75 Days after the end of such calendar year, a statement of operations and a statement of cash flows for such year, a balance sheet as of the end of such year, and an audited report thereon of the Certified Public Accountants; provided that, upon the written request of one or more Members holding Membership Interests of the applicable Series at least [***] Days prior to the applicable calendar year end, which request shall be a standing request effective for subsequent calendar years unless and until revoked by the requesting Member, such Operator shall prepare and deliver to the requesting Member(s) within 25 Days after the end of each such calendar year the foregoing information except for the audited report, which such Operator shall use reasonable efforts to prepare and deliver to the requesting Member(s) no later than 14 Days prior to any regulatory, contractual or filing deadlines of such Member for which such Operator has been notified by such Member.

(ii) Within 75 Days after the end of such calendar year, such federal, state and local income tax returns and such other accounting and tax information and schedules as shall be necessary for tax reporting purposes by each such Member with respect to such year.

(b) Upon the written request of one or more Founding Members at least [***] Days prior to the applicable calendar year end, each Operator shall use reasonable efforts to prepare and deliver to the requesting Founding Member(s) the following information with respect to Series A Membership Interests and/or any Membership Interests of a Series to which the Facility or Facilities operated by such Operator relate within [***] Days after the end of such calendar year, on a per-Series basis:

(i) A discussion and analysis of the results of operations including detailed explanations of significant variances in revenues, expenses and cash flow activities appearing in the audited financial statements, as compared to the same periods in the prior calendar year, and relevant operational statistics, including volumetric data;

(ii) A schedule of amounts due by year for contractual obligations that will impact Available Cash including notes payable, capital leases, operating leases, and purchase obligations; and

(iii) A three-year forward-looking forecast that includes a balance sheet, profit and loss statement, and a statement of cash flows. Such forecast shall include information pertaining to the underlying assumptions used in its preparation including volumetric, revenue per-unit and capital expenditure assumptions. Such forecast also shall be updated within 45 Days after execution by the Company of a material Gas Transportation Service Agreement related to such Series if the timing and

amount of revenues or expenses resulting from such agreement are materially different than estimates included in the forward-looking forecast.

The reasonable incremental cost to the applicable Operator(s) of preparing the above reports shall be reimbursed to such Operator(s) by the Founding Member requesting such reports and, in the case of two or more Founding Members requesting such reports, equally by such Founding Members. Such cost shall be determined in accordance with the Accounting Procedure set forth in the applicable COM Agreement(s).

(c) Within 25 Days after the end of each calendar month, each Operator shall cause to be prepared and delivered to each Member holding Membership Interests of a Series to which the Facility or Facilities operated by such Operator relate with an appropriate certification of the Person authorized to prepare the same (provided that the Series A Management Committee may change the financial statements required by this Section 9.02(c) to a quarterly basis or may make such other change therein as it may deem appropriate), on a per-Series basis:

(i) A statement of operations for such month (including sufficient information to permit the Members to calculate their tax accruals) and for the portion of the calendar year then ended as compared with the same periods for the prior calendar year and with the budgeted results for the current periods;

(ii) A balance sheet as of the end of such month and the portion of the calendar year then ended; and

(iii) For quarter month end, a statement of cash flows for the portion of the calendar year then ended as compared to the same period for the prior calendar year.

(d) In addition to its obligations under subsections (a), (b), and (c) of this Section 9.02, but subject to Section 3.06, each Operator shall timely prepare and deliver to any Member holding Membership Interests of a Series to which the Facility or Facilities operated by such Operator relate, upon request and on a per-Series basis, all of such additional financial statements, notes thereto and additional financial information as may be required in order for such Member or an Affiliate of such Member to comply with any reporting requirements under (i) the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder, (ii) the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder, and (iii) any national securities exchange or automated quotation system. The reasonable incremental cost to such Operator(s) of preparing and delivering such additional financial statements, notes thereto and additional financial information, including any required incremental audit fees and expenses, shall be reimbursed to such Operator(s) by the Member requesting such reports and, in the case of two or more Members requesting such additional information, equally by such Members. Such cost shall be determined in accordance with the Accounting Procedure set forth in the applicable COM Agreement(s).

(e) Each Operator with respect to the Facilities of a Series shall also cause to be prepared and delivered to each Founding Member of such Series such other reports, forecasts, studies, budgets and other information as such Founding Member may reasonably request from time to time.

(f) For purposes of clarification and not limitation, any audit or examination by a Member pursuant to Section 3.6 of the Existing COM Agreement (or any substantially similar

provision of any other COM Agreement) may, at the option of such Member, include audit or examination of the books, records and other support for the costs incurred pursuant to subsections (b) and (e) of this Section 9.02.

(g) For the avoidance of doubt, a Member is entitled to receive, pursuant to this Section 9.02, only those reports, statements or other financial information relating to Series held by such Member, and such Member shall not receive any reports, statements or other financial information relating to any other Series.

9.03 Bank Accounts. Funds of each Series shall be deposited in such banks or other depositories as shall be designated from time to time by the Management Committee of such Series and shall not be commingled with an Operator's funds. All withdrawals from any such depository shall be made only as authorized by the Management Committee of such Series and shall be

made only by check, wire transfer, debit memorandum or other written instruction. The Series A Management Committee may authorize an Operator to designate and maintain accounts in any such banks or other depositories in accordance with Exhibit A to the Existing COM Agreement or substantially similar provisions of any other COM Agreement, as applicable.

ARTICLE 10 WITHDRAWAL

10.01 Right of Withdrawal. With respect to each Series, (a) prior to the first In-Service Date with respect to the Facilities of such Series, no Member holding Membership Interests of such Series shall have the right to withdraw from such Series and (b) following such In-Service Date, each such Member shall have the right to withdraw from such Series on the date that is [***] Days following delivery of written notice to the Management Committee governing matters relating to such Series.

10.02 Deemed Withdrawal. A Member is deemed to have Withdrawn from the Company and all Series (except as provided in Section 10.02(e) below) upon the occurrence of any of the following events:

- (a) there occurs an event that makes it unlawful for the Member to continue to be a Member;
- (b) the Member becomes Bankrupt;
- (c) the Member dissolves and commences liquidation or winding-up;
- (d) the Member commits a Default; provided, that such Member shall not be considered a Withdrawn Member if such Member cures such Default within 60 Business Days of the applicable Default; or
- (e) the Member is deemed to have withdrawn pursuant to a “Deemed Withdrawal Event” specified on a Series Schedule; provided, however, that, in such event, the Member is deemed to have Withdrawn solely with respect to such Series.

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10.03 Effect of Withdrawal. A Member that is deemed to have Withdrawn pursuant to Section 10.01 or Section 10.02 (a “*Withdrawn Member*”), must comply with the following requirements in connection with its Withdrawal; provided, however, that in the event the Withdrawal is pursuant to Section 10.02(e), the provisions below shall apply solely with respect to the applicable Series:

- (a) The Withdrawn Member ceases to be a Member of the Company and all Series immediately upon the occurrence of the applicable Withdrawal event. Following the Withdrawn Member’s Withdrawal from the last Series to which it was a Member, such Member shall be deemed to be Withdrawn from the Company as a whole.
- (b) The Withdrawn Member shall not be entitled to receive any distributions from the Series except as set forth in Section 10.03(e), and neither it nor its Representative shall be entitled to exercise any voting or consent rights, or to appoint any Representative or Alternate Representative to any Management Committee (and any Representative(s) (and any Alternate Representative(s)) appointed by such Member shall be deemed to have resigned) or to receive any further information (or access to information) from the Series. The Sharing Ratio(s) of such Member with respect to any Series shall not be taken into account in calculating the Sharing Ratios of the Members for any purposes. This Section 10.03(b) shall also apply to a Breaching Member; but if a Breaching Member cures its breach during the applicable cure period, then any distributions that were withheld from such Member shall be paid to it, without interest.
- (c) The Withdrawn Member must pay to each Series all amounts owed to it by such Withdrawn Member.
- (d) The Withdrawn Member shall remain obligated for all liabilities it may have under this Agreement or otherwise with respect to the Series that accrue prior to the Withdrawal.
- (e) In the event of a Withdrawal with respect to any Series under Section 10.01 or a deemed Withdrawal under Section 10.02(a) or (b), the Withdrawn Member shall be entitled to receive a portion of each distribution that is made by the Series to Members holding such Series from and after the In-Service Date for the applicable Facilities equal to the product of the Withdrawn Member’s Sharing Ratio in respect of such Series as of the date of its Withdrawal *multiplied by* the aggregate amount of such distribution; provided that the Withdrawn Member’s rights under this Section 10.03(e) shall automatically terminate at such time as the Withdrawn Member has received an aggregate amount under this Section 10.03(e) equal to the sum of (i) lesser of (A) the Withdrawn Member’s Outstanding Capital Contribution with respect to such Series, and (B) the Fair Market Value of the Withdrawn Member’s

Membership Interest of the applicable Series, each determined as of the date of the Withdrawal, *plus* (ii) any Indebtedness of the Series owed to such Member with respect to the applicable Facilities (determined in accordance with Section 3.03(b)(iv)(D)) at the time of Withdrawal. From the date of the Withdrawal to the date of such payment, the Withdrawn Member shall be treated as a non-Member equity holder with no rights other than the right to receive the amount owing to the Withdrawn Member pursuant to the preceding sentence. The rights of a Withdrawn Member under this Section 10.03(e) shall (A) be subordinate to the rights of any other creditor of the Series, (B) not include any right on the part of the Withdrawn Member to receive any interest or other amounts with respect thereto (except as may otherwise be provided in the evidence of any Indebtedness of the Series owed to such

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Withdrawn Member with respect to the applicable Facilities (determined in accordance with Section 3.03(b)(iv)(D)); (C) not require the Company to make any distribution (the Withdrawn Member's rights under this Section 10.03(e) being limited to receiving a portion of such distributions as any applicable Management Committee may, in the Sole Discretion of the applicable Representatives, decide to cause the Series to make); and (D) not require any Member to make a Capital Contribution or a loan to permit the Company to make a distribution or otherwise to pay the Withdrawn Member.

(f) Except as set forth in Section 10.03(e), a Withdrawn Member shall not be entitled to receive any return of its Capital Contributions or other payment from the Series in respect of its Membership Interest. Any Performance Assurances or Credit Assurances provided by the Withdrawn Member and outstanding as of the date of Withdrawal shall continue as to the liabilities accrued prior to the date of Withdrawal for which such Performance Assurances were provided under Section 4.01(b) or such Credit Assurances were provided under Section 4.07; provided that, in the event a Member is Withdrawn pursuant to Section 10.02(d), such Member shall pay over and forfeit any remaining Performance Assurances as liquidated damages and not as a penalty.

(g) The Sharing Ratio(s) of the Withdrawn Member shall be allocated among the remaining Members holding Membership Interests with respect to the Series to which the Withdrawal relates in the proportion that each such Member's Sharing Ratio(s) in respect of such Series bears to the total Sharing Ratio in respect of such Series of all remaining Members holding Membership Interests of such Series, or in such other proportion as the remaining Members may unanimously agree.

ARTICLE 11 DISPUTE RESOLUTION

11.01 Disputes. This Article 11 shall apply to any dispute arising under or related to this Agreement (whether arising in contract, tort or otherwise, and whether arising at law or in equity), including (a) any dispute regarding the construction, interpretation, performance, validity or enforceability of any provision of this Agreement or whether any Person is in compliance with, or breach of, any provisions of this Agreement; (b) any deadlock among Representatives on any matter requiring approval of a Management Committee (including any dispute over whether Representatives of any Founding Member (or its Affiliates) are reasonably withholding their consent in connection with a determination by a Management Committee, but only with respect to those matters specifically identified in Section 6.03(b), Section 6.05(e) and the applicable provisions of the Series Schedules) other than the matters relating to the authorization of additional Series or the creation or issuance of additional Membership Interests, or the merger, consolidation or conversion of the Company (a "**Deadlock**"); and (c) the applicability of this Article 11 to a particular dispute. Notwithstanding the foregoing, this Section 11.01 shall not apply to any matters that, pursuant to the provisions of this Agreement, are to be resolved by a vote of a Management Committee; provided that, if a vote, approval, consent, determination or other decision must, under the terms of this Agreement, be made (or withheld) in accordance with a standard other than Sole Discretion (such as a reasonableness standard), then the issue of whether such standard has been satisfied may be a dispute to which this Article 11 applies (including Section 11.03); and provided, further, that any Deadlock shall be resolved solely as provided in Sections 11.02 and 11.05 hereof.

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Any dispute to which this Article 11 applies is referred to herein as a "**Dispute**." With respect to a particular Dispute, each Member that is a party to such Dispute is referred to herein as a "**Disputing Member**." The provisions of this Article 11 shall be the exclusive method of resolving Disputes.

11.02 Negotiation to Resolve Disputes. If a Dispute arises, the Disputing Members shall attempt to resolve such Dispute through the following procedure:

(a) first, the designated Representative of each of the Disputing Members shall promptly meet (whether by phone or in person) in a good faith attempt to resolve the Dispute; and

(b) second, if the Dispute is still unresolved after 10 Business Days following the commencement of the negotiations described in Section 11.02(a), then the Parent Decision Makers shall meet in person within five Business Days after the expiration of the aforementioned period of 10 Business Days, and such Parent Decision Makers shall attempt in good faith to resolve the Dispute as promptly as practicable.

11.03 Courts. If a Dispute (other than a Deadlock) is still unresolved following 10 Business Days after a written request or demand for negotiations described in Section 11.02(b), then any of such Disputing Members may submit such Dispute only to the Court of Chancery of the State of Delaware or, in the event that such court does not have jurisdiction over the subject matter of such Dispute, to another court of the State of Delaware or a U.S. federal court located in the State of Delaware (collectively, “*Delaware Courts*”), and each of the Members irrevocably submits to the exclusive jurisdiction of the Delaware Courts and hereby consents to service of process in any such Dispute by the delivery of such process to such party at the address and in the manner provided in Section 13.02. Each of the Members hereby irrevocably and unconditionally waives any objection to the laying of venue in any Dispute in the Delaware Courts and hereby further irrevocably and unconditionally waives and agrees not to plead or clam in any such court that any action, suit or proceeding brought in any such court has been brought in an inconvenient forum. EACH MEMBER IRREVOCABLY WAIVES TRIAL BY JURY IN ANY ACTION OR PROCEEDING WITH RESPECT TO THIS AGREEMENT.

11.04 Specific Performance. The Members understand and agree that (a) irreparable damage would occur in the event that any provision of this Agreement were not performed in accordance with its specific terms, (b) although monetary damages may be available for the breach of such covenants and agreements such monetary damages are not intended to and do not adequately compensate for the harm that would result from a breach of this Agreement, would be an inadequate remedy therefor and shall not be construed to diminish or otherwise impair in any respect any Member’s or the Company’s right to specific performance and (c) the right of specific performance is an integral part of the transactions contemplated by this Agreement and without that right none of the Members would have entered into this Agreement. It is accordingly agreed that, in addition to any other remedy that may be available to it, including monetary damages, each of the Members and the Company shall be entitled to an injunction or injunctions to prevent breaches of this Agreement and to enforce specifically the terms and provisions of this Agreement. Each of the Members further agrees that no Member nor the Company shall be required to obtain, furnish or post any bond or similar instrument in connection with or as a condition to obtaining any remedy referred to in this Section 11.04 and each Member waives any objection to the

imposition of such relief or any right it may have to require the obtaining, furnishing or posting of any such bond or similar instrument.

11.05 Arbitration.

(a) If a Deadlock is still unresolved pursuant to the procedures set forth in Section 11.02, then the Deadlock shall be settled by arbitration conducted in the English language in New York, New York, administered by and in accordance with the terms of this Agreement and the Commercial Arbitration Rules (“*Rules*”) of the American Arbitration Association (“*AAA*”) (the “*Arbitration*”).

(b) Any Disputing Member (the “*Arbitration Invoking Party*”) may, by notice (the “*Arbitration Notice*”) to any other Disputing Member (the “*Arbitration Noticed Party*”), submit the Dispute to Arbitration in accordance with the provisions of this Section 11.05(b). Any Disputing Member may initiate Arbitration by filing with the AAA a notice of intent to arbitrate within the mediation period.

(c) Any such Arbitration proceeding shall be before a tribunal of three arbitrators, one designated by the Arbitration Invoking Party, one designated by the Arbitration Noticed Party, and one designated by the two arbitrators so designated. The Arbitration Invoking Party and the Arbitration Noticed Party shall each name their arbitrator by notice (the “*Selection Notice*”) given within five Business Days after the date of the Arbitration Notice, and the two arbitrators so appointed shall agree upon the third member of the tribunal within five Business Days after the date of the Selection Notice. Any member of the tribunal not appointed within the period required, whether by one of the Disputing Members or by the two arbitrators chosen by the Disputing Members, shall be appointed by the AAA. The arbitrators shall have no affiliation with, financial or other interest in, or prior employment with either Disputing Member or their Affiliates and shall be experienced and well-regarded oil and gas attorneys knowledgeable in the field of the dispute.

(d) In any Arbitration in which the Deadlock involves a dispute over whether the Representatives of any Series A Founding Members are reasonably withholding their consent in connection with a determination by the Series A Management Committee with respect to Section 6.03(b), Section 6.05(e) and any provision in a Series Schedule that requires Members to act reasonably, the arbitrators shall first determine whether the Representatives of such Series A Founding Member are reasonably withholding their consent in the matter(s) in question and, if such Representatives are determined to have acted reasonably, the arbitrators shall then immediately proceed to resolve the Deadlock among the Representatives on the matter(s) requiring approval of the Series A Management Committee.

(e) Each of the Arbitration Invoking Party and the Arbitration Noticed Party shall have 20 Business Days, commencing on the date the Arbitration Notice is given, to prepare and submit a proposal for the resolution of the dispute to the tribunal, including a description of how such Disputing Member arrived at its proposal and the arguments therefor, as it deems appropriate. Each of the Arbitration Invoking Party and the Arbitration Noticed Party shall deliver a copy of its proposal, including any such supplemental information, to the other Disputing Member at the same time it delivers the proposal to the tribunal.

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(f) Each of the Arbitration Invoking Party and the Arbitration Noticed Party shall have five Business Days after the receipt of the other Disputing Member's proposal to revise its respective proposal and submit a final proposal to the tribunal, including supporting arguments for its own and against the other Disputing Member's proposal.

(g) Each of the Arbitration Invoking Party and the Arbitration Noticed Party shall present oral arguments supporting its final proposal to the tribunal at a proceeding held five Business Days after the deadline for submission of final proposals to the tribunal. Each of the Arbitration Invoking Party and the Arbitration Noticed Party shall have three hours to make its oral presentation to the tribunal.

(h) The tribunal shall, within 10 Business Days after presentation of the oral arguments, render a decision that selects the Arbitration Invoking Party's final proposal (with no modifications thereto) or the Arbitration Noticed Party's final proposal (with no modifications thereto), and no other proposal. The award rendered pursuant to the foregoing shall be final and binding on the Disputing Members, shall not be subject to appeal, and judgment thereon may be entered or enforcement thereof sought by either Disputing Member in any court of competent jurisdiction.

(i) Each Disputing Member shall bear the costs of its appointed arbitrator and its own attorneys' fees, and the costs of the third arbitrator incurred in accordance with the foregoing shall be shared equally by the Disputing Members. Additional incidental costs of the Arbitration shall be paid for by the non-prevailing Disputing Member in the Arbitration.

(j) Notwithstanding the foregoing, each Disputing Member may at any time in a Dispute apply to the Court of Chancery for a decree of dissolution of the Company pursuant to Section 18-802 of the Act.

ARTICLE 12 DISSOLUTION, WINDING-UP AND TERMINATION

12.01 Dissolution.

(a) The Company shall dissolve and its affairs shall be wound up (i) on the date all Series of the Company are terminated and wound up or (ii) upon entry of a decree of judicial dissolution under Section 18-802 of the Act.

(b) A Series shall terminate and its affairs shall be wound upon the first to occur of the following events (each a "*Dissolution Event*"):

(i) decision to terminate the Series by a Supermajority Interest of the Representatives in respect of such Series, with the approval of a Supermajority Interest of the Series A Management Committee;

(ii) entry of a decree of judicial dissolution of the Series under Section 18-215(m) of the Act;

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- (iii) the Disposition or abandonment of all or substantially all of the Series' business and assets; and
- (iv) an event that makes it unlawful for the business of the Series to be carried on.

(c) The termination and winding up of a Series shall not, in and of itself, cause a dissolution of the Company or the termination of any other Series; provided, however, that the Company shall dissolve and its affairs shall be wound up on the date all Series of the Company are terminated and wound up. The termination of a single Series shall not affect the limitation on liabilities of such Series or any other Series provided by this Agreement and the Act.

12.02 Winding-Up and Termination

(a) On the occurrence of a Dissolution Event, the Series A Management Committee and the Management Committee of the Series with respect to which a Dissolution Event has occurred, acting together, shall designate a Member or other Person to serve as liquidator. The liquidator shall proceed diligently to wind up the affairs of the Series and make final distributions as provided herein and in the Act. The costs of winding-up shall be borne as a Series expense. Until final distribution, the liquidator shall continue to operate the Series properties with all of the power and authority of the Members. The steps to be accomplished by the liquidator are as follows:

(i) as promptly as possible after termination and again after final winding-up, the liquidator shall cause a proper accounting to be made by a recognized firm of certified public accountants of the Series' assets, liabilities, and operations through the last Day of the month in which the termination occurs or the final winding-up is completed, as applicable;

(ii) the liquidator shall discharge from Series funds all of the Indebtedness of the Series and other debts, liabilities and obligations of the Series (including all expenses incurred in winding-up and any loans described in Section 4.02) or otherwise make adequate provision for payment and discharge thereof (including the establishment of a cash escrow fund for contingent liabilities in such amount and for such term as the liquidator may reasonably determine); and

(iii) all remaining assets of the Series shall be distributed to the Members as follows:

(A) the liquidator may sell any or all Series property, including to Members, and any resulting gain or loss from each sale shall be computed and allocated to the Capital Accounts of the Members with respect to the Series in accordance with the provisions of Article 5;

(B) with respect to all Series property that has not been sold, the fair market value of that property shall be determined and the Capital Accounts of the Members with respect to the Series shall be adjusted to reflect the manner in which the unrealized income, gain, loss, and deduction

inherent in property that has not been reflected in the Capital Accounts with respect to the Series previously would be allocated among the Members if there were a taxable disposition of that property for the fair market value of that property on the date of distribution; and

(C) Series property (including cash) shall be distributed among the Members with respect to the Series in accordance with Section 5.01; and those distributions shall be made by the end of the taxable year of the Series during which the liquidation of the Series occurs (or, if later, [***] Days after the date of the liquidation).

(b) The distribution of cash or property to a Member with respect to a Series in accordance with the provisions of this Section 12.02 constitutes a complete return to the Member of its Capital Contributions with respect to the Series and a complete distribution to the Member of its Membership Interest with respect to the Series and all the Series' property and constitutes a compromise to which all Members have consented pursuant to Section 18-502(b) of the Act. To the extent that a Member returns funds to the Company or any Series, it has no claim against any other Member for those funds. Upon termination of a Series, each Member associated with such Series shall look solely to the assets of such Series for the return of its Capital Contributions made with respect to such Series, and if the assets of such Series remaining after payment of or due provision for the debts and liabilities of the Company with respect to such Series are insufficient to return such Capital Contributions, such Members shall have no recourse against any other Series, the Company or any other Member, except as otherwise provided by law.

(c) No dissolution or termination of the Company shall relieve a Member from any obligation to the extent such obligation has accrued as of the date of such dissolution or termination. Upon such termination, any books and records of the Company that there is a reasonable basis for believing will ever be needed again shall be furnished to the applicable Operator, who shall keep such books and records (subject to review by any Person that was a Member at the time of dissolution) for a period at least three years. At such time as such Operator no longer agrees to keep such books and records, it shall offer the Persons who were Members at the time of dissolution the opportunity to take over such custody, shall deliver such books and records to such Persons if they elect to take over such custody, and may destroy such books and records if they do not so elect. Any such custody by such Persons shall be on such terms as they may agree upon among themselves.

12.03 Deficit Capital Accounts. No Member will be required to pay to the Company, to any other Member or to any third party any deficit balance that may exist from time to time in any Member's Capital Account with respect to any Series.

12.04 Certificate of Cancellation. On completion of the distribution of the Company's assets as provided herein, the Members (or such other Person or Persons as the Act may require or permit) shall file a certificate of cancellation with the Secretary of State of Delaware, cancel any other filings made pursuant to the Act, and take such other actions as may be necessary to terminate the existence of the Company. Upon the filing of such certificate of cancellation, the existence of the Company shall terminate (and the Term shall end), except as may be otherwise provided by the Act or other applicable Law.

ARTICLE 13 GENERAL PROVISIONS

13.01 Offset; Costs and Expenses. Whenever a Series is to pay any sum to any Member, any amounts that Member owes the Series may be deducted from that sum before payment.

13.02 Notices. Except as expressly set forth to the contrary in this Agreement, all notices, requests or consents provided for or permitted to be given under this Agreement must be in writing and must be delivered to the recipient in person, by courier or mail, or by facsimile or other electronic transmission, including electronic mail. A notice, request or consent given under this Agreement is effective on receipt by the Member to receive it; provided that a facsimile or other electronic transmission that is transmitted after the normal business hours of the recipient shall be deemed effective on the next Business Day. All notices, requests and consents to be sent to a Member must be sent to or made at the addresses given for that Member on Schedule I or in the instrument described in Section 3.03(b)(iv)(A)(2) or Section 3.04, or such other address as that Member may specify by notice to the other Members. Any notice, request or consent to the Company must be given to all of the Members. Whenever any notice is required to be given by Law, the Delaware Certificate or this Agreement, a written waiver thereof, signed by the Person entitled to notice, whether before or after the time stated therein, shall be deemed equivalent to the giving of such notice.

13.03 Entire Agreement; Superseding Effect. This Agreement (including the Series Schedules), the Side Letters and the COM Agreement(s) constitute the entire agreement of the Members and their Affiliates relating to the Company and the transactions contemplated hereby and supersede all provisions and concepts contained in all prior agreements.

13.04 Effect of Waiver or Consent. Except as otherwise provided in this Agreement, a waiver or consent, express or implied, to or of any breach or default by any Member in the performance by that Member of its obligations with respect to the Company is not a consent or waiver to or of any other breach or default in the performance by that Member of the same or any other obligations of that Member with respect to the Company. Except as otherwise provided in this Agreement, failure on the part of a Member to complain of any act of any Member or to declare any Member in default with respect to the Company, irrespective of how long that failure continues, does not constitute a waiver by that Member of its rights with respect to that default until the applicable statute-of-limitations period has run.

13.05 Amendment or Restatement. This Agreement and the Delaware Certificate may be amended or restated only by a written instrument executed (or, in the case of the Delaware Certificate, approved) by a Supermajority Interest of the Representatives of the Series A Founding Members; provided, however, that any amendment or restatement that is materially adverse to any Series in a manner that is disproportionate to such Series (as compared to any other Series) shall require the written consent or approval of each Founding Member of such Series.

13.06 Binding Effect. Subject to the restrictions on Dispositions set forth in this Agreement, this Agreement is binding on and shall inure to the benefit of the Members and their respective successors and permitted assigns.

13.07 Governing Law; Severability. THIS AGREEMENT IS GOVERNED BY AND SHALL BE CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF DELAWARE, EXCLUDING ANY CONFLICT-OF-LAWS RULE OR PRINCIPLE THAT MIGHT REFER THE GOVERNANCE OR THE CONSTRUCTION OF THIS AGREEMENT TO THE LAW OF ANOTHER JURISDICTION. In the event of a direct conflict between the provisions of this Agreement and any mandatory, non-waivable provision of the Act, such provision of the Act shall control. If any provision of the Act provides that it may be varied or superseded in a limited liability company agreement (or otherwise by agreement of the members or managers of a limited liability company), such provision shall be deemed superseded and waived in its entirety if this Agreement contains a provision addressing the same issue or subject matter. If any provision of this Agreement or the application thereof to any Member or circumstance is held invalid or unenforceable to any extent, (a) the remainder of this Agreement and the application of that provision to other Members or circumstances is not affected thereby, and (b) the Members shall negotiate in good faith to replace that provision with a new provision that is valid and enforceable and that puts the Members in substantially the same economic, business and legal position as they would have been in if the original provision had been valid and enforceable.

13.08 Further Assurances. In connection with this Agreement and the transactions contemplated hereby, each Member shall execute and deliver any additional documents and instruments and perform any additional acts that may be necessary or appropriate to effectuate and perform the provisions of this Agreement and those transactions; provided, however, that this Section 13.08 shall not obligate a Member to furnish guarantees or other credit supports by such Member's Parent or other Affiliates.

13.09 Waiver of Certain Rights. Each Member irrevocably waives any right it may have to maintain any action for dissolution of the Company or for partition of the property of the Company.

13.10 Counterparts; Facsimiles. This Agreement may be executed in any number of counterparts with the same effect as if all signing parties had signed the same document. All counterparts shall be construed together and constitute the same instrument. A signature page to this Agreement or any other document prepared in connection with the transactions contemplated hereby that contains a copy of a party's signature and that is sent by such party or its agent with the apparent intention (as reasonably evidenced by the actions of such party or its agent) that it constitute such party's execution and delivery of this Agreement or such other document, including a document sent by facsimile transmission or by email in portable document format (PDF), shall have the same effect as if such party had executed and delivered an original of this Agreement or such other document. Minor variations in the form of the signature page, including footers from earlier versions of this Agreement or any such other document, shall be disregarded in determining the party's intent or the effectiveness of such signature.

13.11 Fair Market Value Determination.

- (a) [***]
- (b) [***]
- (c) [***]

[Remainder of page intentionally left blank. Signature page follows.]

IN WITNESS WHEREOF, the Members have executed this Agreement as of the date first set forth above.

COMPANY:

MOUNTAIN VALLEY PIPELINE, LLC

By: MVP HOLDCO, LLC, its Member

By: /s/ David W. Gray
Name: David W. Gray
Title: Senior Vice President

By: US MARCELLUS GAS INFRASTRUCTURE, LLC, its Member

By: /s/ Matthew J. Schafer
Name: Matthew J. Schafer
Title: Vice President

MEMBERS:

MVP HOLDCO, LLC

By: /s/ David W. Gray
Name: David. W. Gray
Title: Senior Vice President

US MARCELLUS GAS INFRASTRUCTURE, LLC

By: /s/ Matthew J. Schafer
Name: Matthew J. Schafer
Title: Vice President

[Signature Page to Third Amended and Restated LLC Agreement of Mountain Valley Pipeline, LLC]

VEGA NPI IV, LLC

By: _____
Name: _____
Title: _____

WGL MIDSTREAM, INC.

By: /s/ Anthony M. Nee
Name: Anthony M. Nee
Title: President

RGC MIDSTREAM, LLC

By: /s/ John S. D’Orazio
Name: John S. D’Orazio
Title: President and CEO

CON EDISON GAS PIPELINE AND STORAGE, LLC

By: Con Edison Transmission, Inc.,
its sole member

By: /s/ Joseph P. Oates

Name: Joseph P. Oates

Title: President and CEO

[Signature Page to Third Amended and Restated LLC Agreement of Mountain Valley Pipeline, LLC]

SCHEDULE I-A**SERIES A MEMBERSHIP INTERESTS**

Dated as of April 6, 2018

<u>Name, Address, Fax and E-mail</u>	<u>Sharing Ratio in respect of Series A Membership Interests</u>	<u>Parent</u>	<u>Representative and Alternate Representatives</u>
MVP HOLDCO, LLC	45.5%	[***]	[***]
EQT Plaza 625 Liberty Avenue Pittsburgh, Pennsylvania 15222 Fax: (412) 553-7781 Attention: David Gray [***] Sean McGinty [***]			[***]
with a copy to:			
Baker Botts L.L.P. 30 Rockefeller Plaza New York, New York 10112 Fax: (212) 408-2504 Attn: Michael L. Bengtson [***]			
US MARCELLUS GAS INFRASTRUCTURE, LLC	31%	[***]	[***]
601 Travis Street Suite 1900 Houston, Texas 77002 Fax: 713.751.0375 Attention: Matthew Schaffer [***]			[***]
WGL MIDSTREAM, INC.	10%	[***]	N/A
c/o WGL Holdings, Inc. 101 Constitution Avenue, N.W. Washington, DC 20080 Fax: (202) 624-6655			

Attn: Anthony M. Nee
[***]

VEGA NPI IV, LLC

0% [***]

N/A

c/o Vega Energy Partners, Ltd.
3701 Kirby Dr., Suite 1290
Houston, Texas 77098

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Fax: (713) 527-0850
Attn: David A. Modesett
[***]

with a copy to:

Norton Rose Fulbright
1301 McKinney St., Suite 5100
Houston, TX 77010
Fax: (713) 651-5246
Attn: Ned Crady
[***]

RGC MIDSTREAM, LLC

1% [***]

N/A

519 Kimball Ave NE
Roanoke, Virginia 24016
Fax: (540) 777-2636
Attn: Paul Nester
[***]

CON EDISON GAS PIPELINE AND STORAGE, LLC

12.5% [***]

N/A

4 Irving Place
New York, New York 10003
Fax: (917) 534-4476
Attn: Joseph Oates
[***]

Schedule I-A-2

The Series A Members acknowledge and agree as follows:

**ARTICLE 1
GENERAL PROVISIONS APPLICABLE TO SERIES A MEMBERS**

1.01 Facilities. The Facilities to which the Series A Membership Interests relate are the Mainline Facilities.

1.02 Distributions and Allocations. Notwithstanding anything to the contrary in the Agreement,

(a) amounts otherwise distributable to WGL pursuant to Section 5.01 of the Agreement shall be further apportioned between WGL and Vega Carryco and distributed as follows:

(i) prior to the occurrence of a Dissolution Event, [***]% to WGL and [***]% to Vega Carryco; and

(ii) upon and following the occurrence of a Dissolution Event:

(A) *first*, [***]% to WGL until [***], and

(B) *thereafter*, [***]% to WGL and [***]% to Vega Carryco; and

(b) WGL's Sharing Ratio share of "excess nonrecourse liabilities" under Section 5.03(d) of the Agreement shall be further allocated [***]% to Vega Carryco and [***]% to WGL.

(c) As used herein, [***].

1.03 Performance Assurances. Each Series A Member shall deliver, or cause to be delivered on such Series A Member's behalf, to the Series (except to the extent delivered prior to the date hereof):

(a) within [***] Business Days of the date hereof (or, with respect to a New Member admitted after the date hereof and prior to the In-Service Date with respect to the Mainline Facilities, within [***] Business Days of such admission), for the period up to the issuance of the FERC's initial release to the Company to commence construction pursuant to the FERC Certificate for the Mainline Facilities (the "**Initial Release**"), Performance Assurances equal to such Member's share of \$[***] (calculated based on such Member's Sharing Ratio in respect of Series A Membership Interests); and

(b) within 10 Business Days of the date of the Initial Release (or, with respect to a New Member admitted after the Initial Release, within 10 Business Days of such admission), for the period following the Initial Release and up to the In-Service Date with respect to the Mainline Facilities, Performance Assurances equal to [***]% of an amount equal to such Member's Sharing Ratio in respect of Series A Membership Interests multiplied by the remaining

Schedule I-A-3

obligations under the applicable Construction Budget and less any security posted by such Member, or Member's Affiliate, under any Approved Precedent Agreement.

Notwithstanding anything to the contrary in this Section 1.03, at no time prior to the In-Service Date for the Mainline Facilities will a Series A Member's Performance Assurance obligation be less than such Series A Member's share of \$[***] (calculated based on such Series A Member's Sharing Ratio in respect of Series A Membership Interests). The Performance Assurances posted by a Member pursuant to this Schedule I-A shall be reduced (A) at the end of each Quarter, to reflect [***]% of such Member's actual Capital Contributions made to the Company during such Quarter in respect of the Series A Membership Interests, (B) to reflect any Performance Assurances posted by any New Members holding Series A Membership Interests, and (C) in connection with a Disposition of all or a portion of such Member's Series A Membership Interest, to reflect the replacement Performance Assurances to be posted by the Assignee of such Series A Membership Interest pursuant to this Schedule I-A.

1.04 Amendment of Schedule I-A. Notwithstanding anything to the contrary in the Agreement, this Schedule I-A may only be amended by a Supermajority Interest of the Representatives of the Series A Founding Members; provided, however, any amendment or restatement of the Agreement (including this Schedule I-A, but excluding any other Series Schedule) or the Delaware Certificate that is materially adverse to any Series A Member in a manner that is disproportionate to such Series A Member's interest (as compared to the interest of other Series A Members) shall (a) if the affected Member is a Founding Member, require the written consent or approval of such Founding Member; or (b) if the affected Member is not a Founding Member, require the written consent or approval of a majority of all Series A Members similarly adversely affected.

1.05 Interpretation. Unless the context otherwise requires, as used in this Schedule I-A, (a) references to Articles and Section refer to the Articles and Sections of this Schedule I-A and (b) capitalized terms not otherwise defined in this Schedule I-A have the meanings given to such terms in the Agreement.

ARTICLE 2 GOVERNANCE PROVISIONS APPLICABLE TO SERIES A MEMBERS

2.01 General. Except as otherwise provided on Schedule I with respect to matters relating to an Additional Series, the management of the Company and Series A is fully vested in the Series A Founding Members as set forth in Section 2.02 and in the Agreement; provided, however, that in the event there are no longer any Series A Founding Members, the Series A Management Committee shall be comprised of one Representative for each Series A Member, which Representative shall have a vote equal to the

designating Series A Member's Sharing Ratio with respect to Series A Membership Interests (each Member entitled to participate in the Series A Management Committee at a given time, a "**Series A Management Committee Member**"). To facilitate the orderly and efficient management of the Company, the Series A Founding Members (or, in the event there are no longer any Founding Members, the Series A Members' Representatives) shall act (a) collectively as a "committee of the whole" pursuant to Section 2.02, and (b) through the delegation of certain duties and authority to an Operator under a COM Agreement.

Schedule I-A-4

2.02 Management Committee. The Series A Management Committee Members shall act collectively through meetings as a "committee of the whole," which is hereby named the "**Series A Management Committee**." Decisions or actions taken by the Series A Management Committee in accordance with the provisions of this Schedule I-A and the Agreement shall constitute decisions or actions by the Company and each Series and shall be binding on each Member, Representative, and employee of the Company and each Series. The Series A Management Committee shall conduct its affairs in accordance with the following provisions and the other provisions of this Agreement:

(a) **Representatives.** To facilitate the orderly and efficient conduct of Series A Management Committee meetings, each Series A Management Committee Member (together with its Affiliates, if applicable, for Series A Founding Members, if any) shall notify the other Series A Management Committee Member(s), from time to time, of the identity of (A) its Representative, and (B) at least one, but not more than two, Alternate Representatives. [***] The initial Representative and Alternate Representatives of each Series A Management Committee Member are set forth above in this Schedule I-A. A Series A Management Committee Member may designate a different Representative or Alternate Representatives for any meeting of the Series A Management Committee by notifying the other Series A Management Committee Member(s) at least [***] Business Days prior to the scheduled date for such meeting; provided that, if giving such advance notice is not feasible, then such new Representative or Alternate Representatives shall present written evidence of his or her authority at the commencement of such meeting.

(b) **Time and Place of Meetings.** The Series A Management Committee shall meet quarterly, subject to more or less frequent meetings upon approval of the Series A Management Committee. Notice of, and an agenda for, all Series A Management Committee meetings shall be provided by the Representatives to all Series A Members at least five Days prior to the date of each meeting, together with proposed minutes of the previous Series A Management Committee meeting (if such minutes have not been previously ratified). Among other items, the agenda will provide for a discussion of (i) the results of operations, including explanations of significant variances in revenues, expenses and cash flow activities and (ii) amounts due for contractual obligations that will impact Available Cash. Special meetings of the Series A Management Committee may be called at such times, and in such manner, as any Series A Management Committee Member reasonably deems necessary. Any Series A Management Committee Member calling for any such special meeting shall notify the Representatives, who in turn shall notify all Series A Management Committee Members of the date and agenda for such meeting at least five Days prior to the date of such meeting. Such five-Day period may be shortened by the Series A Management Committee, acting through a Supermajority Interest. All meetings of the Series A Management Committee shall be held at a location agreed upon by the Representatives. Attendance of a Representative of a Series A Management Committee Member at a meeting of the Series A Management Committee shall constitute a waiver of notice of such meeting, except where such Representative attends the meeting for the express purpose of objecting to the transaction of any business on the ground that the meeting is not lawfully called or convened.

(c) **Quorum.** The presence of Representative(s) of Series A Management Committee Members representing a Supermajority Interest shall constitute a quorum for the transaction of business at any meeting of the Series A Management Committee.

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(d) **Voting.**

(i) **Voting by Sharing Ratios.** Subject to Section 2.02(f) and Section 6.05(e) of the Agreement, each Representative shall be entitled to vote on all matters submitted to a vote of the Series A Management Committee in accordance with the respective Sharing Ratio in respect of Series A Membership Interests of the Series A Management Committee Member that designated such Representative.

(ii) **DISCLAIMER OF DUTIES.** WITH RESPECT TO ANY VOTE, CONSENT OR APPROVAL AT ANY MEETING OF THE SERIES A MANAGEMENT COMMITTEE OR OTHERWISE UNDER THIS AGREEMENT, EXCEPT TO THE EXTENT OTHERWISE EXPRESSLY PROVIDED IN SECTION 2.02(f) AND SECTION 6.05(e) OF THE AGREEMENT,

EACH REPRESENTATIVE MAY GRANT OR WITHHOLD SUCH VOTE, CONSENT OR APPROVAL IN ITS SOLE DISCRETION. THE PROVISIONS OF THIS SECTION 2.02(d)(ii) SHALL APPLY NOTWITHSTANDING THE NEGLIGENCE, GROSS NEGLIGENCE, WILLFUL MISCONDUCT, STRICT LIABILITY OR OTHER FAULT OR RESPONSIBILITY OF A SERIES A MEMBER OR ITS REPRESENTATIVE.

(iii) Exclusion of Certain Members and Their Sharing Ratios. With respect to any vote, consent or approval, any Breaching Member or Withdrawn Member (and any Representative of such Breaching Member or Withdrawn Member) shall be excluded from such decision (as contemplated by Section 10.03(b)), and the Sharing Ratio in respect of Series A Membership Interests of such Breaching Member or Withdrawn Member shall be disregarded in calculating the voting thresholds in Section 2.02(d). (i). In addition, if any other provision of this Agreement (for the avoidance of doubt, including this Schedule I-A) provides that a Supermajority Interest is to be calculated without reference to the Sharing Ratio in respect of Series A Membership Interests of a particular Series A Management Committee Member, then the applicable voting threshold shall be deemed adjusted accordingly.

(e) ***Matters Requiring Approval of the Series A Management Committee***. Notwithstanding any other provision of this Agreement, subject to Section 6.05(e) of the Agreement, none of the following actions may be taken by, or on behalf of, the Company without first obtaining the approval of a Supermajority Interest of the Representatives of the Series A Management Committee, solely to the extent such actions relate to the Series A Membership Interests or the Mainline Facilities or any other assets of Series A:

(i) entering into, amending in any material respect, or terminating any Material Contract, or taking any action that results in a material default under any such Material Contract;

(ii) approving any material loans made by the Series or the provision of any material financial guarantees by the Series, except to the extent such material loans or material financial guarantees have been specifically included in and approved as part of a Construction Budget, an Initial Operating Budget, or any subsequent annual Capital Budget or Operating Budget that has been approved by the Series A Management Committee;

(iii) placing or permitting any liens or other encumbrances (other than

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Permitted Encumbrances) to exist on the assets related to Series A or the Series A Membership Interests;

(iv) [***]

(v) [***]

(vi) [***]

(vii) except as otherwise provided in Section 4.01(a)(ii) of the Agreement, making a Capital Call or otherwise requiring any Series A Member to make any Capital Contribution to Series A, except to the extent such Capital Call or Capital Contribution has been specifically included in and approved as part of a Construction Budget, an Initial Operating Budget, or any subsequent annual Capital Budget or Operating Budget that has been approved by the Series A Management Committee;

(viii) [***]

(ix) [***]

(x) [***]

(xi) [***]

(xii) [***]

(xiii) [***]

(xiv) the formation of any subcommittee of the Series A Management Committee pursuant to Section 6.02(f) of the Agreement;

(xv) the Disposition or abandonment of all or substantially all of the assets of Series A, or of the material assets related to the Series A Membership Interests other than any Disposition(s) in the ordinary course of business;

(xvi) [***]

(xvii) [***]

(xviii) [***]

(xix) [***]

(xx) causing any assets, property and/or rights of a Series to be allocated to the payment of fines, claims, demands, liabilities, losses or damages of whatsoever kind or character, and costs or expenses related thereto, payable to a third party attributable to a different Series;

(xxi) considering at a meeting of the Series A Management Committee a

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material matter not on the agenda for that meeting; and

(xxii) the commencement, conduct or settlement of any suit, action or proceeding or arbitration to the extent related to Series A, in each case to the extent involving in excess of \$500,000.

For the avoidance of doubt, to the extent the actions set forth in Section 2.02(e) affect more than one Series or affect Additional Transportation Facilities, such actions may not be taken unilaterally by the Series A Management Committee, notwithstanding the approval of a Supermajority Interest of the Representatives of the Series A Management Committee, without the consent of any other applicable Additional Series Management Committee to the extent required by the Series Schedule applicable to such Series.

(f) **Reasonableness.** In any matter proposed to the Series A Management Committee pursuant to [***].

(g) **Officers.** The Series A Management Committee may designate one or more Persons to be officers of a Series. Any officers so designated shall have such titles and, subject to the other provisions of this Agreement, have such authority and perform such duties as the Series A Management Committee may delegate to them and shall serve at the pleasure of the Series A Management Committee and report to the Series A Management Committee.

2.03 Insurance Coverage. The Series A Management Committee shall determine the type limits, deductibles and other terms applicable to the insurance coverages to be maintained by each Series, and such Series shall engage an insurance broker to provide recommendations and to procure such insurance coverages on behalf of the Series.

2.04 Delivery of Operating Budget. Unless provided otherwise in the Existing COM Agreement, on or prior to [***] of each year, the Existing Operator shall deliver draft annual Operating Budget(s) for the Mainline Facility for the following year to each of the Representatives of the Series A Management Committee Members, which Representatives will have [***] Days to provide comments (the “*Series A Comment Deadline*”) on such draft annual Operating Budgets (such comments, the “*Series A Representative Budget Comments*”). The Existing Operator shall make a good faith effort to respond to, and incorporate into such draft annual Operating Budgets prepared by the Existing Operator, the Series A Representative Budget Comments and shall deliver to each of such Representatives the final annual Operating Budgets prepared by the Existing Operator for the following year on or before [***] (the “*Series A December Deadline*”) of each year; provided, however, that, if the board of directors of the Existing Operator has not convened to approve such annual Operating Budgets by [***] of a given year, then the Series A December Deadline shall be extended to [***] of such year; provided, further, that, if the meeting of the board of directors of the Existing Operator to approve such annual Operating Budgets is scheduled prior to the Series A Comment Deadline, the Existing Operator shall promptly notify such Representatives in writing of the date and time of such meeting (but no less than [***] Business Days in advance of such meeting), and such Representatives shall use reasonable efforts to provide the Series A Representative Budget Comments in advance of such meeting. The Existing Operator and such Representatives shall work together in good faith to cause the Operating Budgets for the Mainline Facilities to be approved by [***] of such year.

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2.05 Applicability of Side Letters. Notwithstanding anything to the contrary in the Agreement, the approval of the Series A Management Committee shall be required for any Capital Call issued by an Operator that would otherwise be subject to the terms and provisions of (a) that certain letter agreement by and among EQT, USG, Vega Carryco and the Company dated as of October 24, 2016, as amended or supplemented from time to time, or (b) that certain letter agreement by and among EQT, USG, WGL and the Company, dated as of October 24, 2016, as amended or supplemented from time to time.

ARTICLE 3

[***]

3.01 Definitions. As used in this Article 3, the following terms have the respective meanings set forth below:

[***]

“**CECONY**” means Consolidated Edison Company of New York, Inc., a New York corporation.

“**Con Edison**” means Con Edison Gas Pipeline and Storage, LLC, a New York limited liability company.

[***]

[***]

“**EQT Precedent Agreement**” means that certain Second Restated Precedent Agreement, dated December 20, 2017, between the Company and EQT Energy, LLC, as may be amended or otherwise modified from time to time.

[***]

“**Initial Facilities**” means those facilities described in clause (a) of the definition of Mainline Facilities.

“**IPO**” means the closing of the first firm commitment underwritten public offering and sale of securities of the Company (or any entity or entities created through any reorganization or designated by the Series A Management Committee) pursuant to an effective registration statement (excluding any registration statement on Form S-4 or S-8 or their equivalent) filed by the Company under the Securities Act of 1933, as amended.

“**Loans**” means loans made to the Company with respect to the Series pursuant to Section 4.02(a) of the Agreement in respect of the Mainline Facilities.

“**Mainline Facilities Expansion**” means the expansion of the Mainline Facilities pursuant to clauses (b)-(d) in the definition of “Mainline Facilities”.

“**USG Precedent Agreement**” means that certain Third Restated Precedent

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Agreement, dated December 20, 2017, between the Company and USG Properties Marcellus Holdings, LLC, as may be amended or otherwise modified from time to time.

3.02 [***].

(a) Subject to the provisions of this Section 3.02, the Company hereby grants to [***] the right to [***]. For the avoidance of doubt, [***] of the Agreement.

(b) The Company shall give written notice ([***] “[***] **Notice**”) of any [***] within five Business Days of the approval of [***].

(c) If, within ten Business Days following the receipt of [***] Notice [***] shall have the right to [***].

- (d) The Company may, in accordance with [***].
- (e) [***] Each party to the [***] shall take all such other actions as may be reasonably necessary to [***].

3.03 [***]. Notwithstanding anything to the contrary in [***]

[***]

3.04 Management Committee Observer; [***].

(a) **Observer.** Con Edison shall have the right to designate (i) one Management Committee observer (the “**Observer**”) and (ii) one alternate Management Committee observer (the “**Alternate Observer**”) that shall have the same rights as the Observer in the event that the Observer is unable to fulfill its duties as set forth herein. The term “**Observer**” shall also refer to the Alternate Observer when the Alternate Observer is actually performing the duties of the Observer. The initial Observer and Alternate Observer are [***] and [***], respectively, which may be changed by Con Edison from time to time with three Business Days prior written notice in advance of a meeting to the Company and the Series A Founding Members; provided, that if giving such advance notice is not feasible, then any new Observer shall present written evidence of his or her authority at the commencement of such meeting.

(b) **Rights of Observer.** The Observer shall have the right to attend and participate in meetings of the Series A Management Committee and to receive all information provided to the Series A Management Committee (including minutes of the Series A Management Committee meetings), [***].

(c) [***]. [***] shall have the right to [***], and the [***] agree to cause [***]. Solely to the extent necessary for [***] to exercise its rights under this Section 3.04(c), all provisions of this Agreement applicable to [***] of the Series A Management Committee shall be applicable to [***].

(d) **Notice of Meetings.** [***], the Observer shall be entitled to receive notice of, and an agenda for, all Series A Management Committee meetings at least five Days prior to

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the date of each meeting, together with proposed minutes of the previous Series A Management Committee meeting (if such minutes have not been previously ratified), unless, with respect to special meetings of the Series A Management Committee, such five-Day period is shortened by the Series A Management Committee pursuant to Section 2.02(b), in which case the Observer shall be entitled to receive notice by such shortened time, which shall in no event be less than one Business Day before any special meeting. The Observer shall have the right to participate in all Series A Management Committee meetings in accordance with Section 2.02(c) regardless of whether all other participants are present at such meeting in person. For the avoidance of doubt, actions taken at any meeting where the Observer was not given proper notice shall be null and void; provided, that such actions may be reinstated and be of full force and effect if re-authorized by written consent of the Series A Management Committee (such consent to be made available to the Observer in accordance with Section 3.04(e)).

(e) **Action by Written Consent.** [***], in the event the Series A Management Committee takes any action by written consent pursuant to Section 6.02(g) of the Agreement, the Series A Management Committee shall cause to be delivered a copy of such written consent to the Observer when sent to the Representatives for execution.

(f) [***]. The provisions of [***] shall apply to [***].

(g) [***]. The provisions of [***] with respect to the [***] shall apply to [***].

3.05 [***].

(a) [***]. If, [***] EQT and [***] propose to [***] shall be permitted to [***]; provided, however, that [***] would not be subject to [***] (unless [***], in which case such transaction shall be [***]). For the avoidance of doubt, any transactions pursuant to [***] shall not constitute [***].

(b) [***]. Prior to the [***] EQT and/or [***] shall deliver to [***].

(c) [***].

(i) [***] shall exercise its right to [***] by delivering [***] does not approve [***], then [***] shall not [***].

(ii) If [***] does not [***], then [***] shall be deemed to have [***].

(iii) Each Member [***] shall [***].

(d) [***]. This Section 3.05 shall not apply to [***].

3.06 [***].

(a) [***]. If [***] a Member [***] desires to [***], then [***] shall be permitted to [***] on the terms and conditions set forth in this Section 3.06.

(b) [***]. Within [***] Business Days of [***].

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(c) [***].

(i) [***] shall [***].

(ii) If [***].

(iii) Prior to the time the [***]. Promptly following [***]:

(A) such [***] shall [***]; and

(B) the Company shall [***].

3.07 [***].

(a) Notwithstanding anything to the contrary in this Agreement, the Series A Founding Members and the Company agree that [***].

(b) Notwithstanding anything to the contrary in [***] EQT and [***] agree that [***].

3.08 [***]. [***] shall have the [***], which shall specifically include [***]. If [***] another [***] then [***] shall [***]; provided, however, that nothing herein shall be deemed to [***].

3.09 **Confidential Information**. Notwithstanding anything to the contrary in this Agreement, the Series A Founding Members and the Company agree that Con Edison may disclose Confidential Information to an Affiliate of Con Edison, including the directors, officers, members, managers, employees, agents and advisors of such Affiliate, if such Affiliate has agreed to abide by the terms of Section 3.06 of the Agreement; provided, however, that in no event shall Con Edison or any of its successors, assigns or Affiliates disclose Confidential Information to any Shipper that is an Affiliate of Con Edison, [***].

3.10 [***]. Notwithstanding anything to the contrary in this Agreement, the Series A Founding Members and the Company hereby agree that [***].

3.11 [***].

(a) If the Company shall [***], the Company shall [***]. The Company shall use [***]; provided, that, in the event that the [***]. The Company shall have the right to [***].

(b) In connection with its obligations under this Section 3.11, the Company shall:

- (i) [***]; and
- (ii) [***] such other actions as are [***].

3.12 [***]. Notwithstanding any provision of the Agreement to the contrary, in the event [***] shall have the right [***]; provided that, any [***] shall [***]. Upon such election [***];

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provided that [***] shall not [***] and shall not [***], and no [***] shall be [***] as a consequence of [***].

3.13 [***]; **Assignability; Joinder**. None of the Company, a Series, EQT or [***]. EQT and USG shall have the right to assign their obligations under this Article 3 without the prior written consent of any other Member only in connection with transfer of any Series A Membership Interests to a third party [***]. This Article 3 will be binding upon, and inure to the benefit of, the respective successors and permitted assigns, as permitted by the terms of this Agreement, of the Members.

3.14 **Waivers**. None of EQT, USG [***] waives any right under this Article 3 by failure or delay in its exercise. A single or partial exercise of any right does not preclude its later or further exercise or the exercise of any other right. The rights and remedies in this Agreement are cumulative and not exclusive of any rights or remedies provided by law.

3.15 **Representations and Warranties**. Each of the Company, EQT and USG hereby represent and warrant to [***].

3.16 **Conflicts**. In the event of a conflict between the terms and provisions of this Article 3 and the other terms and provisions of this Agreement, the terms and provisions of this Article 3 shall govern and control.

3.17 **Term**. The terms and provisions set forth in this Article 3 shall automatically terminate and no longer be a part of this Agreement, without any further action on the part of any Person, if [***].

[Remainder of page intentionally left blank. Signature page follows.]

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IN WITNESS WHEREOF, the undersigned have executed this Schedule I-A as of the date first set forth above. By executing this Schedule I-A, the undersigned acknowledge that this Schedule I-A and the attributes of Series A Membership Interests, and the rights, benefits, privileges, obligations, duties and liabilities relating thereto, set forth herein have been duly approved and adopted in accordance with the Agreement.

SERIES A MEMBERS:

MVP HOLDCO, LLC

By: /s/ David W. Gray
 Name: David W. Gray
 Title: Senior Vice President

US MARCELLUS GAS INFRASTRUCTURE, LLC

By: /s/ Matthew J. Schafer
 Name: Matthew J. Schafer
 Title: Vice President

VEGA NPI IV, LLC

By: _____
 Name: _____
 Title: _____

WGL MIDSTREAM, INC.

By: Anthony M. Nee
 Name: Anthony M. Nee
 Title: President

RGC MIDSTREAM, LLC

By: /s/ John S. D'Orazio
 Name: John S. D'Orazio
 Title: President and CEO

[Signature Page to Schedule I-A]

CON EDISON GAS PIPELINE AND STORAGE, LLC

By: Con Edison Transmission, Inc.,
 its sole member

By: /s/ Joseph P. Oates
 Name: Joseph P. Oates
 Title: President and CEO

[Signature Page to Schedule I-A]

SCHEDULE I-B**SERIES B MEMBERSHIP INTERESTS**

Dated as of April 6, 2018

<u>Name, Address, Fax and E-mail</u>	<u>Sharing Ratio in respect of Series B Membership Interests</u>	<u>Parent</u>	<u>Representative and Alternate Representatives</u>
MVP HOLDCO, LLC	[***]%	[***]	[***]
EQT Plaza 625 Liberty Avenue Pittsburgh, Pennsylvania 15222 Fax: (412) 553-7781 Attention: David Gray [***]			[***]

Sean McGinty
[***]

with a copy to:

Baker Botts L.L.P.
30 Rockefeller Plaza
New York, New York 10112
Fax: (212) 408-2504
Attn: Michael L. Bengtson
(mike.bengtson@bakerbotts.com)

US MARCELLUS GAS INFRASTRUCTURE, LLC [***]% [***] [***]

601 Travis Street [***]
Suite 1900
Houston, Texas 77002
Fax: (713) 751-0375
Attention: Lawrence A. Wall, Jr.
[***]

WGL MIDSTREAM, INC. [***]% [***] N/A

c/o WGL Holdings, Inc.
101 Constitution Avenue, N.W.
Washington, DC 20080
Fax: (202) 624-6655
Attn: Anthony M. Nee
[***]

RGC MIDSTREAM, LLC [***]% [***] N/A

519 Kimball Ave NE
Roanoke, Virginia 24016
Fax: (540) 777-2636
Attn: Paul Nester
[***]

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CON EDISON GAS PIPELINE AND STORAGE, LLC [***]% [***] N/A

4 Irving Place
New York, New York 10003
Fax: (917) 534-4476
Attn: Joseph Oates
[***]

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The Series B Members acknowledge and agree as follows:

ARTICLE 1
GENERAL PROVISIONS APPLICABLE TO SERIES B MEMBERS

1.01 [Intentionally omitted].

1.02 Facilities. The Facility to which the Series B Membership Interests relate is (a) new transportation facilities, together with any upgrades thereto, to be constructed on the Mainline Facilities, including a new delivery point in Pittsylvania County, Virginia; (b) new transmission pipeline and compression facilities, together with any upgrades thereto, to be constructed from the new delivery point in Pittsylvania County, Virginia to planned new delivery points to be established in Dan River and Haw River, North Carolina; (c) any pipeline constructed or installed to loop (as such term is commonly used in the natural gas pipeline industry) the facilities described in clauses (a) or (b) above; (d) any compression installed or upgraded with respect to the facilities described in clauses (a) or (b) above; and (e) increased transportation capacity of the facilities described in clauses (a) or (b) above through the installation of greater capacity pipe, looping or similar improvements (“*MVP Southgate*”).

1.03 Development of MVP Southgate.

(a) **FERC Application.** Pursuant to the terms of the COM Agreement relating to MVP Southgate, USG, EQT and the applicable Operator shall jointly prepare and submit to the Series B Management Committee the proposed ATF FERC Application related to MVP Southgate; and, following the approval of the ATF FERC Application by the Series B Management Committee, USG, EQT and the applicable Operator shall, on behalf of the Series, file such ATF FERC Application with the FERC.

(b) **Approval of ATF FERC Certificate.** No later than [***] Days prior to the applicable ATF FERC Response Date, the Series B Management Committee shall vote on whether the ATF FERC Certificate for MVP Southgate is issued on terms and conditions which are not materially different from those requested in the ATF FERC Application for MVP Southgate and whether the Series shall (i) accept the ATF FERC Certificate for MVP Southgate without seeking rehearing; (ii) accept such ATF FERC Certificate and seek rehearing of the order issuing such ATF FERC Certificate; (iii) file for rehearing before committing to accept or reject such ATF FERC Certificate; or (iv) reject such ATF FERC Certificate. The Series B Management Committee shall be deemed to have approved such ATF FERC Certificate for MVP Southgate if the Series B Management Committee determines that such certificate is issued on terms and conditions which are not materially different from those requested in the ATF FERC Application for MVP Southgate. In such event, the Series B Management Committee shall accept such ATF FERC Certificate prior to the applicable ATF FERC Response Date with or without seeking rehearing of the order issuing the ATF FERC Certificate for MVP Southgate. In such event, subject to the terms of this Schedule I-B, including Section 1.02(d), and the Agreement, each Member holding Series B Membership Interests (in its capacity as such and not in its capacity as the holder of any other Series of Membership Interests, each, a “*Series B Member*” and, collectively, the “*Series B Members*”) shall be firmly committed to the construction of MVP Southgate and the construction of MVP Southgate shall not be subject to any conditions precedent, including but not limited to

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Series B Management Committee approval of any financial commitment for obtaining funds to finance MVP Southgate or the Series B Management Committee approval to construct MVP Southgate.

(c) If the Series B Management Committee finds that the ATF FERC Certificate for MVP Southgate is issued on terms and conditions which are materially different from those requested in the ATF FERC Application for MVP Southgate and one or more of the Series B Members (which must include either USG or EQT or both) vote to accept the order issuing such ATF FERC Certificate with or without seeking rehearing and one or more of the Series B Members vote to reject the order issuing such ATF FERC Certificate with or without seeking rehearing (or did not vote), then the Series B Members that voted to accept such ATF FERC Certificate shall be free to proceed with the construction of MVP Southgate under this Agreement (but only if one of EQT or USG so elects to proceed), such vote being deemed the requisite vote of the Series B Management Committee, and the Series B Member(s) that voted to reject such ATF FERC Certificate shall be deemed to have Withdrawn from Series B, with such deemed Withdrawal being considered a “Deemed Withdrawal Event” for purposes of Section 10.02(e) of the Agreement. Subject to the terms of this Agreement, those Series B Members that elect to proceed with the construction of MVP Southgate shall be firmly committed to the construction of MVP Southgate and the construction of MVP Southgate shall not be subject to any conditions precedent. In the event no Series B Member votes to accept the order issuing the ATF FERC Certificate for MVP Southgate, then such vote shall be a Dissolution Event with respect to Series B and Series B shall terminate and wind up pursuant to Article 12 of the Agreement. Notwithstanding anything to the contrary in this Agreement, a deemed Withdrawal pursuant to this Section 1.03(c) of this Schedule I-B shall carry no connotation or implication that the Withdrawn Member has breached this Agreement or otherwise acted contrary to the intent of this Agreement, it being understood that (i) each Series B Member is completely free to cast its vote as it wishes with respect to the matters set forth in this Section 1.03(c) of this Schedule I-B and (ii) the concept of “deemed Withdrawal” is merely a convenient technique for permitting the continued development of MVP Southgate by the Series B Members that desire to continue such development.

1.04 Performance Assurances. Each Series B Member shall deliver, or cause to be delivered on such Series B Member’s behalf, to the Series:

(a) Within [***] Business Days of the Effective Date (or, with respect to a New Member admitted after the Effective Date and prior to the In-Service Date with respect to MVP Southgate, within [***] Business Days of such admission), for the period up to the issuance of the FERC's initial release to the Series to commence construction pursuant to the ATF FERC Certificate with respect to MVP Southgate (the "***Southgate Initial Release***"), Performance Assurances equal to such Member's share of \$[***] (calculated based on such Member's Sharing Ratio in respect of Series B Membership Interests); and

(b) Within 10 Business Days of the date of the Southgate Initial Release (or, with respect to a New Member admitted after the date of the Southgate Initial Release, within 10 Business Days of such admission), for the period following the Southgate Initial Release and up to the In-Service Date for MVP Southgate, Performance Assurances equal to [***]% of an amount equal to such Member's Sharing Ratio in respect of Series B Membership Interests multiplied by

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the remaining obligations under the applicable Construction Budget and less any security posted by such Member, or Member's Affiliate, under any Approved Precedent Agreement).

Notwithstanding anything to the contrary in this Section 1.04, at no time prior to the In-Service Date for MVP Southgate will a Series B Member's Performance Assurance obligation be less than such Series B Member's share of \$[***] (calculated based on such Member's Sharing Ratio in respect of Series B Membership Interests). The Performance Assurances posted by a Member pursuant to this Schedule I-B shall be reduced (A) at the end of each Quarter, to reflect [***]% of such Member's actual Capital Contributions made to the Company during such Quarter in respect of the Series B Membership Interests, (B) to reflect any Performance Assurances posted by any New Members holding Series B Membership Interests, and (C) in connection with a Disposition of all or a portion of such Member's Series B Membership Interest, to reflect the replacement Performance Assurances to be posted by the Assignee of such Series B Membership Interest pursuant to this Schedule I-B.

1.05 Amendment of this Series Schedule. Notwithstanding anything to the contrary in the Agreement and except as otherwise agreed in writing, this Schedule I-B may only be amended by a Supermajority Interest of the Representatives of the Series B Management Committee; provided, however, any amendment or restatement of this Schedule I-B that is materially adverse to any Series B Member in a manner that is disproportionate to such Series B Member's interest (as compared to the interest of other Series B Members) shall (a) if the affected Member is a Series B Founding Member, require the written consent or approval of such Series B Founding Member; or (b) if the affected Member is not a Series B Founding Member, require the written consent or approval of a majority of all Series B Members similarly adversely affected.

1.06 Interpretation. Unless the context otherwise requires, as used in this Schedule I-B, (a) references to Articles and Section refer to the Articles and Sections of this Schedule I-B and (b) capitalized terms not otherwise defined in this Schedule I-B have the meanings given to such terms in the Agreement.

1.07 [Intentionally omitted].

1.08 Series B Founding Members. The Founding Members with respect to Series B shall be EQT, USG and any other Person who EQT and USG mutually agree should be a Founding Member with respect to Series B (the "***Series B Founding Members***").

1.09 COM Matters. The COM Agreement applicable to Series B shall be that certain Construction, Operation and Management Agreement, dated as of the date hereof (as amended from time to time, the "***Series B COM Agreement***"), by and between Series B and the Existing Operator. The Owner Performance Rights with respect to Series B shall be those matters set forth in Section 4.4 of the Series B COM Agreement and the COM Approval Matters with respect to Series B shall be those matters described in the Series B COM Agreement.

1.10 [Intentionally omitted].

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**ARTICLE 2
GOVERNANCE PROVISIONS APPLICABLE TO SERIES B MEMBERS**

2.01 General. Subject to Section 6.03 of the Agreement, with respect to matters relating to Series B, management is fully vested in the Series B Founding Members as set forth in Section 2.02. The Series B Management Committee shall be comprised of one Representative for each Series B Founding Member, which Representative shall have a vote equal to the designating Series B Founding Member's Sharing Ratio in respect of Series B Membership Interests (each Series B Founding Member entitled to participate in the Series B Management Committee at a given time, a "**Series B Management Committee Member**"). To facilitate the orderly and efficient management of Series B, the Series B Founding Members' Representatives shall act (a) collectively as a "committee of the whole" pursuant to Section 2.02, and (b) through the delegation of certain duties and authority to the Operator under the Series B COM Agreement.

2.02 Management Committee. The Series B Founding Members shall act collectively through meetings as a "committee of the whole," which is hereby named the "**Series B Management Committee**." Except as expressly set forth in the Agreement, the Series B Management Committee shall have voting rights only with respect to matters that are solely and exclusively related to Series B or MVP Southgate and shall not have any voting rights with respect to matters that affect one or more Series. Decisions or actions taken by the Series B Management Committee in accordance with the provisions of this Schedule I-B and the Agreement shall constitute decisions or actions by the Company and each Series and shall be binding on each Member, Representative, and employee of the Company and each Series, subject to any other approvals required under the Agreement and any other Series Schedule. The Series B Management Committee shall conduct its affairs in accordance with the following provisions and the other provisions of this Agreement:

(a) **Representatives.** To facilitate the orderly and efficient conduct of Series B Management Committee meetings, each Series B Management Committee Member (together with its Affiliates, if applicable) shall notify the other Series B Management Committee Member(s), from time to time, of the identity of (A) its Representative, and (B) at least one, but not more than two, Alternate Representatives. [***] The initial Representative and Alternate Representatives of each Series B Management Committee Member are set forth above in this Schedule I-B. A Series B Management Committee Member may designate a different Representative or Alternate Representatives for any meeting of the Series B Management Committee by notifying the other Series B Management Committee Member(s) at least [***] Business Days prior to the scheduled date for such meeting; provided that, if giving such advance notice is not feasible, then such new Representative or Alternate Representatives shall present written evidence of his or her authority at the commencement of such meeting.

(b) **Time and Place of Meetings.** The Series B Management Committee shall meet quarterly, subject to more or less frequent meetings upon approval of the Series B Management Committee. Notice of, and an agenda for, all Series B Management Committee meetings shall be provided by the Representatives to all Series B Founding Members at least five Days prior to the date of each meeting, together with proposed minutes of the previous Series B Management Committee meeting (if such minutes have not been previously ratified). Among other items, the agenda will provide for a discussion of (i) the results of operations, including explanations of significant variances in revenues, expenses and cash flow activities and (ii)

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amounts due for contractual obligations that will impact Available Cash. Special meetings of the Series B Management Committee may be called at such times, and in such manner, as any Series B Management Committee Member reasonably deems necessary. Any Series B Management Committee Member calling for any such special meeting shall notify the Representatives, who in turn shall notify all Series B Management Committee Members of the date and agenda for such meeting at least five Days prior to the date of such meeting. Such five-Day period may be shortened by the Series B Management Committee, acting through a Supermajority Interest. All meetings of the Series B Management Committee shall be held at a location agreed upon by the Representatives. Attendance of a Representative of a Series B Management Committee Member at a meeting of the Series B Management Committee shall constitute a waiver of notice of such meeting, except where such Representative attends the meeting for the express purpose of objecting to the transaction of any business on the ground that the meeting is not lawfully called or convened.

(c) **Quorum.** The presence of Representative(s) of Series B Management Committee Members representing a Supermajority Interest shall constitute a quorum for the transaction of business at any meeting of the Series B Management Committee; provided, that for any matter set forth in Section 2.02(e) of this Schedule I-B, the presence of Representatives of Series B Management Committee Members necessary to action pursuant thereto shall be required for a quorum to be present.

(d) **Voting.**

(i) **Voting by Sharing Ratios.** Subject to Section 2.02(f) and Section 6.05(e) of the Agreement, each Representative shall be entitled to vote on all matters submitted to a vote of the Series B Management Committee in accordance with

the respective Sharing Ratio in respect of Series B Membership Interests of the Series B Management Committee Member that designated such Representative. Except for matters set forth in Section 2.02(e), (A) the approval of [***] the Representatives comprising the Series B Management Committee will be necessary for the approval of any and all actions submitted to the Series B Management Committee and (B) no vote shall be required for matters delegated to the Operator pursuant to the Series B COM Agreement.

(ii) **DISCLAIMER OF DUTIES.** WITH RESPECT TO ANY VOTE, CONSENT OR APPROVAL AT ANY MEETING OF THE SERIES B MANAGEMENT COMMITTEE OR OTHERWISE UNDER THIS AGREEMENT, EXCEPT TO THE EXTENT OTHERWISE EXPRESSLY PROVIDED IN SECTION 2.02(f) AND SECTION 6.05(e) OF THE AGREEMENT, EACH REPRESENTATIVE MAY GRANT OR WITHHOLD SUCH VOTE, CONSENT OR APPROVAL IN ITS SOLE DISCRETION. THE PROVISIONS OF THIS SECTION 2.02(d)(ii) SHALL APPLY NOTWITHSTANDING THE NEGLIGENCE, GROSS NEGLIGENCE, WILLFUL MISCONDUCT, STRICT LIABILITY OR OTHER FAULT OR RESPONSIBILITY OF A SERIES A MEMBER OR ITS REPRESENTATIVE.

(iii) **Exclusion of Certain Members and Their Sharing Ratios.** With respect to any vote, consent or approval, any Breaching Member or Withdrawn Member (and any Representative of such Breaching Member or Withdrawn Member) shall be excluded from such decision (as contemplated by Section 10.03(b)), and the Sharing Ratio in respect of Series B

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Membership Interests of such Breaching Member or Withdrawn Member shall be disregarded in calculating the voting thresholds in Section 2.02(d)(i). In addition, if any other provision of this Agreement (for the avoidance of doubt, including this Schedule I-B) provides that a Supermajority Interest is to be calculated without reference to the Sharing Ratio in respect of Series B Membership Interests of a particular Series B Management Committee Member, then the applicable voting threshold shall be deemed adjusted accordingly.

(e) **Special Approval Matters.** Notwithstanding any other provision of this Agreement, none of the following actions may be taken by, or on behalf of, the Company without first obtaining the approval of the Representatives of the Series B Management Committee Members holding at least [***]% of the Sharing Ratios in respect of Series B Membership Interests held by all Series B Management Committee Members:

(i) entering into, amending in any material respect, or terminating any Material Contract relating to MVP Southgate, or taking any action that results in a material default under any such Material Contract;

(ii) approving any material loans made by the Series or the provision of any material financial guarantees by the Series, except to the extent such material loans or material financial guarantees have been specifically included in and approved as part of a Construction Budget, an Initial Operating Budget, or any subsequent annual Capital Budget or Operating Budget that has been approved by the Series B Management Committee;

(iii) placing or permitting any liens or other encumbrances (other than Permitted Encumbrances) to exist on the assets of the Series relating to MVP Southgate;

(iv) [***]

(v) [***]

(vi) [***]

(vii) except as otherwise provided in Section 4.01(a)(ii) of the Agreement, making a Capital Call or otherwise requiring any Series B Member to make any Capital Contribution to Series B, except to the extent such Capital Call or Capital Contribution has been specifically included in and approved as part of a Construction Budget, an Initial Operating Budget, or any subsequent annual Capital Budget or Operating Budget that has been approved by the Series B Management Committee;

(viii) [***]

(ix) [***]

(x) [***]

(xi) [***]

(xii) [***]

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(xiii) [***]

(xiv) the formation of any subcommittee of the Series B Management Committee pursuant to Section 6.02(f) of the Agreement;

(xv) the Disposition or abandonment of all or substantially all of the assets of Series B, or of the material assets related to the Series B Membership Interests other than any Disposition(s) in the ordinary course of business;

(xvi) [***]

(xvii) [***]

(xviii) [***]

(xix) [***]

(xx) considering at a meeting of the Series B Management Committee a material matter not on the agenda for that meeting;

(xxi) commencement, conduct or settlement of any suit, action or proceeding or arbitration to the extent related to Series B, in each case to the extent involving in excess of \$500,000;

(xxii) making any material tax elections or any material decisions relating to material tax returns pertaining only to Series B, as determined in the reasonable judgment of the Series B Operator, acting in good faith; and

(xxiii) any approval, determination or finding by the Series B Management Committee pursuant to Sections 1.03(a) or (b) of this Schedule I-B.

(f) **Reasonableness.** In any matter proposed to the Series B Management Committee pursuant to [***].

2.03 Delivery of Operating Budget. Unless provided otherwise in the Series B COM Agreement, on or prior to [***] of each year, the Operator under the Series B COM Agreement shall deliver draft annual Operating Budget(s) for Series B for the following year to each of the Representatives of the Series B Management Committee Members, which Representatives will have [***] Days to provide comments (the “*Series B Comment Deadline*”) on such draft annual Operating Budgets (such comments, the “*Series B Representative Budget Comments*”). Such Operator shall make a good faith effort to respond to, and incorporate into such draft annual Operating Budgets prepared by such Operator, the Series B Representative Budget Comments and shall deliver to each of such Representatives the final annual Operating Budgets prepared by such Operator for the following year on or before [***] (the “*Series B December Deadline*”) of each year; provided, however, that, if the board of directors of such Operator has not convened to approve such annual Operating Budgets by [***] of a given year, then the Series B December Deadline shall be extended to [***] of such year; provided, further, that, if the meeting of the board of directors of such Operator to approve such annual Operating Budgets is scheduled prior to the

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Series B Comment Deadline, such Operator shall promptly notify such Representatives in writing of the date and time of such meeting (but no less than [***] Business Days in advance of such meeting), and such Representatives shall use reasonable efforts to provide the Series B Representative Budget Comments in advance of such meeting. The Operator under the Series B COM Agreement and such Representatives shall work together in good faith to cause the Operating Budget for Series B to be approved by [***] of such year.

[Remainder of page intentionally left blank. Signature page follows.]

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IN WITNESS WHEREOF, the undersigned have executed this Schedule I-B as of the date first set forth above. By executing this Schedule I-B, the undersigned acknowledge that this Schedule I-B and the attributes of Series B Membership Interests, and the rights, benefits, privileges, obligations, duties and liabilities relating thereto, set forth herein have been duly approved and adopted in accordance with the Agreement.

SERIES B MEMBERS:

MVP HOLDCO, LLC

By: /s/ David W. Gray
Name: David W. Gray
Title: Senior Vice President

US MARCELLUS GAS INFRASTRUCTURE, LLC

By: /s/ Matthew J. Schafer
Name: Matthew J. Schafer
Title: Vice President

WGL MIDSTREAM, INC.

By: /s/ Anthony M. Nee
Name: Anthony M. Nee
Title: President

RGC MIDSTREAM, LLC

By: /s/ John S. D'Orazio
Name: John S. D'Orazio
Title: President and CEO

[Signature Page to Schedule I-B]

CON EDISON GAS PIPELINE AND STORAGE, LLC

By: Con Edison Transmission, Inc.,
its sole member

By: /s/ Joseph P. Oates
Name: Joseph P. Oates
Title: President and CEO

[Signature Page to Schedule I-B]

Attachment I

179 FERC ¶ 61,013
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Richard Glick, Chairman;
James P. Danly, Allison Clements,
Mark C. Christie, and Willie L. Phillips.

Mountain Valley Pipeline, LLC

Docket No. CP21-57-000

ORDER AMENDING CERTIFICATE

(Issued April 8, 2022)

1. On February 19, 2021, Mountain Valley Pipeline, LLC (Mountain Valley) filed an application pursuant to section 7(c) of the Natural Gas Act (NGA)¹ and Part 157 of the Commission's regulations² to amend its certificate of public convenience and necessity granted in Docket No. CP16-10-000,³ which authorized the construction and operation of the Mountain Valley Pipeline Project. In its amendment application, Mountain Valley proposes to: (1) change the crossing method for 183 waterbodies and wetlands at 120 locations (some locations contain more than one waterbody/wetland feature) from open-cut to trenchless; (2) slightly shift the permanent right-of-way at mileposts (MP) 0.70 and 230.8 to avoid one wetland and one waterbody, respectively; and (3) conduct 24-hour construction activities at eight trenchless crossings (Amendment Project). For the reasons discussed below, we grant the requested authorization, subject to certain conditions.

I. Background and Proposal

2. Mountain Valley is a Delaware limited liability company. Upon commencing operations of its Mountain Valley Pipeline Project, Mountain Valley will become a natural gas company within the meaning of section 2(6) of the NGA.⁴

¹ 15 U.S.C. § 717f(c).

² 18 C.F.R. pt. 157 (2021).

³ *Mountain Valley Pipeline, LLC*, 161 FERC ¶ 61,043 (2017) (Certificate Order), *order on reh'g*, 163 FERC ¶ 61,197 (2018), *aff'd sub. nom. Appalachian Voices v. FERC*, No. 17-1271, 2019 WL 847199 (D.C. Cir. Feb. 19, 2019) (unpublished).

⁴ 15 U.S.C. § 717a(6).

3. On October 13, 2017, the Commission issued Mountain Valley a certificate of public convenience and necessity authorizing the construction and operation of the Mountain Valley Pipeline Project, a new interstate pipeline system designed to provide up to 2,000,000 dekatherms per day of firm natural gas transportation service from Wetzel County, West Virginia, to Transcontinental Pipe Line Company, LLC's Compressor Station 165 in Pittsylvania County, Virginia (Certificate Order).⁵

4. Due to several permitting challenges, Mountain Valley has not yet completed construction of the project.⁶ Relevant to this amendment proceeding, on November 9, 2020, the U.S. Court of Appeals for the Fourth Circuit issued a stay of Mountain Valley's Nationwide Permit 12 verifications, issued by the U.S. Army Corps of Engineers (Corps) for the project.⁷ The Corps' Nationwide Permit 12 verifications had authorized Mountain Valley, pursuant to section 404 of the Clean Water Act, to cross waters of the United States using an open-cut method, which was the crossing method approved in the Certificate Order.

5. Subsequently, on November 18, 2020, in Docket No. CP21-12-000, Mountain Valley filed a request to amend its certificate authorization to: (1) cross all remaining wetlands and waterbodies between MP 0 and 77 by trenchless method as opposed to open-cut method;⁸ and (2) shift the permanent right-of-way slightly at MP 0.70 to avoid one wetland. On January 26, 2021, Mountain Valley withdrew the request, explaining that it intended to conduct a "comprehensive review of all outstanding waterbody and wetland crossings"⁹ and then file a new certificate amendment application with the Commission, as well as a new permit application with the Corps.

⁵ Certificate Order, 161 FERC ¶ 61,043.

⁶ On October 9, 2020, the Commission issued Mountain Valley an extension of time, until October 13, 2022, to complete construction of the project and place the facilities into service. *Mountain Valley Pipeline, LLC*, 173 FERC ¶ 61,026 (2020).

⁷ *Sierra Club v. U.S. Army Corps of Eng'rs*, Nos. 20-2039 and 20-2042 (4th Cir. Nov. 9, 2020) (order granting stay); *Sierra Club v. U.S. Army Corps of Eng'rs*, 981 F.3d 251 (Dec. 1, 2020) (accompanying opinion).

⁸ As discussed below, *infra* P 144, trenchless crossings of waters of the United States, unlike open-cut crossings, do not require authorization from the Corps under section 404 of the Clean Water Act.

⁹ Approximately 460 waterbodies and 183 wetlands remain to be crossed.

6. In its analysis of the remaining crossings, Mountain Valley examined a number of factors, including crossing length, slope, stream depth, karst terrain,¹⁰ and other feasibility concerns.¹¹ Based on that analysis, Mountain Valley filed the application for the Amendment Project, in Docket No. CP21-57-000. Specifically, Mountain Valley proposes to use 117 conventional bores, 2 guided conventional bores, and 1 Direct Pipe®. A right-of-way shift at MP 0.70 would modify 0.23 acre that was certificated as temporary construction workspace to permanent workspace, and a shift at MP 230.8 would require 0.13 acre of new construction right-of-way and 0.04 acre of new permanent operational right-of-way. Additionally, Mountain Valley requests authorization to conduct limited 24-hour construction activities at eight trenchless crossings¹² because these crossings would be under a railroad¹³ or because the previously-approved specific trenchless methods proposed (i.e., microtunneling,¹⁴ guided conventional bore, or Direct Pipe®) typically require 24-hour operation to avoid the potential for collapse of the bore trench or freezing up of the pipe within the bore.

7. On March 4, 2021,¹⁵ Mountain Valley filed an individual permit application with the Corps, pursuant to section 404 of the Clean Water Act, requesting authorization to

¹⁰ Karst areas are characterized by distinctive landforms (e.g., springs, caves, sinkholes) and a unique hydrogeology that results in aquifers that are highly productive but vulnerable to contamination. Karst terrain is created from the dissolution of soluble bedrocks, principally limestone and dolomite.

¹¹ Mountain Valley's February 19, 2021 Amendment Application at 7.

¹² Commission staff already approved use of a trenchless method at two of the eight crossings, at the Gauley and Roanoke Rivers, through the variance process; however, 24-hour work at those two crossings was not previously approved.

¹³ The railroad owners require boring operations to progress on a 24-hour basis until complete.

¹⁴ Use of the microtunneling method was previously approved for the Gauley and Roanoke Rivers through the variance process. Use of the microtunneling method is not proposed as part of the Amendment Project.

¹⁵ On February 19, 2021, Mountain Valley voluntarily requested that the Corps administratively revoke its September 25, 2020 Nationwide Permit 12 verifications for the Mountain Valley Pipeline Project. The Corps granted Mountain Valley's request and revoked the Nationwide Permit 12 verifications on March 2, 2021 (Pittsburgh and Huntington Districts) and March 3, 2021 (Norfolk District).

cross all the other remaining waterbodies and wetlands (i.e., those not covered by the amendment application) using the originally certificated open-cut method.¹⁶

II. Notice, Interventions, and Comments

8. Notice of Mountain Valley's amendment application was issued on March 1, 2021, and published in the *Federal Register* on March 5, 2021.¹⁷ The notice established March 22, 2021, as the deadline for filing comments and interventions. Timely, unopposed motions to intervene were filed by: Appalachian Voices, Blue Ridge Environmental Defense League, Chesapeake Climate Action Network, Indian Creek Watershed Association, Preserve Craig, Inc., Preserve Montgomery County VA, Sierra Club, Virginia Conservation Network, West Virginia Highlands Conservancy, West Virginia Rivers Coalition, and Wild Virginia (jointly); Freeda Cathcart; James Chandler; Kathy Chandler; Russell Chisholm; Bruce Coffey; Mary Coffey; Duke Energy Carolinas, LLC and Duke Energy Progress, LLC (jointly); Franklin County, Virginia; Gas and Oil Association of West Virginia, Inc.; Louisa Gay; GFWC Star Woman's Club; Charlotte Giff; Giles County, Virginia; Karolyn Givens; Nan Gray; Georgia Haverty; Jacob Hileman; Maury Johnson; Robert Johnson; Donald Jones; Suzanne Keller; William Limpert; Lynda Majors; Elizabeth Struthers Malbon; Paula Mann; Kelsey Marlett; Lois Waldron Martin; Robert McNutt; Mothers Out Front Roanoke Team; Mountain Valley Watch; Natural Resources Defense Council and Sustainable FERC Project (jointly); North Carolina Utilities Commission; Piedmont Natural Gas Co., Inc.; Kimberly Powell; Preserve Bent Mountain; Preserve Giles County; Preserve Monroe; Preserve Salem; Heather Price; Protect Our Water, Heritage, Rights; Joseph Reilly; Mary Ellen Rives; Roanoke County, Virginia; Rex Coal Land Co., Inc.; Roseanna Sacco; Emily Satterwhite; Tina Smusz; Transcontinental Gas Pipe Line Co., LLC; Grace Tuttle; Fred Vest; Katie Whitehead; Wild Virginia; and Carl Zipper.¹⁸

9. Irene Leech; Elizabeth Reynolds; Jason Shelton; Linda Parsons Sink; Frank Terry, Jr; Grace Terry; John Terry, III; Union Hill Freedmen Family Research Group; and Joshua Vana each filed late motions to intervene, which were granted by Secretary's Notices issued on April 28 and May 12, 2021. The Natural Gas Supply Association and

¹⁶ Mountain Valley also requested Corps approval to cross, via any method (i.e., trenchless or open-cut), five waterbodies that are subject to section 10 of the Rivers and Harbors Act. The Corps has indicated that its individual permit decision will include a decision on the section 10 requests. *See* EA at 2,n.4.

¹⁷ 86 Fed. Reg. 12,934 (Mar. 5, 2021).

¹⁸ Timely, unopposed motions to intervene are granted by operation of Rule 214 of the Commission's Rules of Practice and Procedure. 18 C.F.R. § 385.214(c)(1) (2021).

the Center for Liquefied Natural Gas filed a joint, late motion to intervene, which was denied by Secretary's Notice issued on November 2, 2021.

10. Numerous individuals and entities filed comments regarding the need for the Mountain Valley Pipeline Project, the status of permits and federal authorizations required for completion of the project, environmental impacts associated with the proposed change in crossing method, and the need for a supplemental environmental impact statement (EIS). The comments are addressed in the environmental assessment (EA) Commission staff prepared for the proposal or in this order, as appropriate.

III. Discussion

11. Because Mountain Valley's requested changes require amending the Certificate Order, the requests are subject to the Commission's jurisdiction and requirements of NGA sections 7(c) and (e).¹⁹

A. Certificate

12. In the Certificate Order, the Commission found that the Mountain Valley Pipeline Project was required by the public convenience and necessity.²⁰ Because Mountain Valley had no existing customers, there was no potential for subsidization by, or adverse effects on, existing customers as a result of the project.²¹ There would also be no adverse impact on existing pipelines and their captive customers.²² The Commission further found that Mountain Valley had taken appropriate steps to minimize impacts on landowners.²³

13. Several commenters allege that the Mountain Valley Pipeline Project is not needed and that the Commission should not authorize any additional fossil fuel infrastructure.²⁴ This amendment order does not authorize any new infrastructure. The Certificate Order found a market need for the project based on Mountain Valley's execution of long-term

¹⁹ 15 U.S.C. §§ 717f(c), (e).

²⁰ Certificate Order, 161 FERC ¶ 61,043 at P 64.

²¹ *Id.* P 32.

²² *Id.* P 56.

²³ *Id.* P 57.

²⁴ *See, e.g.*, Protect Our Water, Heritage, Rights' March 10, 2021 Comments; Allegheny-Blue Ridge Alliance, et al.'s September 13, 2021 Comments at 116-124.

precedent agreements for the entirety of the project's capacity, and the United States Court of Appeals for the District of Columbia Circuit upheld this finding.²⁵ In this proceeding, we are evaluating only Mountain Valley's request to change the crossing method for certain wetlands and waterbodies, slightly shift the right-of-way in two places, and conduct limited 24-hour construction activities; we are not re-examining the need for the project generally. Comments regarding need for the Mountain Valley Pipeline Project, compliance with evolving state energy policies, and the possibility of captive ratepayers paying for unneeded capacity were addressed in the underlying Certificate Order,²⁶ and thus are improper collateral attacks on that order and need not be considered further.

14. The Amendment Project does not change the Commission's prior findings on need, impacts to existing customers, and impacts on other pipelines and their captive customers. The Amendment Project will not affect any new landowners,²⁷ all construction disturbance will occur within the currently authorized construction workspace,²⁸ and, for the two pipeline right-of-way shifts, Mountain Valley already has the necessary land rights.²⁹ Thus, we find that Mountain Valley has taken appropriate steps to minimize impacts of the Amendment Project on landowners.

15. Accordingly, we find that the proposed amendment does not alter the Commission's previous finding that the Mountain Valley Pipeline Project's benefits will outweigh any adverse economic effects on existing shippers, other pipelines and their captive customers, and landowners and surrounding communities. Therefore, we conclude that the proposal is consistent with the criteria set forth in the Certificate Policy Statement and analyze the environmental impacts of the proposal below.³⁰

²⁵ *Appalachian Voices v. FERC*, No. 17-1271, 2019 WL 847199, at *1.

²⁶ Certificate Order, 161 FERC ¶ 61,043 at PP 34-53.

²⁷ Mountain Valley's February 19, 2021 Amendment Application at 7.

²⁸ *Id.*

²⁹ *Id.* at 8.

³⁰ See *Certification of New Interstate Natural Gas Pipeline Facilities*, 88 FERC ¶ 61,227, at 61,745-46 (1999) (explaining that only when the project benefits outweigh the adverse effects on the economic interests will the Commission then complete the environmental analysis), *corrected*, 89 FERC ¶ 61,040 (1999), *clarified*, 90 FERC ¶ 61,128, *further clarified*, 92 FERC ¶ 61,094 (2000) (1999 Certificate Policy Statement).

B. Environmental Analysis

16. On March 16, 2021, the Commission issued a *Notice of Scoping Period and Requesting Comments on Environmental Issues for the Proposed Amendment to the Certificate of Public Convenience and Necessity for the Mountain Valley Pipeline Project*, which established a 30-day comment period for identifying the scope of issues to be addressed in the EA.³¹ The scoping period ended on April 15, 2021.

17. On July 1, 2021, the Commission issued a *Notice of Supplemental Scoping Period for the Proposed Amendment to the Certificate of Public Convenience and Necessity for the Mountain Valley Pipeline Project and Request for Comments on Environmental Issues*, which established a second 30-day scoping period, closing on August 2, 2021.³²

18. In response to the notice of application and the scoping notices, the Commission received approximately 400 comments from individuals, federal and state agencies, elected officials, environmental non-profit groups, and companies/organizations, as well as over 1,000 form letters from individuals.

19. The primary issues raised in the comments include concerns about air quality, greenhouse gases (GHG), climate change, impacts on aquatic resources, sedimentation impacts, impacts on cultural resources, trenchless crossing constructability, environmental justice, noise, water quality (including impacts on surface water and groundwater), safety, impacts on wetlands, spoil storage, and impacts on threatened and endangered species.

20. To satisfy the requirements of the National Environmental Policy Act (NEPA) of 1969, Commission staff, in cooperation with the Corps, prepared an EA for Mountain Valley's proposal. The EA addresses geology, soils, water resources, wetlands, vegetation, wildlife, threatened and endangered species, land use, recreation, cultural resources, air quality, noise, safety, cumulative impacts, and alternatives. All substantive comments received during scoping were addressed in the EA.

21. The EA was issued for a 30-day comment period and placed into the public record on August 13, 2021. The Commission received over 60 comments on the EA from individuals and landowners, federal and state agencies, elected officials, and

³¹ 86 Fed. Reg. 15,215 (Mar. 22, 2021).

³² 86 Fed. Reg. 36,275 (July 9, 2021). The Commission issued the supplemental scoping notice upon learning that the entire environmental mailing list may not have received copies of the March 16, 2021 scoping notice.

environmental non-profit groups, as well as over 1,700 form letters from individuals.³³ The commenters raised concerns regarding the need for an EIS, as well as impacts on geology, wetlands, waterbodies, threatened and endangered and sensitive species, cultural resources, environmental justice communities, cumulative impacts, climate change, noise, reliability, and safety. We address those comments, as well as certain comments that were determined to be outside the scope of the NEPA analysis, below.

1. Procedural Concerns

a. Requests for a Supplemental EIS

22. On June 23, 2017, Commission staff issued a final EIS (FEIS) for the Mountain Valley Pipeline Project, which the Commission considered in its determination to authorize the project. Several commenters argue that a supplemental EIS should be prepared to fully analyze the Amendment Project's impacts and to ensure that the public meaningfully participates in the process.³⁴ They argue that because an EIS was prepared for the Mountain Valley Pipeline Project any supplemental NEPA document must also be an EIS.³⁵ In addition, commenters state that the Corps, a cooperating agency in the NEPA process, requires an EIS to satisfy its regulatory requirements.³⁶

23. The Council on Environmental Quality's (CEQ) regulations implementing NEPA require preparation of a supplemental EIS if "[t]he agency makes substantial changes to the proposed action that are relevant to environmental concerns[.]" or if "[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impact."³⁷ New information must be sufficient to

³³ In addition, on August 16, 2021, the Monacan Indian Nation and the Sappony Tribe filed comments, stating that Mountain Valley had agreed to address the Tribes' concerns and that they were withdrawing all previous statements of opposition to the Mountain Valley Pipeline Project.

³⁴ See, e.g., Allegheny-Blue Ridge Alliance, et al.'s September 13, 2021 Comments at 4-8.

³⁵ *Id.* at 4.

³⁶ *Id.* at 8-30.

³⁷ 40 C.F.R. § 1502.9(d) (2021).

show that the remaining federal action will affect the environment in a significant manner or to a significant extent not already considered.³⁸

24. The change in crossing method proposed here is not a substantial change to the proposed action because it will not cause significant increased impacts. Nor are there significant new circumstances or information relevant to environmental concerns. As Commission staff found in the EA, the requested amendment will not result in any significant environmental impacts and, accordingly, preparation of an EA was appropriate.³⁹

25. In addition, as stated in the EA, the Corps was a cooperating agency that assisted the Commission in preparation of the EA. The Corps may adopt the EA, per 40 C.F.R. § 1501.8 if, after independent review of the document, it concludes that its requirements and/or regulatory responsibilities have been satisfied; however, the Corps would present its own conclusions and recommendations in its record of decision or determination. Otherwise, the Corps may elect to conduct its own supplemental environmental analysis.⁴⁰

26. Several commenters also argue that the Commission should conduct a “new review” of the FEIS, claiming that it was insufficient and completed years ago.⁴¹ Analyses from the FEIS that pertain to the amendment activities and required updating, such as the environmental justice discussion, were updated in the EA.

b. NEPA Regulations

27. The EA was prepared in accordance with CEQ’s July 16, 2020 final rule, *Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act*.⁴² Allegheny-Blue Ridge Alliance, et al. claim that the Commission should apply CEQ’s pre-2020 NEPA regulations, and further allege that the 2020 regulations are not lawful or applicable to the Amendment Project.⁴³ The

³⁸ *Marsh v. Or. Nat. Res. Council*, 490 U.S. 360, 374 (1989).

³⁹ *See* 40 C.F.R. § 1501.5 (2021).

⁴⁰ *See* EA at 3.

⁴¹ *See, e.g.*, Elizabeth Struthers Malbon’s September 13, 2021 Comments at 1.

⁴² 85 Fed. Reg. 43,304 (July 16,2020).

⁴³ Allegheny-Blue Ridge Alliance, et al.’s April 15, 2021 Comments at 7-10 and September 13, 2021 Comments at 4.

2020 NEPA regulations “apply to any NEPA process begun after September 14, 2020,” and agencies “may apply the regulations [] to ongoing activities and environmental documents begun before September 14, 2021.”⁴⁴ The NEPA process for the Amendment Project began on March 16, 2021.⁴⁵ Therefore, we find it was lawful and appropriate for Commission staff to use the 2020 NEPA regulations to prepare the EA.

c. Inadequate Time Between Scoping Notices and Issuance of the EA

28. Several commenters argue that the period of time between the end of the supplemental scoping period on August 2, 2021, and the issuance of the EA on August 13, 2021, was not long enough for Commission staff to fully assess comment letters received during this time.⁴⁶ As noted above, the supplemental scoping notice was issued because Commission staff became aware that the entire environmental mailing list may not have received the original scoping notice. The supplemental notice did not identify any new issues that were not included in the original notice. In response to the supplemental notice, the Commission received approximately sixty comment letters. The majority of the comments filed in response to the supplemental notice raised issues that were already noted during the prior scoping period and, thus, Commission staff had already begun review of those issues. As stated in the EA, staff reviewed and considered all comment letters submitted prior to issuance of the EA, including the comments received during the supplemental scoping period.

d. Requests to Extend the EA Comment Period

29. Preserve Craig and Indian Creek Watershed Association requested that the 30-day comment period for the EA be extended by an 30 additional days to close on October 13, 2021.⁴⁷ We declined to extend the 30-day comment period, which is the

⁴⁴ 40 C.F.R. § 1506.13 (2021).

⁴⁵ Commenters also claim that the Amendment Project is a continuation of the existing Mountain Valley Pipeline Project and the original NEPA review from 2017. Even if the Commission were to determine that the NEPA process for the Amendment Project began before September 14, 2020, it would still be within the Commission’s discretion, pursuant to the 2020 regulations, to use the 2020 regulations in preparing the EA.

⁴⁶ *See, e.g.*, Elizabeth Struthers Malbon’s September 13, 2021 Comments at 1.

⁴⁷ Preserve Craig and Indian Creek Watershed Association’s September 13, 2021 Request for Extension of Comment Deadline.

standard period of time provided to comment on EAs, but we note that comments filed through October 13, 2021, were considered in this order.

2. Comments on the EA

a. U.S. Environmental Protection Agency

30. The U.S. Environmental Protection Agency (EPA) provided comments and recommendations regarding the crossing method of the Blackwater River, monitoring of trenchless crossing locations, water quality monitoring, potential secondary effects to downstream resources, cumulative impacts at a watershed level, contamination risks to groundwater sources, trenchless crossing information relative to karst features, air quality and greenhouse gas (GHG) emissions, and environmental justice. These comments are addressed below.

Blackwater River Crossing

31. EPA recommends additional analysis on whether the Blackwater River could be crossed via a trenchless crossing method.⁴⁸ As stated in the EA, Commission staff reviewed Mountain Valley's assessment of site conditions and concluded that the constraint at the Blackwater River is legitimate.⁴⁹ Further, Commission staff considered the impacts of an open-cut crossing of the Blackwater River in the FEIS and determined that an open-cut crossing was an acceptable crossing method, and the Commission agreed. No new information has been provided that would change our prior assessment and approval of the use of an open-cut crossing of the Blackwater River.

Monitoring of Trenchless Crossing Locations

32. EPA recommends monitoring at trenchless crossing locations to determine if the crossings have any lasting negative impacts on aquatic resources.⁵⁰ Commission staff uses a combination of factors to determine whether additional monitoring is required. In the EA, staff concludes that a bore hole collapse or inadvertent return is possible but extremely unlikely.⁵¹ If a bore hole collapse occurred, Commission staff would require

⁴⁸ EPA's September 14, 2021 Comments, Enclosure at 1.

⁴⁹ EA at 93 (confirming that, at the Blackwater River crossing location, there may not be space for spoil storage within the limits of disturbance and the slope on one side of the stream may not be conducive to a trenchless crossing).

⁵⁰ EPA's September 14, 2021 Comments, Enclosure at 1.

⁵¹ EA at 33-36.

additional monitoring of the affected stream following the incident. Monitoring before an incident does not provide any sort of early warning and is, therefore, not warranted. Monitoring for an inadvertent return is already a part of Mountain Valley's *Direct Pipe® and Horizontal Directional Drilling Contingency Plan*. Therefore, we agree with staff that monitoring beyond that already required during construction is not necessary.

33. EPA recommends development of a more robust monitoring plan than the water quality monitoring program developed to comply with conditions of the U.S. Fish and Wildlife Service's (FWS) 2020 Biological Opinion (2020 BO).⁵² The monitoring required by the 2020 BO is related to impacts from construction of the Mountain Valley Pipeline Project in areas where federally listed aquatic species are present or presumed to be present. FWS determined the parameters that should be monitored, based on its determination that additional take of listed species could occur above certain turbidity thresholds. As discussed further below, on February 3, 2022, the U.S. Court of Appeals for the Fourth Circuit (Fourth Circuit) vacated FWS's 2020 BO but found that the monitoring plan "provided a 'clear' mechanism for assessing responsibility for an exceedance [in take]".⁵³ On remand, FWS may require changes to the monitoring plan. However, the scope of activities proposed in the amendment application, however, is limited to very minor ground-disturbance within mostly disturbed right-of-way that has already been cleared. In addition, the proposed trenchless crossings will result in reduced in-stream sedimentation as compared to the in-water construction previously approved for the Mountain Valley Pipeline Project. Therefore, we find that additional monitoring is not warranted.

Potential Secondary Effects to Downstream Resources

34. EPA recommends analyzing the potential secondary effects from trenchless crossings, such as changes to hydrogeomorphology, sedimentation, and compaction from construction activities on downstream reaches and adjacent wetlands.⁵⁴ As stated above, the scope of activities proposed in the amendment is limited to minor ground-disturbances within mostly disturbed right-of-way. The use of trenchless crossing methods to cross an environmental resource, such as a waterbody or wetland, avoids direct impacts to the resource. In addition, trenchless crossings result in less disturbance of riparian areas adjacent to the waterbodies. Consequently, we find that analysis of secondary effects on downstream reaches and adjacent wetlands is not necessary.

⁵² EPA's September 14, 2021 Comments, Enclosure at 1.

⁵³ *Appalachian Voices v. U.S. Dep't of the Interior*, 25 F.4th 259, 282-83 (4th Cir. 2022).

⁵⁴ EPA's September 14, 2021 Comments, Enclosure at 1.

Cumulative Impacts at a Watershed Level

35. EPA recommends that the EA provide a cumulative effects analysis at a watershed level.⁵⁵ As noted above, the EA was prepared in accordance with CEQ's 2020 NEPA regulations, which do not require such an analysis.⁵⁶ Therefore, the EA included Commission staff's analysis of environmental trends and planned activities in affected areas, but did not include a specifically-denominated cumulative impacts analysis. However, cumulative watershed level impacts are discussed further below.⁵⁷

Contamination Risks to Groundwater Sources

36. EPA requests a geologic cross-section or similar spatial reference to indicate locations and depths of drinking water aquifers relative to bedrock stratigraphy and the planned drilling sites, in order to identify where structural features (e.g., bedding planes, karst features, faults, etc.) may exist and potentially create conduits of groundwater flow in the vicinity of the borehole locations.⁵⁸ As stated in section B.2.1 of the EA, bedrock aquifers predominate in the Amendment Project area with minor surficial alluvial aquifers occurring along streams.⁵⁹ Aquifers in the Amendment Project area are typically characterized by small groundwater capture areas. However, there are exceptions, and wells in close proximity to streams may be affected by induced recharge from the streams if the streams are within the radius of influence of groundwater pumping. As discussed in section B.1 of the EA, Mountain Valley states that, based on the Natural Resources Conservation Service's Soil Survey Geographic Database data, the bore pits at most of the proposed crossings will be excavated within bedrock overburden and alluvium material consisting of heterogeneous valley fill deposits of poorly graded silt, sand, gravel, cobbles, and boulders, as well as decomposed bedrock regolith.⁶⁰

37. The proposed trenchless crossings could result in a minor, temporary change to the impacts on shallow groundwater due to bore-pit dewatering as compared to the open-cut

⁵⁵ *Id.*

⁵⁶ *See supra* P 27.

⁵⁷ *See infra* P 83.

⁵⁸ EPA's September 14, 2021 Comments, Enclosure at 2.

⁵⁹ EA at 26.

⁶⁰ *Id.* at 27.

crossings previously approved for the Mountain Valley Pipeline Project.⁶¹ In some instances, pumping may be required 24 hours per day, for several days, to keep up with water infiltration and to ensure personnel are able to enter the bore pits safely and efficiently when beginning bore activities each day.⁶² However, given the low permeability constraints of the fractured bedrock aquifers and overburden material, the depths of the borings and bore pits, and local aquifer boundary conditions (i.e., alluvium valleys in contact with the bedrock over a short lateral distance), much lower pumping rates are expected to maintain dry working conditions in the drill pits.⁶³

38. EPA requests clarification of what is meant by “a small linear permeability contrast relative to the surrounding aquifer matrix,” and “undisturbed aquifer material on each side” in section 2.1 of the EA.⁶⁴ Here, the EA is conveying that the bore hole and pipeline will be either more or less permeable than the surrounding aquifer, but, given the volume of the aquifer compared to the bore hole and pipeline, the small area of change will not affect overall aquifer characteristics or flow patterns.

39. EPA recommends that a detailed assessment of contamination risks for groundwater sources of drinking water, including measures to avoid, respond, and mitigate potential contamination events, be provided.⁶⁵ As stated in the EA, although no known public or private groundwater wells or springs are located within 150 feet of the Amendment Project area, Mountain Valley has indicated that private wells could be located within 150 feet of the proposed bore pits at MPs 203.6 (near a residence at crossing G-009) and 270.6 (near a structure at crossing I-040).⁶⁶ As outlined in its *Water Resources Identification and Testing Plan*, Mountain Valley will identify and assess private water supplies within 150 feet of the Amendment Project, or within 500 feet if in karst terrain. Groundwater withdrawal during bore pit dewatering could potentially result in short-term, water-level drawdown of shallow groundwater in wells within the vicinity of the bore pits, and in a temporary reduction in the discharge rate of nearby springs. The magnitude and lateral distance of water-level drawdown and spring-flow impacts would depend on the existing groundwater levels at each site at the time of construction and site-specific aquifer characteristics. The EA concludes, however, that any groundwater-

⁶¹ *Id.* at 28.

⁶² *Id.* at 11 and 27.

⁶³ *Id.* at 27.

⁶⁴ EPA’s September 14, 2021 Comments, Enclosure at 23.

⁶⁵ EPA’s September 14, 2021 Comments, Enclosure at 2.

⁶⁶ EA at 28.

level drawdown and related impacts would be short-term and temporary, and that levels would be expected to recover to non-pumping conditions following construction.⁶⁷ We agree.

40. As noted above, no drinking water wells within 150 feet of any bore hole were identified. Consequently, contamination of drinking water wells would require that a spill occur and that it migrate more than 150 feet. The EA concludes that spills are unlikely.⁶⁸ Mountain Valley will implement its *Spill Prevention, Control, and Countermeasures Plan* (SPCC), which includes preventive measures such as personnel training, equipment inspection, and refueling procedures to reduce the likelihood of spills, as well as mitigation measures such as containment and cleanup to minimize potential impacts should a spill occur. In addition, Mountain Valley is required by its *Wetland and Waterbody Construction and Mitigation* (Procedures) to place portable equipment such as water pumps in secondary containment structures in order to contain any leaks or spills. Consequently, the risk of an uncontained spill is low and the risk of a spill migrating more than 150 feet is extremely unlikely. Therefore, we find that no additional assessment on contamination risks for groundwater sources is required.

41. EPA also requests that the EA discuss impacts within wellhead protection areas.⁶⁹ The EA concludes that the Amendment Project would not result in any changes to the impact analysis in the FEIS regarding wellhead protection areas.⁷⁰ Wells located within wellhead protection areas will not be significantly affected because, as previously stated, any groundwater-level drawdown from bore pit dewatering will be short-term and expected to recover immediately following construction. In addition, Mountain Valley will implement its SPCC, which includes preventive measures such as personnel training, equipment inspection, and refueling procedures to reduce the likelihood of spills, as well as mitigation measures such as containment and cleanup to minimize potential impacts should a spill occur.

Trenchless Crossing Information Relative to Karst Features

42. In order to understand how drilling may impact karst terrain, EPA recommends that the EA provide the elevation and linear distance of the entry and exit points of the

⁶⁷ *Id.*

⁶⁸ *Id.* at 42.

⁶⁹ EPA's September 14, 2021 Comments, Enclosure at 2.

⁷⁰ EA at 17.

bores relative to the current high water marks.⁷¹ As stated in section 5.0 of the EA, plan and profile views of topographic conditions at each of the planned crossings relative to borehole and bore pit depths below the resource, including information concerning bank conditions, pipe depth, and positioning of the bore pits, were provided by Mountain Valley and are available for review in the project docket.⁷²

43. As stated in the EA, only five of the proposed conventional bores (crossings G-017, G-023, G-024, H-017, and H-020), all located between MP 206.6 to 235.5, will be in areas that may exhibit karst features.⁷³ Mountain Valley will implement its *Karst Mitigation Plan* for these crossings. Mountain Valley's *Karst Mitigation Plan* requires the presence of karst inspectors in karst areas during construction to surveil potential karst feature formation. The inspectors have stop-work authority, and if a cover-collapse type feature is activated during dewatering/filtering, the karst inspector would notify Mountain Valley to stop work, assess the feature, and mitigate discharge directed toward the feature. The feature would be stabilized according to the *Karst Mitigation Plan*, and further discharge would be re-directed away from the karst feature. The EA concludes that when a trenchless crossing method is used through karst terrain, any potential karst voids are observable during construction and, therefore, immediate mitigation measures can be implemented.⁷⁴

44. EPA recommends that Mountain Valley's *Karst Mitigation Plan* be updated to include all considerations mentioned in karst terrain-related state legislation enacted after September 2017 to ensure compliance with all state laws and regulations.⁷⁵ Mountain Valley's *Karst Mitigation Plan* includes its commitment to conduct construction in compliance with all state requirements. Additionally, as discussed further below, Environmental Condition 12 requires Mountain Valley to file a revised *Karst Mitigation Plan* that requires coordination with the Virginia Department of Conservation and Recreation (Virginia DCR) to identify crossing locations with high potential for surface stream loss and develop impact minimization measures, as appropriate.⁷⁶

⁷¹ EPA's September 14, 2021 Comments, Enclosure at 3.

⁷² EA at 8; *see also* Mountain Valley's February 19, 2021 Application, at app. C.

⁷³ EA at 32.

⁷⁴ *Id.* at 97.

⁷⁵ EPA's September 14, 2021 Comments, Enclosure at 3.

⁷⁶ *See infra* P 79.

Air Quality and GHG Emissions

45. Regarding air quality impacts, EPA suggests that the Commission and Mountain Valley articulate all measures that will be employed to reduce construction emissions, including those which the EA notes were previously described in the FEIS.⁷⁷ In addition to the dust suppression techniques described in the EA, Mountain Valley will also implement measures previously described in the FEIS, including spraying water on the right-of-way, covering truckloads during transit, limiting on-site vehicle speed, and measures to reduce soil track-out on public roads.⁷⁸

46. EPA recommends utilizing a qualitative discussion disclosing the increasing conflict over time between continued GHG emissions and GHG emissions reduction policy.⁷⁹ However, the Amendment Project will not result in any additional operational emissions.⁸⁰ Consequently, an analysis of emissions over time is not warranted.

47. Relatedly, Allegheny-Blue Ridge Alliance claims that the NEPA analysis in the EA is inadequate in that it considers only GHG emissions, and potential climate change impacts, associated with the Amendment Project, and not those associated with the entire Mountain Valley Pipeline Project.⁸¹ The Commission already authorized the Mountain Valley Pipeline Project. In this proceeding, we are reviewing only whether to authorize the proposed amendment activities. Thus, the EA properly analyzed impacts associated with the Amendment Project. We note that, in July 2021, Mountain Valley announced its carbon offset plan, by which it would purchase carbon offsets that are expected to be equivalent to 90% of the greenhouse gas emissions associated with operations of the Mountain Valley Pipeline Project over a 10-year period.⁸² That plan is not under consideration in this proceeding.

48. Allegheny-Blue Ridge Alliance also contends that the EA is inadequate because it fails to assess the significance of the GHG emissions associated with the Amendment

⁷⁷ EPA's September 14, 2021 Comments, Enclosure at 4.

⁷⁸ FEIS at 4-505.

⁷⁹ EPA's September 14, 2021 Comments, Enclosure at 4.

⁸⁰ EA at 69-70.

⁸¹ Allegheny-Blue Ridge Alliance, et al.'s September 13, 2021 Comments at 38-40.

⁸² See Mountain Valley's July 12, 2021 Filing.

Project on climate change.⁸³ The Commission is not herein characterizing emissions from the Amendment Project as significant or insignificant because we are conducting a generic proceeding to determine whether and how the Commission will conduct significance determinations going forward.⁸⁴ However, we are providing and considering information about these emissions, based on the information in this proceeding.⁸⁵ With respect to the GHG emissions associated with the amendment activities, the EA estimates that the change from open-cut dry to trenchless crossings would result in an increase in GHG emissions during construction equaling approximately 14,626.02 tons (13,268.5 metric tons) of CO₂e.⁸⁶ These emissions would occur only during an approximately 4-month period.⁸⁷ The Amendment Project will not result in any changes to the Mountain Valley Pipeline Project's estimated operational emissions, nor are there any incremental downstream emissions associated with the amendment.⁸⁸

49. As we have done in prior certificate orders, we compare the project's GHG emissions to the total GHG emissions of the United States as a whole. This comparison allows us to assess the project's share of contribution to GHG emissions at the national level, which provides us additional context in considering the project's potential impact on climate change. At a national level, 5.769 billion metric tons of CO₂e were emitted in 2019 (inclusive of CO₂e sources and sinks).⁸⁹ This project could potentially increase

⁸³ Allegheny-Blue Ridge Alliance, et al.'s September 13, 2021 Comments at 40-44.

⁸⁴ Although we acknowledge that the Commission has previously assessed the "significance" of GHGs, *see N. Nat. Gas Co.*, 174 FERC ¶ 61,189 (2021), we do not do so here. The Commission is considering approaches for assessing significance in a pending proceeding. *See Certification of New Interstate Natural Gas Facilities*, 178 FERC ¶ 61,197 (2022).

⁸⁵ *WildEarth Guardians v. Jewell*, 738 F.3d 298, 309 (D.C. Cir. 2013).

⁸⁶ *See* EA at 69.

⁸⁷ *See id.* at 11-12, 15.

⁸⁸ *Id.* at 69-70. As explained above, the Commission already considered the GHG emissions for Mountain Valley Pipeline Project in the Certificate Order. *See* Certificate Order, 161 FERC ¶ 61,043 at P 295.

⁸⁹ EA at 75.

CO₂e emissions based on the 2019 levels by 0.0002%.⁹⁰ At the state level, energy related CO₂e emissions in 2018 were 90.0 million metric tons in West Virginia, and 107.8 million metric tons in Virginia.⁹¹ Accordingly, the Amendment Project could potentially increase CO₂e emissions based on the West Virginia 2018 levels by 0.0069%, and on Virginia 2018 levels by 0.0066%.⁹²

50. EPA recommends that the Commission not rely on the percentage comparisons of project GHG construction emissions and national- and state-level emissions, noting that CEQ's 2016 GHG guidance states that "[a]gencies should not limit themselves to calculating a proposed action's emissions as a percentage of sector, nationwide, or global emissions in deciding whether or to what extent to consider climate change impacts under NEPA."⁹³ EPA states that project-level GHG emissions have incremental impacts that are important to consider and mitigate or avoid, and that the percentage comparisons in the EA diminish their significance. Thus, EPA recommends that the EA expand the discussion of the Amendment Project's GHG emissions in the context of national and state GHG emission reduction goals. EPA recommends that this discussion consider the U.S. 2030 GHG reduction target, 2050 net-zero pathway, and an end date of the Amendment Project's expected lifetime.

51. The EA provides information about national and state level emissions targets and, to give context, the EA also provides comparisons to national and state emission totals.⁹⁴ As stated in the EA, the Amendment Project would increase the atmospheric concentration of GHGs, in combination with past and future emissions from all other

⁹⁰ Although the national emissions reduction targets expressed in the EPA's Clean Power Plan were repealed in 2019, *EPA, Repeal of the Clean Power Plan; Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emissions Guidelines Implementing Regulations*, 84 Fed. Reg. 32,520, 32,522-32 (July 8, 2019), the Biden Administration announced in 2021 that the United States will rejoin the Paris Climate Accord, *Tackling the Climate Crisis at Home and Abroad*, 86 Fed. Reg. 7619 (Jan. 27, 2021). It is not yet clear if the U.S. will retain or modify its former goals.

⁹¹ EA at 75.

⁹² *Id.*

⁹³ EPA's September 14, 2021 Comments, Enclosure at 4 (quoting CEQ, *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and Effects of Climate Change in National Environmental Policy Act Reviews* (Aug. 1, 2016)).

⁹⁴ EA at 74-75.

sources, and would contribute cumulatively to climate change.⁹⁵ However, the Commission is unable to determine how individual projects will affect international, national, or state-wide GHG emissions reduction targets or whether a project's GHG emissions comply with those goals or laws.

52. EPA also recommends that the Commission use estimates of the social cost of GHGs to disclose and consider the climate damages from GHG emissions from the Amendment Project,⁹⁶ including where project emissions are expected to have small, or marginal, impacts on cumulative global emissions.⁹⁷

53. The social cost of GHGs is an administrative tool intended to quantify, in dollars, estimates of long-term damage possibly resulting from future emissions of carbon dioxide, nitrous oxide, and methane. In response to EPA's comments, we are disclosing Commission staff's estimate of the social cost of carbon from emissions from the construction changes associated with the Amendment Project using the calculations described below.⁹⁸ However, noting pending litigation challenging federal agencies' use of the GHG Interagency Working Group's (IWG) interim values for calculating the social cost of GHGs,⁹⁹ we are not relying on or using the social cost of carbon estimates to make any finding or determination regarding either the impact of the Amendment Project's GHG emissions or whether the Amendment Project is in the public convenience and necessity.¹⁰⁰

⁹⁵ *Id.* at 73.

⁹⁶ EPA's September 14, 2021 Comments, Enclosure at 4-5.

⁹⁷ *Id.* at 4.

⁹⁸ *See also Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321, 1329-30 (D.C. Cir. 2021).

⁹⁹ *Missouri v. Biden*, 8th Cir. No. 21-3013; *Louisiana v. Biden*, No. 21-cv-1074-JDC-KK (W.D. La). On February 11, 2022, the U.S. District Court for the Western District of Louisiana issued a preliminary injunction limiting federal agencies' employment of estimates of the social costs of GHGs and use of the IWG's interim estimates. On March 16, 2022, the U.S. Court of Appeals for the Fifth Circuit issued a stay of the district court's preliminary injunction, finding among other things that the federal agency defendants' continued use of the interim estimates was lawful. *Louisiana v. Biden*, No. 22-30087 (5th Cir. Mar. 16, 2022).

¹⁰⁰ Furthermore, the Commission is not applying the social cost of carbon herein because it has not determined which, if any, modifications are needed to render that tool

54. As both EPA and CEQ participate in the IWG, Commission staff used the methods and values contained in the IWG's current draft guidance but note that different values will result from the use of other methods.¹⁰¹ Emissions during construction would be from construction equipment and would primarily be carbon dioxide with very little nitrous oxide and methane. Accordingly, Commission staff calculated the social cost of carbon using carbon dioxide equivalent (CO₂e) in lieu of the social cost of GHGs of carbon dioxide, nitrous oxide, and methane. Assuming discount rates of 5% (\$14 per metric ton in 2020), 3% (\$51 per ton in 2020), and 2.5% (\$76 per ton in 2020),¹⁰² the social cost of carbon from 13,266 metric tons of CO₂e emitted during the construction period of the Amendment Project is calculated to be \$200,000, \$700,000, and \$1,000,000, respectively (all in 2020 dollars).¹⁰³ And using the 95th percentile of the social cost of carbon using the 3% discount rate (\$152 per ton in 2020),¹⁰⁴ the social cost

useful for project-level analyses. See CEQ's May 27, 2021 Comments filed in Docket No. PL18-1-000, at 2 (noting that it is working with representatives from the IWG to develop forthcoming additional guidance regarding the application of the social cost of GHGs tool in federal decision-making processes, including in NEPA analyses).

¹⁰¹ *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990*, Interagency Working Group on Social Cost of Greenhouse Gases, United States Government, February 2021 (IWG Interim Estimates Technical Support Document).

¹⁰² IWG Interim Estimates Technical Support Document at 24. To quantify the potential damages associated with estimated emissions, the IWG methodology applies consumption discount rates to estimated emissions costs. The IWG's discount rates are a function of the rate of economic growth where higher growth scenarios lead to higher discount rates. For example, IWG's method includes the 2.5% discount rate to address the concern that interest rates are highly uncertain over time; the 3% value to be consistent with OMB circular A-4 (2003) and the real rate of return on 10-year Treasury Securities from the prior 30 years (1973 through 2002); and the 5% discount rate to represent the possibility that climate-related damages may be positively correlated with market returns. Thus, higher discount rates further discount future impacts based on estimated economic growth. Values based on lower discount rates are consistent with studies of discounting approaches relevant for intergenerational analysis. *Id.* at 18-19, 23-24.

¹⁰³ The IWG draft guidance identifies costs in 2020 dollars. *Id.* at 5 (Table ES-1).

¹⁰⁴ This value represents "higher-than-expected economic impacts from climate change further out in the tails of the [social cost of CO₂] distribution." *Id.* at 11. In other words, it represents a higher impact scenario with a lower probability of occurring.

of carbon from construction of the Amendment Project is calculated to be \$2,000,000 (in 2020 dollars).

Environmental Justice

55. EPA recommends minority and low-income population benchmarks be clearly presented so there is an understanding of what “meaningfully greater” means based on the minority population percentage in different states.¹⁰⁵

56. Minority and low-income population benchmarks were included in the FEIS in part. As stated in the FEIS, CEQ’s environmental justice guidance provides that an environmental justice community exists where the minority population of an area is greater than 50% of the total population or is meaningfully greater than the population percentage for a surrounding reference area such as the state or county.¹⁰⁶ Under the meaningfully greater threshold, a minority community is present if the block group minority population percentage is 10% greater than the minority population percentage in the county.¹⁰⁷

57. The U.S. Census Bureau defines “low-income populations” as those living below the established poverty level. In the United States, the “poverty line” is set annually by the U.S. Department of Health and Human Services. CEQ’s Environmental Justice Guidance directs low-income populations to be identified based on the annual statistical poverty thresholds from the U.S. Census Bureau. Using *Promising Practices*’ low-income threshold criteria method, a low-income community is present when the

¹⁰⁵ Other commenters also note general concerns with potential environmental justice impacts and the analyses included in the EA. *See, e.g.*, John Surr’s August 27, 2021 Comments; Jacob Hileman’s September 13, 2021 Comments at 2; Wild Virginia’s September 13, 2021 Comments at 7 (Emily Satterwhite’s individual comments included in attachment); Appalachian Voices’ September 13, 2021 Comments at 29 (Pam Tinker’s individual comments included in attachment); Kathy E. and James T. Chandler’s September 14, 2021 Comments at 6. These comments are addressed in our response to EPA’s comments.

¹⁰⁶ CEQ, *Environmental Justice: Guidance under the National Environmental Policy Act*, at 25 (1997), https://www.epa.gov/sites/default/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf.

¹⁰⁷ EPA, *Promising Practices for EJ Methodologies in NEPA Reviews* (Mar. 2016) (Promising Practices), https://www.epa.gov/sites/default/files/2016-08/documents/nepa_promising_practices_document_2016.pdf at 21-25. The FEIS and EA did not include a definition of “meaningfully greater” for identifying minority communities.

percentage of the population living below the poverty level in the census block group is equal to or greater than the percentage of the population living below the poverty level in the county.¹⁰⁸

58. EPA also recommends use of EJSCREEN and the most current data. Commission staff uses EJSCREEN as an initial screening tool to gather information regarding the potential presence of environmental justice communities in the project area. We also clarify here that in the EA, Commission staff used the most recent data available from the U.S. Census Bureau at the time of issuance, which was data from 2019.¹⁰⁹ EPA further recommends identification of opportunities for impact avoidance, minimization, and/or mitigation, which is discussed below.

59. Appendix F of the EA provided current environmental justice community data for the areas affected by the Amendment Project, including data for the states, counties, and affected block groups. Commission staff, in both the FEIS and EA, used block groups that included project facilities as the appropriate unit of geographic analysis for the environmental justice analysis. Staff believes this geographical unit is appropriate for the Amendment Project because the impacts associated with the proposed action would be experienced immediately adjacent to project activities, with the effects diminishing with further distances from the project area. We believe the block groups that include project activities are sufficiently broad for the Amendment Project considering the temporary nature of air emissions and noise, visual, and traffic impacts.

60. In the EA, Commission staff relied on Section 4.9.2.8 of the FEIS and the data in Appendix F of the EA to conclude that none of the counties or census blocks crossed by the Mountain Valley Pipeline Project have minority populations exceeding 50% nor have minority populations meaningfully greater than the minority population percentage in their respective states. Further, Commission staff noted that low-income populations exist along the Mountain Valley Pipeline Project route. Following issuance of the EA, and using the Commission's current threshold for identifying minority populations, staff

¹⁰⁸ The FEIS and EA state that a low-income population is present if the percent of the population below the poverty level in the block group is 20% or greater. Commission staff has since aligned its threshold criteria with the method recommended in EPA's *Promising Practices*.

¹⁰⁹ Betty Werner requests clarification of the census data that was used by Commission staff and included in Appendix F of the EA. Betty Werner's September 13, 2021 Comments at 9. The EA mistakenly referred to 2021 Census Data. However, the data used in the Commission's updated environmental justice analysis (as provided in Appendix F of the EA) was 2019 data (the most recent data available at the time of issuance).

identified a total of 6 census block groups that qualify as environmental justice communities with minority populations only. Additionally, using the Commission's current threshold for identifying low-income populations, staff identified 7 census block groups that qualify as environmental justice communities with low-income populations only. Further, using current thresholds, staff identified 5 census block groups that qualify as environmental justice communities with both minority and low-income populations. Overall, staff has identified a total of 18 census block groups (out of 35 total affected census block groups) that qualify as environmental justice communities (6 with minority populations, 7 with low-income populations, and 5 with both minority and low-income populations). Appendix B of this order, which is an updated version of the EA's Appendix F, highlights the 18 environmental justice census block groups that will be affected by the proposed amendment activities. Out of 120 stream crossings, 64 crossings will occur in environmental justice communities. Out of 8 nighttime crossings, 6 will occur in environmental justice communities. One of the route adjustments will occur in an environmental justice community.

61. In addition to the low-income and minority communities referenced in EPA's comments, some commenters note that the Amendment Project would disproportionately affect elderly residents.¹¹⁰ Appendix B of this order includes census block group data for elderly populations (over age 64) within impacted census block groups. There are 17 block groups (out of a total of 35 affected block groups) within the project area that have a higher percentage of individuals over the age of 64 than the county level. For purposes of evaluating any potential adverse impacts on elderly populations, the following project-related impacts are considered for elderly populations alongside environmental justice communities with minority and low-income populations.

62. EPA recommends that potential adverse impacts in areas where there are environmental justice concerns be addressed. Section 4.1 of the EA described project-related construction activities and air and noise impacts on environmental justice communities. Beyond the impacts discussed in the EA, we also note that the Amendment Project may have temporary, minor traffic, visual, and socioeconomic impacts on environmental justice communities. All of these potential impacts on environmental justice communities (as well as on elderly individuals) are discussed below. Environmental justice concerns are not present for other resource areas, such as geology, wetlands, and wildlife, due to the minimal overall impact the Amendment Project will have on these resources and the absence of any specific connection between those resources and environmental justice communities.

¹¹⁰ See, e.g., John Surr's August 27, 2021 Comments; Kathy E. and James T. Chandler's September 14, 2021 Comments at 6.

63. As to air impacts, the EA states that air emissions from the trenchless crossings would be slightly higher than the emissions from the originally certificated open-cut crossings.¹¹¹ However, these emissions, which will be from construction equipment, will be temporary and localized and will occur only during construction. Mountain Valley estimated that the average length of time required for a conventional bore crossing (including pit excavation and boring) would be about 18 days.¹¹² Therefore, the duration of increased air emissions will be, on average, 18 days for each crossing. During that time, there will be minor temporary impacts on localized air quality due to increases in criteria pollutants, volatile organic compounds, and fugitive dust in the areas of trenchless crossing activity. Dust suppression techniques, such as watering the right-of-way and working area, may be used as necessary in construction zones near residential and commercial areas to minimize the impacts of fugitive dust on sensitive areas. Overall, impacts on environmental justice communities due to increased air emissions will be minor and temporary. Air quality impacts and mitigation are discussed further in section B.6.1 of the EA.¹¹³

64. As to noise impacts, as discussed in the EA, the Amendment Project will have two distinct phases of construction that will generate high levels of noise: 1) excavation of entry and exit bore pits; and 2) active boring.¹¹⁴ At most of the crossing locations, noise impacts will only occur during the day. However, eight crossings may include 24-hour boring operations (6 of which are located within census block groups containing environmental justice communities). As required by Environmental Condition 10, all landowners within 0.5 miles of nighttime trenchless crossing activities will be notified prior to the start of these activities. In addition, as required by Environmental Condition 11, Mountain Valley will monitor noise levels, document the noise levels in the weekly status reports, and restrict the noise attributable to nighttime construction activities associated with the trenchless crossings to no more than an Ldn of 55 dBA, or no more than a 10 dB increase over background levels where existing noise levels exceed 55 dBA Ldn, at any noise sensitive areas. Impacts on environmental justice communities due to increased construction noise will be temporary and will last the duration of construction, an average of 18 days at each crossing. Noise impacts and mitigation are discussed in section B.6.2 of the EA.¹¹⁵

¹¹¹ EA at 68.

¹¹² *Id.* at 56-57

¹¹³ *Id.* at 67.

¹¹⁴ *Id.* at 57.

¹¹⁵ *Id.* at 75.

65. With regard to traffic impacts, as discussed in the FEIS, construction vehicles will use access roads that have been approved for use by the certificated Mountain Valley Pipeline Project, as well as local roads, which could result in a slight increase in traffic on local roads. As stated in the FEIS, Mountain Valley will minimize impacts on local road users by following the measures outlined in its project-specific Traffic and Transportation Management Plans. Impacts on environmental justice communities due to increased traffic will be temporary and will last the duration of construction, an average of 18 days for each crossing. Traffic impacts and mitigation are discussed further in section 4.9.1.5 of the FEIS.¹¹⁶

66. As to visual impacts, temporary visual impacts will occur as a result of the presence and movement of vehicles, equipment, and construction crews, vegetation clearing between the bore pits, and exposure of bare soils. As stated in the EA, with the exception of a 0.13-acre temporary construction workspace, the Amendment Project will be located entirely within the certificated limits of disturbance, which currently consist of a disturbed right-of-way that has been under intermittent construction since 2018.¹¹⁷ For the trenchless crossings, visual impacts will generally be less than those associated with the previously approved open-cut crossings because boring equipment will be contained within the bore pits for most of the construction duration. Impacts on environmental justice communities due to impacts to visual resources will be temporary, mostly lasting the duration of construction. Impacts associated with vegetation clearing will last approximately 1-3 years until the disturbed area is revegetated. Visual impacts and mitigation are discussed further in section 4.9.1.10 of the FEIS.¹¹⁸

67. Impacts on socioeconomic resources within environmental justice communities (e.g., population, housing demand, and the provision of community services such as police, fire, and schools) will be minor and temporary, as there will be a negligible change from current conditions during construction and no change during operation. The temporary flux of workers/contractors into the community could increase the demand for community services such as housing, police enforcement, and medical care. An influx of workers could also affect economic conditions and other community infrastructure. Impacts on environmental justice communities due to impacts on socioeconomic resources will be temporary, lasting the duration of construction. Socioeconomic impacts are discussed further in section 4.9 of the FEIS.¹¹⁹

¹¹⁶ FEIS at 4-361.

¹¹⁷ EA at 56.

¹¹⁸ FEIS at 4-287.

¹¹⁹ *Id.* at 4-348.

68. The air, noise, traffic, visual, and socioeconomic impacts discussed above could occur in any or all of the identified environmental justice communities (18 census block groups out of 35 total in the project area). The impacts associated with the Amendment Project will not involve the construction of any permanent, aboveground structures. Approximately 51% of the trenchless crossings and 1 of the route adjustments will take place in environmental justice communities. While the proposed route adjustments will result in a minor addition of 0.04 acre of operational impacts, overall, impacts from the Amendment Project will be temporary in nature. In addition, no permanent adverse impacts on environmental justice communities are anticipated from the Amendment Project.

69. In consideration of the updated census data, the limited scope of the proposed amendment activities, the environmental recommendations included as Environmental Conditions in this order, and the fact that the Amendment Project will result in no permanent adverse impacts, Commission staff concluded in the EA that the Amendment Project would not result in a disproportionately high and adverse impact on environmental justice populations.¹²⁰ We agree.

70. EPA also recommends continued community outreach. The EA describes outreach efforts conducted for the Amendment Project.¹²¹ Mountain Valley communicated with affected landowners (including those in environmental justice communities) via telephone, U.S. mail, e-mail, and in-person meetings. Mountain Valley is responsible for notifying all landowners within 0.5 miles of nighttime trenchless crossing activities prior to the start of these activities.¹²² We note that the Office of Public Participation (OPP) can assist with navigating Commission activities relating to the Amendment Project. OPP staff can provide ongoing process information and respond to questions regarding the proceeding.¹²³

¹²⁰ EA at 56-57.

¹²¹ *Id.* at 56.

¹²² *Id.* at 57.

¹²³ The public may contact OPP at (202) 502-6595 or e-mail OPP@ferc.gov.

Miscellaneous

71. EPA also recommends that the EA provide estimated times for borehole completion and the estimated depth to bedrock/thickness of overburden, depth of the bore pits, saturated thickness of the drill pit, and duration of drilling.¹²⁴ We refer EPA to Appendix E of the EA, which contains the requested information.

72. EPA also recommends that the EA include latitude and longitude for the waterbody crossings and waterbody names on the included maps.¹²⁵ Commission staff will consider this recommendation when preparing future NEPA documents. However, for reference, we refer EPA to Appendix B of the EA, which contains U.S. Geological Survey topographic maps showing the location of each crossing.

b. National Park Service

73. While noting that it is more supportive of trenchless crossing methods than open-cut methods, the National Park Service (NPS) expresses concerns regarding sedimentation and inadvertent releases and/or spills of fluids and hazardous materials associated with seven trenchless crossings (F-014, F-015, F-016, F-021, F-022, F-027, and F-107) within the Greenbrier River watershed.¹²⁶ The NPS also notes concern regarding that adequacy of Mountain Valley's implementation of erosion and sediment control measures to minimize any sedimentation that could result from the trenchless crossings.

74. As stated in the EA, during construction, Mountain Valley will implement the construction practices outlined in its Procedures and its *Direct Pipe® and Horizontal Directional Drilling Contingency Plan* to reduce the potential for impacts to occur. Any additives used in the drilling fluids will be non-petrochemical-based, non-hazardous, and National Sanitation Foundation-60 compliant. Additionally, ecotoxicity data will be provided to Commission staff for review and approval prior to its use. Thus, as stated in the EA, any additives used are not expected to negatively impact waterbodies.¹²⁷ In addition, as stated in the EA, to avoid and reduce potential impacts on surface waterbodies, Mountain Valley will implement measures within its SPCC, including locating hazardous material storage and equipment refueling activities at least 100 feet

¹²⁴ EPA's September 14, 2021 Comments, Enclosure at 3.

¹²⁵ *Id.*, Enclosure at 1.

¹²⁶ NPS's September 13, 2021 Comments at 2.

¹²⁷ EA at 37.

from waterbodies.¹²⁸ These measures will reduce the potential for hazardous materials to enter waterbodies.

75. The NPS requests additional information on the small amounts of bentonite or polymer-based lubricant that would be used in certain trenchless crossings.¹²⁹ As stated in the FEIS, bentonite is a naturally occurring clay mineral that can absorb up to 10 times its weight in water, and bentonite-based drilling fluid is a non-toxic, non-hazardous material that is also used to construct potable water wells throughout the United States.¹³⁰ As stated in the EA, Mountain Valley will submit a request for Commission staff approval prior to using any polymer-based lubricants.¹³¹ Unless and until Mountain Valley makes such a request, the Commission cannot provide additional information about polymers. Any request from Mountain Valley to use bentonite or polymer-based lubricants will be publicly available on the project docket, and Commission staff will ensure that the NPS is sent a copy of any request to use polymer-based lubricants at the seven trenchless crossings within the Greenbrier River watershed. In considering the request, staff will consider ecotoxicity data and other factors. With these measures in place, the EA concludes that these materials are not expected to negatively impact waterbodies.¹³² We agree.

c. Bureau of Indian Affairs

76. The Bureau of Indian Affairs notified the Commission that Wetzel County, West Virginia, is within an area of historic interest to the Osage Nation.¹³³ Commission staff reached out to the Osage Nation to determine if it had any concerns regarding the Amendment Project. The Osage Nation did not respond.

¹²⁸ *Id.* at 34.

¹²⁹ NPS's September 13, 2021 Comments at 2.

¹³⁰ FEIS at 4-148.

¹³¹ EA at 36.

¹³² *Id.* at 37.

¹³³ Bureau of Indian Affairs' September 20, 2021 Comments.

d. **Virginia Department of Environmental Quality and other Virginia state agencies**

77. The Virginia Department of Environmental Quality (Virginia DEQ) recommends coordination with FWS if tree removal is proposed.¹³⁴ As noted in the EA, all tree clearing has already occurred.¹³⁵ The Virginia DEQ also recommends continued coordination with FWS for the Clover Hollow Cave Conservation Site and avoidance of the Jacks Creek Conservation Site.¹³⁶ As stated in the FEIS, both of these sites will be avoided.¹³⁷ For the Roanoke River crossing sites (H-015, H-016, and H-019), the Virginia DEQ recommends adherence to erosion and sediment control plans, adherence to time-of-year restrictions for in-stream work, adherence to the SPCC and unanticipated discoveries plan for cultural resources, coordination with FWS, and water quality monitoring of these streams.¹³⁸

78. Mountain Valley will implement erosion and sediment control measures to minimize any sedimentation that could result from the trenchless crossing methods. These measures were developed in coordination with Virginia DEQ and the West Virginia Department of Environmental Protection (West Virginia DEP). As explained in the EA, the trenchless crossing methods will avoid in-stream work.¹³⁹ Mountain Valley will adhere to its SPCC and will also follow its *Plan for Unanticipated Historic Properties and Human Remains*. Additionally, as discussed further below, the Commission will not authorize Mountain Valley to proceed with construction of the Amendment Project until ESA consultation with FWS is complete.

79. The Virginia DEQ recommends coordination with the Virginia DCR Karst Program if caves are encountered during trenchless crossings.¹⁴⁰ As provided in its *Karst Mitigation Plan*, Mountain Valley must contact Virginia DCR upon discovering any previously undocumented karst features. Virginia DEQ also recommends that Mountain Valley coordinate with Virginia DCR regarding the potential for surface stream loss at

¹³⁴ Virginia DEQ's September 8, 2021 Comments, attach. A at 4.

¹³⁵ EA at 45.

¹³⁶ Virginia DEQ's September 8, 2021 Comments, attach. A at 4.

¹³⁷ FEIS at 4-282.

¹³⁸ Virginia DEQ's September 8, 2021 Comments, attach. A at 4-5.

¹³⁹ EA at 41.

¹⁴⁰ Virginia DEQ's September 8, 2021 Comments, attach. A at 5-6.

certain crossing locations in karst terrain.¹⁴¹ Because Mountain Valley's *Karst Mitigation Plan* does not include this specific requirement, Environmental Condition 12 requires that Mountain Valley update its *Karst Mitigation Plan* to include coordination with Virginia DCR on crossing locations with high potential for surface stream loss, prior to construction.

80. A number of Virginia state agencies indicate that certain state permits would be required for the amendment activities.¹⁴² The Virginia Marine Resources Commission (Virginia MRC) notes that a subaqueous permit from Virginia MRC would be required. Virginia DEQ states that development within a Special Flood Hazard Area must be permitted and comply with the location floodplain ordinance. Virginia DEQ also notes that Mountain Valley would be required to dispose of construction waste in accordance with the Virginia Hazardous Waste Management Regulations. The Virginia Department of Transportation (Virginia DOT) indicates that Mountain Valley should monitor Virginia DOT's paving schedule for updates during construction, and that a land use permit would be required for operations within Virginia DOT rights-of-way. With respect to local and state permits applicable to Amendment Project activities, the Commission encourages applicants to file for and receive the local and state permits, in good faith, as stewards of the community in which the facilities are located.¹⁴³

e. **Franklin County, Virginia**

81. Franklin County expresses concern regarding the need for a spill plan, impacts on Smith Mountain Lake, stormwater management, erosion and sediment controls, introduction of aquatic invasive species, and protection of cultural resources, roadways, visual resources, and water supply wells.¹⁴⁴

82. As discussed above, Mountain Valley will implement its SPCC, which includes preventive measures such as personnel training, equipment inspection, and refueling procedures, to reduce the likelihood of spills, as well as mitigation measures such as containment and cleanup to minimize potential impacts should a spill occur. As discussed in the FEIS, the Mountain Valley Pipeline Project route is 1.9 miles from Smith

¹⁴¹ *Id.*

¹⁴² *Id.*, attach. A at 1-14.

¹⁴³ See, e.g., *Transcontinental Gas Pipe Line Co., LLC*, 172 FERC ¶ 61,036, at P 21 (2020).

¹⁴⁴ Franklin County's September 13, 2021 Comments.

Mountain Lake.¹⁴⁵ Mountain Valley will continue to implement erosion and sediment control measures to minimize any sedimentation that could result from the trenchless crossings. As stated in the EA, the trenchless crossings will result in reduced in-stream sedimentation as compared to the in-water construction previously approved for the Mountain Valley Pipeline Project, and will avoid in-stream work,¹⁴⁶ thereby avoiding the introduction of aquatic invasive species. Protection of cultural resources, roadways, visual resources, and water supply wells were addressed in the FEIS (sections 4.10-cultural resources, 4.8-roadways and visual resources, and 4.3-water resources) and EA (sections B.5-cultural resources and B.2-water resources).

f. Cumulative Impacts

83. West Virginia Rivers Coalition states that the EA should include a cumulative impacts analysis (including cumulative sediment loads within the streams) of crossing multiple segments of the same stream and multiple tributaries within a watershed.¹⁴⁷ Similarly, Allegheny-Blue Ridge Alliance states that the Commission must analyze the cumulative environmental effects of all of the proposed crossings and the combined effect of trenchless crossings and open-cut dry crossings.¹⁴⁸ As stated above, the analysis in the EA was conducted pursuant to CEQ's 2020 regulations. Consistent with those regulations, the EA does not include a section labelled "cumulative impacts" but does consider environmental trends and planned activities.¹⁴⁹ A cumulative impacts analysis, included in the FEIS, concluded that, when added to other past, present, and reasonably foreseeable future actions, the Mountain Valley Pipeline Project would not have significant adverse cumulative impacts on environmental resources within the geographic scope affected by the Mountain Valley Pipeline Project.¹⁵⁰ The EA concludes that the amendment activities would reduce impacts on most environmental resources, including

¹⁴⁵ FEIS at 4-142.

¹⁴⁶ EA at 41.

¹⁴⁷ West Virginia Rivers Coalition's September 13, 2021 Comments at 2.

¹⁴⁸ Allegheny-Blue Ridge Alliance, et al.'s September 13, 2021 Comments at 50-57.

¹⁴⁹ EA at 19-22.

¹⁵⁰ FEIS at 4-622.

minimizing direct impacts on surface water resources, wetlands, aquatic resources, and riparian habitat.¹⁵¹ Accordingly, there is no reason to revise the analysis in the FEIS.

84. Dr. Carl Zipper contends that it is reasonably foreseeable that the Mountain Valley will construct a fourth compressor station, in Ellison, Virginia, and that the Commission should analyze the potential impacts from a fourth compressor station.¹⁵² Mountain Valley has not proposed a fourth compressor station. Prior to pursuing any future expansion plans, such as adding an additional compressor station, Mountain Valley would have to file a new application with the Commission. The Commission would conduct a separate environmental review under NEPA, and the public would have the opportunity to comment on the proposed action.

g. Geology

85. Several commenters express concern that geotechnical borings were not collected at all of trenchless crossing locations.¹⁵³ The need for site-specific characterization of the subsurface material at each individual crossing is discussed in section B.1 of the EA. The EA states that Mountain Valley will use available geologic data based on its experience with its already completed trenchless crossings,¹⁵⁴ as well as site-specific observations during excavation of the bore pits. Mountain Valley will also assess drill cuttings from the bores and modify boring tools and techniques, if needed.¹⁵⁵ Mountain Valley provided boring logs and/or subsurface geotechnical information for crossings C-035 and G-013 (guided conventional bores), H-017, H-031, I-121, and C-022 (guided conventional bores - Elk River), and F-021 (Direct Pipe® - Greenbrier River).¹⁵⁶

86. Although geotechnical bores were not collected for all conventional bore crossings, conventional bore construction is suitable for construction through a wide variety of materials, as is evidenced by the fifty-four trenchless crossings that have been successfully completed for the Mountain Valley Pipeline Project. The conventional bore crossings proposed in the amendment application range between 20 and 405 feet in

¹⁵¹ EA at 22.

¹⁵² Carl Zipper's September 13, 2021 Comments at 4.

¹⁵³ *See, e.g.*, Mothers Out Front Roanoke's September 13, 2021 Comments.

¹⁵⁴ Mountain Valley has already completed trenchless crossings that were approved through the variance process.

¹⁵⁵ EA at 23-24.

¹⁵⁶ *Id.* at 23-29.

length. The bore pits will be excavated before any boring is initiated, and this work will inform the operators if site-specific conditions dictate a change of approach. Given the minimal length of the proposed crossings, and because the conventional bore is a horizontal (rather than steerable) construction method, there is minimal risk that subsurface conditions will differ between the entry and exit pit.

87. Kirk Bowers asserts that the probability of bore failure is high due to the lack of geotechnical analysis.¹⁵⁷ As stated in the EA, the major advantage of conventional auger borings over other boring technologies is that the drill pipe is installed as the boring is advanced and the pipeline is installed immediately behind the bore pipe once the boring is completed, leaving no unsupported borehole. Because the borehole is continuously supported by pipe throughout the process, the risk of bore collapse is minimized. Accordingly, the circulation of drilling fluids to transport drill cuttings and to support the wall of the borehole is not necessary for the drilling of conventional bores. If the conventional auger bore encounters excessively hard rock, an air-driven rock hammer drill can be deployed at the bore face, as needed. Boulders and cobbles up to one-third of the diameter of the installed pipe can be accommodated during the conventional auger borings.¹⁵⁸

88. Mr. Bowers asserts that additional information on rock era, formation, and properties, as well as soil properties, for each trenchless crossing location is necessary.¹⁵⁹ The EA includes a discussion regarding the feasibility of using trenchless crossing methods through subsurface material that may contain boulders, mixed facies (overburden and bedrock along the drill path), flowing/heaving sand, and artesian groundwater flow.¹⁶⁰ Consequently, additional detail is not necessary.

89. Virginia State Delegates Chris Hurst, Rodney Willett, Patrick Hope, Kaye Kory, and Betsy Carr, and State Senators John Edwards, Scott Surovell, and Ghazala Hashmi express concern with potential blasting associated with creation of the bore pits.¹⁶¹ As stated in section B.1 of the EA, in the event that bedrock is encountered that cannot be

¹⁵⁷ Kirk Bowers's September 13, 2021 Comments at 4.

¹⁵⁸ EA at 9.

¹⁵⁹ Kirk Bowers's September 13, 2021 Comments at 4.

¹⁶⁰ Soil information, as obtained from the Natural Resources Conservation Service, is discussed briefly in the EA at 23. Bore pit underlying geologic formation and rock type is included in appendix E of the EA. Additional information on surficial and subsurface geology and soils is described in the FEIS.

¹⁶¹ Virginia State Delegates and Senators' September 13, 2021 Comments at 1.

excavated by standard construction practices and blasting becomes necessary, Mountain Valley will conduct any blasting required to establish bore pits according to its *General Blasting Plan*,¹⁶² which was reviewed and approved as part of the certificated Mountain Valley Pipeline Project and has been used successfully on numerous occasions during construction of the overall Mountain Valley Pipeline Project.

90. Some commenters express concern regarding potential damage to karst from the trenchless crossings.¹⁶³ Five of the trenchless crossings (G-017, G-023, G-024, H-017, and H-020-north side bore pit only) will occur in areas that may include karst terrain. Mountain Valley's *Karst Mitigation Plan* requires that karst inspectors be present in karst areas during construction to surveil potential karst feature formation. Per Mountain Valley's *Karst Mitigation Plan*, if it is determined that any karst feature has connectivity to the subterranean environment and the potential to impact groundwater, mitigation would be conducted in conjunction with recommendations from the appropriate state agency (Virginia DCR's Karst Program or West Virginia DEP). As stated previously, and given the limited length of crossings in karst areas (133 to 360 feet), the EA concludes that when a pit-to-pit trenchless crossing method is used through karst terrain, any potential karst voids are observable during excavation of the pits on either side of the crossing and immediate mitigation measures can be implemented.¹⁶⁴

91. Commenters also express concern that drilling-related fluids (bentonite) associated with the bored crossing of karst areas, such as the crossing of Sinking Creek, could contaminate downstream groundwater, block karst conduits, and impact groundwater flow.¹⁶⁵ As identified in appendix A of the EA, Sinking Creek (crossing number G-023) will be crossed using a conventional bore. As described in the EA, Mountain Valley may use small amounts (typically 1 to 2 gallons per minute) of non-toxic, non-hazardous bentonite clay or polymer-based lubricant on the cutting head and exterior casing of conventional bores to reduce friction; however, the circulation of larger volumes of drilling fluids to transport drill cuttings and support the wall of the borehole is not necessary. Further, Mountain Valley must submit a request to Commission staff for the

¹⁶² EA at 26.

¹⁶³ See, e.g., Lynda Majors's September 13, 2021 Comments (proving comments of Dr. Ernst Kastning).

¹⁶⁴ EA at 23, 32, 97.

¹⁶⁵ See, e.g., Lynda Majors's September 13, 2021 Comments (providing comments of Dr. Ernst Kastning).

use of any polymer-based lubricants prior to their use.¹⁶⁶ Therefore, groundwater contamination resulting from conventional bores is unlikely.

92. Furthermore, karst conduits will not likely be blocked by drilling fluids given the limited volume of bentonite or polymer-based lubricant, if any, that will be used. Should the pipeline intersect a karst conduit, it is expected that groundwater would reroute around the pipeline, resulting in no significant impact to the overall system. As described throughout the EA and the FEIS, the presence of karst terrain was considered extensively during staff's review of Mountain Valley's proposals, and staff concluded in section B.2.1 of the EA that it does not anticipate long-term or significant impacts on groundwater resources as a result of construction or operation of the Amendment Project.¹⁶⁷ We agree.

93. Additionally, Mountain Valley's Karst Hazard Assessment did not identify karst features within 150 feet of the proposed workspace for the Sinking Creek crossing, and Mountain Valley's Karst Specialist team noted during preliminary studies that Sinking Creek insurges approximately 3 miles downstream of the proposed crossing.¹⁶⁸ There is no evidence in the record that there is mature karst development in the near surface, or high communication between surface and groundwater, at the Sinking Creek crossing location.

94. Commenters also express concern that the steep slope and potential for seismic activity at the Sinking Creek crossing could lead to a failure.¹⁶⁹ Mountain Valley conducted a site-specific evaluation of the crossing and assessed the feasibility of successfully completing it. Staff has reviewed the crossing and concluded that it is feasible. We concur.

h. Water Resources

95. Several commenters argue that the EA failed to fully assess and identify drinking water wells and aquifers impacted by the Amendment Project.¹⁷⁰ We disagree. Potential

¹⁶⁶ EA at 36.

¹⁶⁷ *Id.* at 33.

¹⁶⁸ Mountain Valley's December 22, 2016 Filing in Docket No. CP16-10-000, at attach. E.

¹⁶⁹ *See, e.g.*, Lynda Majors's September 13, 2021 Comments (providing comments of Dr. Ernst Kastning).

¹⁷⁰ *See, e.g.*, Elizabeth Struthers Malbon's September 13, 2013 Comments at 1.

issues related to drinking water wells are discussed in section B.2.1 of the EA. As stated in the EA, groundwater withdrawal during bore pit dewatering could potentially result in short-term, water-level drawdown of shallow groundwater in wells within the vicinity of the bore pits, and in a temporary reduction in the discharge rate of nearby springs. However, any groundwater-level drawdown and related impacts will be short-term and temporary, and groundwater levels will be expected to recover to non-pumping conditions following construction. In addition, Mountain Valley must comply with its *Water Resources Identification and Testing Plan* for identifying and assessing water supplies in the vicinity of the Amendment Project. This plan outlines Mountain Valley's commitments to protecting the drinking water of nearby residents, including evaluating any complaints and identifying a suitable solution with the landowner.¹⁷¹

96. Mary Coffey asserts that an EIS is needed to determine whether there are water wells or springs within 150 feet of the Amendment Project.¹⁷² As discussed above, Mountain Valley stated that, although no known public or private groundwater wells or springs are located within 150 feet of the Amendment Project, private wells could be located within 150 feet of the proposed bore pits at two locations.¹⁷³ Consistent with its *Water Resources Identification and Testing Plan*, Mountain Valley must identify, assess, and repair (as necessary) water supplies (including public and private wells) in the vicinity of the Amendment Project.

97. Elizabeth Struthers Malbon states that the EA's analysis of bore pit dewatering is insufficient as it is based on Mountain Valley's limited experience and poor environmental record.¹⁷⁴ Bore pit dewatering is discussed in sections A.5.1, B.2.1 (related to groundwater systems and drinking water), B.2.2 (related to surface waters), B.2.3 (related to wetlands), B.3.1 (related to aquatic resources), B.3.3 (related to wildlife), B.3.5 (related to threatened and endangered species), and B.6.2 (related to noise) of the EA.¹⁷⁵ A qualitative assessment of dewatering conditions is provided based on previously completed bores. As stated in the EA, it is expected that many of the bore pits will not require dewatering except for in stormwater and/or seasonally high water-table conditions.¹⁷⁶ Several commenters assert that the number of bore pits that will

¹⁷¹ EA at 28-31.

¹⁷² Mary Coffey's September 13, 2021 Comments at 4.

¹⁷³ See *supra* P 39.

¹⁷⁴ Elizabeth Struthers Malbon's September 13, 2013 Comments at 1.

¹⁷⁵ EA at 11, 27-33, 35, 39, 42, 46, 52, 87-88.

¹⁷⁶ *Id.* at 28.

require dewatering should be quantified, and that the volume of dewatering, pumping rates, and sites that will require 24-hour pumping should be disclosed.¹⁷⁷ Since water infiltration rates into the bore pits will fluctuate based on stormwater inputs and groundwater levels at the time of construction, locations that will require dewatering, including 24-hour pumping, and pumping rates, cannot be identified in advance. Any dewatering associated with the Amendment Project will be completed in accordance with Mountain Valley's Procedures, as well as West Virginia DEP and Virginia DEQ specifications.

98. Commenters also request further information on where water collected by the dewatering devices would go,¹⁷⁸ as well as information on the size and location of the dewatering devices.¹⁷⁹ As explained in the EA, water removed from the bore pits will be discharged through sediment removal devices, such as filter bags and hay bale-lined dewatering structures,¹⁸⁰ and directed to vegetated land surfaces (where available) to control erosion and runoff.¹⁸¹ The water will pass through a pumped-water filter bag within an appropriately-sized dewatering structure.¹⁸² Any water pumped from the bore pits during dewatering activities will be released back into the same drainage basin and will not be a consumptive use of groundwater from the basin, or a permanent impact on surface water flow.¹⁸³

99. William Limpert asserts that flow channel erosion from dewatering structures could lead to sedimentation entering streams and wetlands.¹⁸⁴ As discussed in section B.2.2 of the EA, Mountain Valley will continuously monitor the structures, flow rates, and volumes of dewatering so as not to cause erosion, compromise the dewatering

¹⁷⁷ See, e.g., Mary Coffey's September 13, 2021 Comments at 2.

¹⁷⁸ See, e.g., Preserve Salem's September 13, 2021 Comments at 5.

¹⁷⁹ West Virginia Rivers Coalition's September 13, 2021 Comments at 2.

¹⁸⁰ See Mountain Valley's December 5, 2017 Filing in Docket No. CP16-10-000 at app. C-2_ESCP VA AS&S_113017_Part 1.pdf & app. C-2_ESCP VAAS&S_113017_Part 2.pdf for filter bag and dewatering structure typical drawings.

¹⁸¹ EA at 33.

¹⁸² *Id.* at 42.

¹⁸³ *Id.* at 33.

¹⁸⁴ William Limpert's September 13, 2021 Comments at 13.

structures, or result in sediment-laden water entering a sensitive resource.¹⁸⁵ Mr. Limpert also claims that spoil piles from the bore pits could erode and contribute to sedimentation of streams and wetlands.¹⁸⁶ As discussed in section B.2.2 of the EA, stockpiled spoils will be stored away from existing slopes, in flatter locations or along ridges, and placed such that they do not exceed a stable angle of repose. Mountain Valley will implement the Amendment Project's *Erosion and Sediment Control Plan* to enhance stockpile stability and protect environmental resources downstream of bore pits and stockpiles. Such measures will include installation of silt fences or super silt fences and temporary mulching of stockpiles. Any spoil remaining following completion of the bores and backing filling of the bore pits will be evenly spread on the right-of-way. Thus, the risk of any off-right-of-way sedimentation is low.¹⁸⁷

100. Preserve Franklin County states that the Commission, Corps, and Virginia DEQ should coordinate with the Federal Emergency Management Agency regarding hazards associated with natural gas pipeline development and construction in floodplain areas.¹⁸⁸ As stated in the FEIS, seasonal and flash flooding hazards are a potential concern where proposed pipeline will cross or be near major streams and small watersheds.¹⁸⁹ Although flooding itself does not generally present a risk to pipeline facilities, bank erosion and/or scour could expose the pipeline or cause sections of pipe to become unsupported. All pipeline facilities are required to be designed and constructed in accordance with 49 C.F.R. § 192. These regulations include specifications for installing the pipeline at a sufficient depth to avoid possible scour at waterbody crossings.

101. To minimize or prevent impacts resulting from flash flooding during construction, Mountain Valley will remove any equipment or loose material from the affected area prior to any anticipated significant rain event. Additionally, Mountain Valley will implement erosion and sedimentation control measures, such as installing trench breakers and water bars, to inhibit water flow along the trench and right-of-way. Upon completion of construction, Mountain Valley will restore the ground surface as closely as practicable to original contours and re-establish vegetation to facilitate restoration of pre-construction overland flow.¹⁹⁰ In addition, installation of the pipeline via trenchless crossing methods

¹⁸⁵ EA at 35.

¹⁸⁶ William Limpert's September 13, 2021 Comments at 5.

¹⁸⁷ EA at 34.

¹⁸⁸ Preserve Franklin County's September 13, 2021 Comments.

¹⁸⁹ FEIS at 4-138.

¹⁹⁰ *Id.*

will generally place the pipe deeper than an open-cut crossing and therefore, the pipeline will be less likely to be exposed by scour.

102. Kirk Bowers asks about the Virginia Department of Wildlife Resources' request that Mountain Valley maintain naturally vegetated buffers of at least 100 feet in width around wetlands and streams where practicable to minimize impacts on wildlife.¹⁹¹ All of the clearing and grading needed between the proposed bore pits was analyzed in the FEIS, as it would have also been required for open-cut crossings. As stated in the EA, trenchless crossings will result in less disturbance of the riparian areas adjacent to waterbodies and wetlands (i.e., the area between the bore pits and the waterbody or wetland) than open-cut crossings. Approximately 10.7 acres of riparian vegetation that would have been affected by the certificated open-cut dry crossings will remain undisturbed as a result of the change to trenchless crossing methods.¹⁹²

103. Mary Coffey asks how changing from open-cut crossings to trenchless crossings achieves equal or greater protection of resources.¹⁹³ As discussed in section A.5 of the EA, trenchless crossing methods avoid direct impacts associated with working directly within the sensitive resource. Trenchless crossing methods allow for uninterrupted existing streamflow and undisturbed wetland soils, thereby minimizing impacts. Additionally, trenchless crossings reduce in-stream sedimentation as compared to in-stream construction. Lastly, trenchless crossings avoid ground-disturbance associated with trenching and backfilling in wetlands, and reduce longer-term impacts by accelerating the post-construction revegetation period.¹⁹⁴ For all of these reasons, trenchless crossings provide a greater or equal protection of waterbodies and wetlands as compared to open-cut dry crossings.

i. Wetlands

104. Some commenters express concern regarding the Amendment Project's potential impacts to wetlands.¹⁹⁵ As stated in section B.2.3 of the EA, installing the pipeline across wetlands via trenchless methods avoids in-wetland construction and disturbance. As compared to the already certificated open-cut crossings, the Amendment Project would reduce impacts on wetlands by 4.2 acres. Bore pit dewatering could temporarily affect

¹⁹¹ Kirk Bowers's September 13, 2021 Comments at 7.

¹⁹² EA at 42 and 45.

¹⁹³ Mary Coffey's September 13, 2021 Comments at 3.

¹⁹⁴ EA at 8.

¹⁹⁵ See, e.g., William Limpert's September 13, 2021 Comments.

wetland hydrology and, consequently, wetland soils and vegetation. However, these effects will be minor and temporary, not unlike the natural within-season variability experienced by wetlands based on fluctuations in precipitation. To further reduce impacts on wetlands, Mountain Valley will implement measures in our *Upland Erosion Control, Revegetation and Maintenance Plan* and its Procedures, including the installation of erosion and sediment controls. Mountain Valley will also adhere to measures within its SPCC, including locating hazardous material storage and equipment refueling activities at least 100 feet from wetlands. We conclude that the Amendment Project will not have a significant impact on wetlands and will result in a reduction of the impacts on wetlands disclosed and analyzed in the FEIS.¹⁹⁶

105. Allegheny-Blue Ridge Alliance states that the EA fails to assess the impacts of borepit dewatering on wetlands.¹⁹⁷ As stated in the EA, bore pit dewatering could temporarily affect wetland hydrology and, consequently, wetland soils and vegetation, however, these effects will be minor and temporary.¹⁹⁸

106. Allegheny-Blue Ridge Alliance also asserts that the EA must examine the unique nature of wetlands on Bent Mountain in Virginia in order for the Corps to satisfy its responsibilities under section 404 of the Clean Water Act.¹⁹⁹ The Corps regulates wetlands under section 404 of the Clean Water Act and section 10 of the Rivers and Harbors Act, and EPA shares responsibility for administering and enforcing the section 404 program. Wetland activities under Section 401 of the Clean Water Act are delegated to the appropriate state agencies: Virginia DEQ and West Virginia DEP. Commission staff provided an analysis of wetland impacts in the EA and concluded that the trenchless crossings would reduce impacts on wetlands as compared to open-cut crossings. The Commission received no specific information from the various agencies that regulate wetlands that Bent Mountain wetlands possess any unique features that require additional analysis.

j. Threatened and Endangered Species

107. Commenters express concern that the trenchless crossings would cause harm to the upland headwaters, springs, and spawning grounds for endangered Roanoke

¹⁹⁶ See EA at 38-39.

¹⁹⁷ Allegheny-Blue Ridge Alliance, et al.'s September 13, 2021 Comments at 54-55.

¹⁹⁸ EA at 39.

¹⁹⁹ Allegheny-Blue Ridge Alliance, et al.'s September 13, 2021 Comments at 57-61.

loggerch.²⁰⁰ Further, commenters express concern that the Amendment Project would impact the endangered candy darter.²⁰¹

108. On July 10, 2017, the Commission initiated formal consultation with FWS under Section 7 of the ESA for the certificated Mountain Valley Pipeline Project. FWS issued a BO on November 21, 2017. In 2020, the Commission reinitiated Section 7 consultation to evaluate the impacts on the newly listed candy darter as well as new and additional impacts that occurred since the 2017 BO. FWS issued a new BO on September 4, 2020.

109. The EA concludes that the Amendment Project activities would not alter the effects to federally listed species determinations made as part of the 2020 ESA section 7 consultation process, or the analysis or conclusions in the 2020 BO.²⁰² On June 4, 2021, Commission staff requested FWS's concurrence with staff's determination that the changes proposed in the amendment application would not alter the effects determinations made in the 2020 consultation process. On January 18, 2022, FWS provided its concurrence that the Amendment Project would not alter the effects determinations made in the 2020 consultation process.²⁰³ However, on February 3, 2022, the Fourth Circuit vacated FWS's 2020 BO.²⁰⁴ Therefore, as explained further below, Mountain Valley will not be authorized to proceed with construction of the Amendment Project until FWS issues a new or revised BO for the Mountain Valley Pipeline Project or ESA consultation for the Amendment Project is otherwise complete.

110. We nevertheless note that, as stated in the EA, the trenchless crossing methods would reduce the potential for any direct impacts on streams and reduce impacts on stream banks and riparian areas.²⁰⁵ We agree with Commission staff's conclusion that

²⁰⁰ See, e.g., Preserve Salem's September 13, 2021 Comments at 3.

²⁰¹ See, e.g., Virginia State Delegates and Senators' September 13, 2021 Comments at 1.

²⁰² EA at 48-49.

²⁰³ See Commission staff's January 19, 2022 Memo to the record (providing FWS's January 18, 2022 concurrence).

²⁰⁴ *Appalachian Voices v. U.S. Dep't of the Interior*, 25 F.4th 259.

²⁰⁵ EA at 53.

any impacts on streams containing federally listed species would be less than those described in the FEIS.²⁰⁶

k. Cultural Resources

111. Kathy and James Chandler assert that the spring box area (crossing H-046) is culturally significant.²⁰⁷ However, there is no evidence in the project docket to support the claim that the spring box area has historical or cultural significance.

112. The Hale Cabin (Architectural Site 80-5677-6) is a contributing element to the Bent Mountain Rural Historic District, located about 97 feet away from the spring box area crossing H-046. The EA stated that “[t]he Hale Cabin was fenced and would be avoided and monitored during construction.”²⁰⁸ The EA further indicated that all project-related impacts on the Bent Mountain Rural Historic District will be mitigated in accordance with a Treatment Plan approved by Commission staff and the Virginia State Historic Preservation Office (SHPO).²⁰⁹

113. Kathy and James Chandler also state that the historic Green Hollow Road is a contributing resource to the Bent Mountain Apple Orchard Rural Historic District and is culturally significant.²¹⁰ The National Register of Historic Places (NRHP) Registration Form for the Bent Mountain Apple Orchard Rural Historic District indicated that “[a] remnant of the historic road network is visible at the entrance of the Hale Homestead (DHR ID #: 080-5731-0013) on Green Hollow Road.”²¹¹ Green Hollow Road is illustrated on maps in the NRHP Registration Form, as are all local roads within the boundaries of the historic district. However, as stated in the EA, Green Hollow Road itself is not listed as a contributing resource to the Bent Mountain Apple Orchard Rural Historic District.

²⁰⁶ *See id.* at 54.

²⁰⁷ Kathy and James Chandler’s September 14, 2021 Comments at 2.

²⁰⁸ EA at 66.

²⁰⁹ *Id.*

²¹⁰ Kathy and James Chandler’s September 14, 2021 Comments at 2.

²¹¹ Mountain Valley’s September 30, 2019 Filing in Docket No. CP16-10-000 at attach. JJ.

114. The Chandlers also express concern regarding a Native American burial site at crossing H-045.²¹² There is no evidence in the record to support the claim that there is a “Siouan” burial mound in the project right-of-way on the Chandler’s property. As indicated in the EA, Mountain Valley had its contractor examine this area and the contractor concluded that it was a bulldozed “push pile” of rock and debris.²¹³ Based on the record, Commission staff agrees. The Virginia SHPO and Preservation Virginia also did not file reports disputing Mountain Valley’s findings. Moreover, the site at issue is outside the limits of disturbance adjacent to crossing H-045.²¹⁴

115. The Chandlers assert that Mountain Valley is “discrediting” the natural cultural and historic resources on their property, which appears to be located within the boundaries of the Bent Mountain Apple Orchard Rural Historic District.²¹⁵ As noted in the EA, Mountain Valley has implemented a Treatment Plan, approved by Commission staff and the Virginia SHPO, to mitigate for project-related impacts on the historic district.²¹⁶

116. Lois Martin states that there may be additional archaeological sites that were not recorded during cultural resource surveys, and that contractors hired by Mountain Valley to complete cultural resource surveys inherently have a conflict of interest.²¹⁷ Contractors that conduct cultural resources inventories are selected in accordance with the Commission’s July 2017 *Guidelines for Reporting on Cultural Resources Investigations for Natural Gas Projects*.²¹⁸ Allowing project sponsors to select contractors to perform the surveys, consistent with the Commission’s guidelines, does not inherently present a conflict of interest: the contractors must meet certain professional standards and adhere to a code of ethics. Most selected contractors are members of the Register of Professional Archaeologists, an organization sponsored by the Society of Professional Archaeologists, Society for American Archaeology, Society for Historical Archaeology, Archaeological Institute of America, and the American Anthropological

²¹² Kathy and James Chandler’s September 14, 2021 Comments at 3.

²¹³ EA at 62.

²¹⁴ *Id.*

²¹⁵ Kathy and James Chandler’s September 14, 2021 Comments at 2-3.

²¹⁶ EA at 66.

²¹⁷ Lois Martin’s September 14, 2021 Comments.

²¹⁸ The guidelines are available at <https://www.ferc.gov/sites/default/files/2020-04/cultural-guidelines-final.pdf>.

Association. Under the terms of the Programmatic Agreement executed on December 15, 2017 for the Mountain Valley Pipeline Project, Mountain Valley's contractors must meet standards published by the NPS (at 36 C.F.R. part 61).²¹⁹ In addition, pursuant to the Programmatic Agreement, Mountain Valley must obtain any permits necessary to conduct cultural resources investigations. The record supports, as discussed in the EA, that the area of potential effect was inventoried for cultural resources, and all cultural resources within 150 feet of the pipeline centerline were identified.²²⁰

117. In conclusion, we find that Mountain Valley's proposed trenchless crossing of the spring box area (crossing H-046), proposed trenchless crossing H-045, and its adherence to the Bent Mountain Rural Historic District Treatment Plan will ensure that Mountain Valley's proposed action will result in no adverse impacts on the historic district or the contributing natural, cultural, and historic resources to the district.

i. Air Quality

118. Kathy and James Chandler state that emissions associated with the trenchless crossings would be higher than emissions associated with open-cut crossings and would be hazardous to community health.²²¹ As discussed in the EA, the Amendment Project will result in increased emissions compared to the certificated Mountain Valley Pipeline Project due to emissions from construction equipment.²²² A temporary reduction in ambient air quality will result from criteria pollutant emissions and fugitive dust generated by construction equipment; however, these emissions are not expected to be hazardous to the surrounding community. The increase in emissions will only occur during construction activities and will be dispersed over the 304 miles of the pipeline route. The EA concludes that there would not be significant impacts associated with construction emissions from the Amendment Project.²²³ We agree.

m. Noise

119. Kathy and James Chandler state that no noise abatement mitigation is discussed for specific crossings on or near their property and that many of the noise studies

²¹⁹ See Commission Staff's December 20, 2017 Letter in Docket No. CP16-10-000 (providing executed Programmatic Agreement).

²²⁰ EA at 62.

²²¹ Kathy and James Chandler's September 14, 2021 Comments at 5.

²²² EA at 69.

²²³ *Id.*

included in the EA are influenced by transportation noise.²²⁴ As stated in the EA, excavation activities will be limited to daytime hours, and noise associated with those activities would not differ significantly from the noise impacts assessed in the FEIS.²²⁵ However, the EA did assess noise levels, and recommend restrictions, associated with the proposed nighttime boring activities. No nighttime boring activities will occur on or adjacent to the Chandler property. To protect the public from noise during nighttime hours, Environmental Condition 11 requires Mountain Valley to restrict, at any noise sensitive areas, the noise attributable to nighttime construction activities associated with the trenchless crossings to no more than 55 dBA Ldn, or no more than a 10 dB increase over background levels where existing noise levels exceed 55 dBA Ldn. As discussed in the EA, Mountain Valley estimated background noise levels due to traffic and railroad noise at applicable noise sensitive areas using the U.S. Department of Housing and Urban Development (HUD) Day/Night Noise Level (DNL) Calculator. The HUD DNL Calculator is a nationally recognized standardized method used to estimate environmental noise from railroads and highways for housing projects.

n. Reliability and Safety

120. William Limpert expresses concern that the pipeline coating could be damaged during trenchless installation.²²⁶ As stated in the EA, pipe utilized at the trenchless crossings will have an abrasion resistant overlay (ARO) over the standard fusion-bonded epoxy (FBE) coating used on all pipe. ARO coatings are more durable than FBE coating and are designed to protect the pipe from abrasions and gouging. Mountain Valley states that ARO coatings are commonly used in trenchless crossings. Most locations will use a mill-applied Powercrete ARO coating. However, crews will coat welds with a field-applied Powercrete coating for crossings that require more than a standard joint of pipe, generally more than about 40 feet long. According to Mountain Valley, the field-applied Powercrete coating is designed for field application and will provide the same protection as a mill-coated ARO. Mountain Valley will check the pipe and weld coatings for pinhole defects immediately prior to installation in compliance with the U.S. Department of Transportation – Pipeline and Hazardous Materials Safety Administration safety regulations.²²⁷

²²⁴ Kathy and James Chandler's September 14, 2021 Comments at 5.

²²⁵ EA at 77.

²²⁶ William Limpert's September 13, 2021 Comments at 3-4.

²²⁷ See EA at 10.

121. Betty Werner states that the EA does not include enough information regarding ARO coatings, including how the pipe will be transported for coating.²²⁸ We disagree. Mountain Valley’s proposed coating methods are standard construction techniques that have little to no effect on project impacts and so were not addressed at length in the EA. Contrary to Ms. Werner’s comments, we clarify that pipe will not be transported to a mill and then transported back to the right-of-way. The “mill-applied” coatings are completed before the pipe is delivered to the construction site.

o. Alternatives

122. West Virginia Rivers Coalition asserts that the EA should consider the feasibility of trenchless crossings at each waterbody crossing.²²⁹ As part of its permit application to the Corps, Mountain Valley provided an explanation, based on a number of factors including crossing length, pit depth, stream depth, slope, presence of karst terrain, sufficiency of stockpile storage availability, and cost, for each crossing method determination.²³⁰ Mountain Valley evaluated a total of eight alternative stream and wetland pipeline crossing methods for each crossing. The crossing methods can be generally categorized as either open-cut methods—meaning that a trench is excavated in the stream or wetland to install the pipe—or trenchless methods—meaning the pipe is installed with specialized equipment that bores or tunnels under or bridges over the resource. Based on this feasibility analysis, Mountain Valley proposed to change the crossing method for the streams and wetlands for which it determined a trenchless method was appropriate. There is no reason for the Commission to reevaluate the open-cut crossings it already assessed and approved and that Mountain Valley does not propose to change.

123. Allegheny-Blue Ridge Alliance asserts that the EA fails to consider routing alternatives, on a crossing-by-crossing basis, that would allow Mountain Valley to cross streams and wetlands at locations with lesser environmental impacts.²³¹ The route of the Mountain Valley Pipeline Project, including the open-cut crossings of all waterbodies, has already been approved. We are not reexamining the overall route of the Mountain Valley Pipeline Project here, but rather are examining a change in crossing method for a

²²⁸ Betty Werner’s September 13, 2021 Comments at 3.

²²⁹ West Virginia Rivers Coalition’s September 13, 2021 Comments at 2.

²³⁰ Mountain Valley filed a copy of its Corps permit application in Docket No. CP21-57-000 on March 4, 2021.

²³¹ Allegheny-Blue Ridge Alliance, et al.’s September 13, 2021 Comments at 18-19.

select number of crossings. As noted above, the proposed trenchless crossings will result in fewer environmental impacts than the already approved open-cut crossings.

124. Allegheny-Blue Ridge Alliance asserts that the EA failed to fully evaluate alternative crossing methods for Blackwater River crossing specifically, and suggests that moving the location of the crossings for the Blackwater River could enable a trenchless crossing.²³² While it is possible that an alternative crossing location may not present the constraints that exist at the current crossing location, the right-of-way leading to the Blackwater River location has already been cleared and graded. Moving the crossing to another location would add additional environmental impacts, as it would require creating a new right-of-way. Therefore, the benefits of a trenchless crossing would be counterbalanced by the impacts of additional clearing and grading of undisturbed right-of-way. Moreover, the Commission has already reviewed and approved an open-cut crossing of the Blackwater River.

p. COVID-19

125. Dr. Tina Smusz contends that the Commission should consider public health risks associated with the novel coronavirus (COVID-19) pandemic.²³³ With respect to health issues relating to construction, the Commission has no jurisdiction over workplace safety. Virginia and West Virginia have both issued orders and guidance related to the COVID-19 response.²³⁴ Dr. Smusz expresses concern that Mountain Valley may employ less-experienced workers if skilled workers are unavailable due to COVID-19.²³⁵ Contractor selection is Mountain Valley's decision. However, the Commission's third-party compliance monitoring program would continue to be implemented to ensure that the environmental protections required by this and prior orders are implemented correctly.

q. Compliance Inspections

126. Louisa Gay contends that the Commission, as well as the Corps, West Virginia DEP, and Virginia DEQ, should provide 24-hour surveillance of Mountain Valley's

²³² *Id.* at 19-20.

²³³ Tina Smusz's September 14, 2021 Comments at 2.

²³⁴ Information about Virginia's and West Virginia's responses to COVID-19 are available at <https://www.vdh.virginia.gov/coronavirus/> and <https://dhhr.wv.gov/COVID-19>.

²³⁵ Tina Smusz's September 14, 2021 Comments at 2.

trenchless crossing activities at every site.²³⁶ As explained in the EA, the Commission's third-party compliance monitoring program will continue to be implemented during the proposed trenchless crossing activities.²³⁷ Under the current third-party compliance monitoring program for the Mountain Valley Pipeline Project, nine compliance monitors (one for each construction spread) typically inspect portions of the project six days a week. Based on these monitors' extensive experience with natural gas infrastructure construction, we find that this existing monitoring program is sufficient.

127. Betty Werner states that one environmental inspector (EI) per spread is inadequate.²³⁸ There is no expectation that each trenchless crossing crew will require continual oversight by Mountain Valley's EIs. It is typical for a company-sponsored EI to move between areas of active construction, assess conditions, instruct crews on an as-needed basis, and then move to the next location. If the Commission's third-party compliance monitoring program identifies a need for additional EIs, the Commission can require Mountain Valley to provide additional staff.

r. Performance Bonding

128. Some commenters ask whether the Commission will require Mountain Valley to post a performance bond, or require some other form of financial assurance, to ensure Mountain Valley adequately carries out its obligations under its certificate authorization and/or properly restores the land if the project is abandoned.²³⁹ We note that the Commission does not require bonds because the Commission has the authority to require restoration and remediation to satisfactory levels.²⁴⁰ Additionally, prior to abandoning the project, Mountain Valley would be required to obtain Commission authorization under section 7(b) of the NGA to abandon any jurisdictional facilities.²⁴¹

²³⁶ Louisa Gay's September 13, 2021 Comments at 2.

²³⁷ EA at 17.

²³⁸ Betty Werner's September 13, 2021 Comments at 4-5.

²³⁹ See, e.g., Franklin County's April 15, 2021 Comments at 2.

²⁴⁰ See *Transcontinental Gas Pipe Line Co., LLC*, 154 FERC ¶ 61,166, at P 63 (2016).

²⁴¹ 15 U.S.C. § 717f(b).

s. **EA Maps**

129. Kathy and James Chandler state that the EA maps are too zoomed out, do not include topographic details, and do not completely depict and label the streams.²⁴² As noted above,²⁴³ section 5.0 of the EA stated that plan and profile views of topographic conditions at each of the planned crossings relative to borehole and bore pit depths below the resource, including information concerning bank conditions, pipe depth, and positioning of the bore pits, were provided by Mountain Valley and are available for review in the project docket.²⁴⁴

t. **Trenchless Crossing Durations**

130. Several commenters state that the trenchless crossing timeline provided in the EA seems overly ambitious.²⁴⁵ As stated in the EA, trenchless crossing durations are estimates and the actual duration could be increased to some extent by weather delays or slow boring rates due to unexpectedly hard rock or changing geological makeup that may necessitate equipment change-outs.²⁴⁶ Based on Commission staff's oversight of the previously constructed fifty-four trenchless crossings along the Mountain Valley Pipeline Project, the crossing timelines provided in the EA are reasonable.

u. **Contingency Plans**

131. Some commenters express concern that, if unexpected conditions are encountered during trenchless crossings, Mountain Valley could revert back to open-cut crossings without any additional review or analysis.²⁴⁷ As stated in section A.5.5 of the EA, should all attempts at a trenchless crossing fail, Mountain Valley will seek necessary variances or approvals from the Commission or any other applicable agency, including the Corps, to revise the crossing method.²⁴⁸ To change back to an open-cut crossing method would

²⁴² Kathy and James Chandler's September 14, 2021 Comments at 4.

²⁴³ See *supra* P 42.

²⁴⁴ EA at 8; see also Mountain Valley's February 19, 2021 Application, at app. C.

²⁴⁵ See, e.g., Emily Little's September 13, 2021 Comments.

²⁴⁶ EA at 11.

²⁴⁷ See, e.g., Linda Tanner-Sutton's September 14, 2021 Comments.

²⁴⁸ EA at 15.

require permit approval from the Corps. Thus, review and environmental analysis will be completed by the relevant agencies prior to approval of a modification.

132. Allegheny-Blue Ridge Alliance states that Mountain Valley failed to provide an adequate plan for borehole failures.²⁴⁹ As stated in section A.5.5 of the EA, should Mountain Valley encounter these issues, it would notify the appropriate Commission compliance monitor and attempt another bore 10 feet to either side of the original bore path within the existing right-of-way. Should the failure involve a stuck pipe and standard recovery fails, the pipeline in the area would be abandoned in place and backfilled with grout. As discussed in the EA, Mountain Valley's proposed amendment activities will not result in an unsupported hole during trenchless crossings.²⁵⁰

v. Mountain Valley's Compliance Record

133. Several commenters point to a series of violations documented by Virginia DEQ and West Virginia DEP due to issues with erosion control and runoff at project construction sites.²⁵¹ Mountain Valley reached consent decrees with both Virginia DEQ²⁵² and West Virginia DEP²⁵³ to resolve violations of state environmental standards and regulations, and no additional action by the Commission is necessary.

w. Environmental Analysis Conclusion

134. Based on the analysis in the EA, as supplemented herein, we conclude that if constructed in accordance with Mountain Valley's amendment application and supplements, and in compliance with the environmental conditions in the appendix to this order, our approval of this proposal would not constitute a major federal action significantly affecting the quality of the human environment.

²⁴⁹ Allegheny-Blue Ridge Alliance, et al.'s September 13, 2021 Comments at 37.

²⁵⁰ EA at 15 and 35.

²⁵¹ See, e.g., John Surr's August 27, 2021 Comments.

²⁵² See *David K. Paylor v. Mountain Valley Pipeline, LLC*, Case No. CL18006874-00 (Va. Cir. entered Dec. 11, 2019), <https://www.deq.virginia.gov/Portals/0/DEQ/Water/Pipelines/MVPConsentDecree12-19.pdf>.

²⁵³ See West Virginia DEP, Consent Order Issued under the Water Pollution Control Act (Apr. 19, 2019), <https://dep.wv.gov/pio/Documents/MVPLLCSIGNEDORDER.pdf>.

C. Need for Water Quality Certification

135. Some commenters allege that the Commission-jurisdictional amendment activities trigger the need for state certification under section 401 of the Clean Water Act, and that the Commission cannot act on the amendment application absent new certification,²⁵⁴ or waiver thereof, from the States of Virginia and West Virginia.²⁵⁵

136. Section 401(a)(1) of the CWA provides in part that:

[a]ny applicant for a Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters, shall provide the licensing or permitting agency a certification from the State in which the discharge originates or will originate . . . that any such discharge will comply with the applicable provisions of [the CWA]. . . . If the State . . . fails or refuses to act on a request for certification, within a reasonable period of time (which shall not exceed one year) after receipt of such request, the certification requirements of this subsection shall be waived with respect to such Federal application.²⁵⁶

137. Based on Commission staff's technical experience with construction, correspondence with the U.S. Army Corps of Engineers,²⁵⁷ and the construction methods

²⁵⁴ Virginia DEQ issued a water quality certification for the Mountain Valley Pipeline Project on December 8, 2017. *See* Mountain Valley's December 14, 2017 Weekly Status Report No. 6 in Docket No. CP16-10-000. West Virginia DEP waived the requirement for a water quality certification for the Mountain Valley Pipeline Project. West Virginia DEP's November 1, 2017 Letter filed in Docket No. C16-10-000.

²⁵⁵ *See, e.g.*, Allegheny-Blue Ridge Alliance, et al.'s September 13, 2021 Comments at 62-70; West Virginia Rivers Coalition's September 13, 2021 Comments at 3.

²⁵⁶ 33 U.S.C. § 1341(a)(1). Section 401(d) of the CWA provides that a certification and the conditions contained therein shall become a condition of any federal license or authorization that is issued. *Id.* § 1341(d). *See City of Tacoma, Washington v. FERC*, 460 F.3d 53 (D.C. Cir. 2006).

²⁵⁷ The Corps has determined that boring under waters of the United States can be performed in manner that does not constitute a discharge or dredge of filled material into such waters. *See* Corps' May 10, 2019 Email to Commission staff (included as Attachment 4 in Mountain Valley's September 11, 2019 Variance Request filed in Docket No. CP16-10-000).

and mitigation measures proposed, we find that the amendment activities would avoid discharges into waters of the United States.

138. The conventional bore method requires excavation of launching and receiving bore pits located within upland areas on either side of the feature. Once the bore pits are excavated, a jacking pipe and a rotating cutting head is advanced, and the drill pipe is installed behind. Thus, conventional bores do not require any in-water work. The guided conventional bores and Direct Pipe® crossing methods are similar construction techniques that also avoid in-water work.

139. Commenters claim the trenchless crossings could nonetheless result in discharges into waters of the United States through: (1) inadvertent returns; (2) boreholes breaching the streambed; or (3) pumped water flowing into surface waters. The majority of the conventional bore crossings will not require the use of drilling fluids and, in the limited cases that will, the lubricating fluids will be of small volume and not pressurized, thus presenting little if any risk of an inadvertent return. The guided conventional bore and Direct Pipe® crossings will involve the use of limited drilling fluids under pressure, but the risk of inadvertent return will be very low. Mountain Valley has already successfully completed over fifty conventional bore crossings and one Direct Pipe® crossing as part of the Mountain Valley Pipeline Project without an inadvertent release. A bore deflection that would breach a streambed is very unlikely to occur as a deflection of this magnitude would most likely halt any forward process (i.e., stop the machine) before the bore could breach the streambed. Additionally, boring operations will be constantly monitored and bore operators should be able to correct a deflection of this magnitude prior to the streambed being breached. Lastly, there is a possibility the bore pits will contain groundwater and need to be pumped during the boring process. Any water removed from the pits will be discharged through sediment removal devices, such as filter bags and hay bale-lined dewatering structures, and directed to vegetated land surfaces (where available) to control erosion and runoff into nearby sensitive features. The structures, rates, and volumes will be monitored continuously to ensure that the discharge will not cause erosion or result in sediment-laden water entering a waterbody.

140. For the entire Amendment Project, Mountain Valley will also adhere to various construction plans, including the Commission's *Upland Erosion Control, Revegetation, and Maintenance Plan* and Mountain Valley's Procedures, *Erosion and Sediment Control Plans*, and SPCC. The measures contained in these plans will further minimize the potential for a release of materials into waters of the United States.

141. Additionally, Commission staff solicited the States' opinions as to whether the amendment activities would trigger the need for a new certification decision pursuant to section 401 of the Clean Water Act. Virginia DEQ stated that the federal agency authorizing the activity must make the determination as to whether a section 401 certification is required, but noted that if the Commission were to find that the requested

amendment activities do require certification, then Virginia DEQ's certification issued in 2017 for the Mountain Valley Pipeline Project would cover those activities.²⁵⁸ Similarly, West Virginia DEP stated that whether a 401 certification is required is a decision to be made by the Commission, but noted that the amendment activities do not create the potential for a new discharge not previously considered when West Virginia DEP decided to waive its certification authority for the Mountain Valley Pipeline Project in 2017.²⁵⁹

142. For the reasons discussed above, we find that the proposed amendment activities do not trigger the need for new certification decisions pursuant to section 401 of the Clean Water Act.

D. Status of Other Applicable Authorizations

143. A number of commenters raise arguments related to the status of other state and federal authorizations for the Amendment Project and the Mountain Valley Pipeline Project.

144. First, regarding the prior and pending Corps authorizations, some commenters allege that Mountain Valley is attempting to contravene the Clean Water Act or court decision staying the Corps' Nationwide Permits 12 verifications for the Mountain Valley Pipeline Project by requesting the change in crossing method.²⁶⁰ Mountain Valley is not violating the Clean Water Act or the court decision by proposing a change in crossing method. Pursuant to the Clean Water Act, a permit from the Corps would be required for the originally certificated open-cut crossings,²⁶¹ but no permit from the Corps is required to cross wetlands and waterbodies via conventional bore because the activity takes place outside of waters of the United States.

145. To complete construction of the rest of the Mountain Valley Pipeline Project, the outstanding actions required by law are completion of ESA consultation, the Corps'

²⁵⁸ Virginia DEQ's June 25, 2021 Letter at 3 ("If FERC approves the requested amendment then the 2017 Certification covers the approved changes.").

²⁵⁹ West Virginia DEP's July 23, 2021 Letter at 1 ("[West Virginia DEP] does not believe the [amendment activities] create[] a potential for a new discharge not previously considered in the 2017 waiver.").

²⁶⁰ See, e.g., Jacob Hileman's March 22, 2021 Motion to Intervene and Comments at 5.

²⁶¹ Section 404 of the Clean Water Act generally requires that a permit be obtained before dredged or fill material may be discharged into waters of the United States. 33 U.S.C. § 1344.

authorization to conduct the open-cut crossings, pursuant to section 404 of the Clean Water Act, and authorization from the Forest Service and Bureau of Land Management to construct in the Jefferson National Forest.²⁶²

146. Commenters claim that the Commission should not grant Mountain Valley authorization to proceed with the requested amendment activities, or any additional upland work on the Mountain Valley Pipeline Project, until Mountain Valley receives all applicable authorizations required under federal law, or evidence of waiver thereof, for the entire Mountain Valley Pipeline Project.²⁶³ Further, some commenters allege that the construction proposed in the amendment application should not be allowed to proceed until any potential judicial challenges to the pending or recently received authorizations (including the Clean Water Act sections 404 and 401 authorizations for the Corps-jurisdictional activities) result in final judgments upholding those authorizations, or one year has elapsed from the date upon which the latest of any such judicial challenges is commenced, whichever is sooner.²⁶⁴

147. In its January 25, 2022 decision vacating the Forest Service's and Bureau of Land Management's authorizations, the Fourth Circuit noted that those agencies "would surely benefit from FERC's environmental analysis of the use of the conventional bore method for other stream crossings outside the Jefferson National Forest[.]" and that the agencies "improperly approved the use of the conventional bore method for the four streams in the Jefferson National Forest without first considering FERC's analysis."²⁶⁵ This suggests

²⁶² The open-cut crossings of three waterbodies subject to section 10 of the Rivers and Harbors Act also require approval from the Corps pursuant to that act. As noted above, the Corps anticipates issuing its section 404 and section 10 authorizations together. *See supra* note 16. Virginia DEQ and West Virginia DEP issued certifications, pursuant to section 401 of the Clean Water Act, with respect to the Corps-jurisdictional activities on December 20, 2021 and December 30, 2021, respectively. On January 25, 2022, the Fourth Circuit vacated the Forest Service's record of decision and Bureau of Land Management's right-of-way grant issued for the Mountain Valley Pipeline Project. *Wild Virginia v. U.S. Forest Serv.*, 24 F.4th 915 (4th Cir. 2022). Pursuant to Commission order, Mountain Valley remains prohibited from conducting construction activities in the Jefferson National Forest. *Mountain Valley Pipeline, LLC*, 173 FERC ¶ 61,252 (2020).

²⁶³ *See, e.g.*, Amanda Tandy's March 4, 2021 Comments; Coles Terry's August 6, 2021 Comments.

²⁶⁴ *See* Allegheny-Blue Ridge Alliance, et al.'s September 13, 2021 Comments at 71-73.

²⁶⁵ *Wild Virginia v. U.S. Forest Serv.*, 24 F.4th 915 at 929-30.

that a Commission decision on the amendment application, and specifically the Commission's analysis of the environmental impacts associated with the Amendment Project, would assist the other federal agencies in resolving the issues before them.

148. Because we find that the Amendment Project is environmentally preferable to the originally certificated project, we approve Mountain Valley's requested amendment. However, any notice to proceed with construction of the Amendment Project will only be issued upon Mountain Valley's receipt of its outstanding federal authorizations.

149. First, we will require that Mountain Valley obtain the necessary Corps authorizations for all the remaining waterbody crossings before the commencement of construction associated with any remaining waterbody crossings is authorized.²⁶⁶ Therefore, Environmental Condition 8 prohibits Mountain Valley from commencing construction activities associated with the Amendment Project until it receives authorization from the Corps to complete its proposed open-cut crossings.²⁶⁷ Second, we will require that, before Mountain Valley can begin construction associated with the Amendment Project, (1) it must receive a revised or new BO from FWS for the original Mountain Valley Pipeline Project and (2) ESA consultation with FWS for the Amendment Project must be complete.

150. Finally, the Director of the Office of Energy Projects (OEP), or the Director's designee, will issue any notice to proceed and only after verification that Mountain Valley has received the required permits. Therefore, Environmental Condition 9 prohibits Mountain Valley Mountain Valley from commencing construction activities associated with the Amendment Project until ESA consultation with FWS is complete. We also note that Mountain Valley remains prohibited from constructing in the Jefferson National Forest.²⁶⁸

151. At this time, we will not condition authorization of Amendment Project construction activities on the disposition of potential judicial challenges. If any of the

²⁶⁶ As noted above, the amendment application includes a proposed change in crossing method for two waterbodies subject to section 10 of the Rivers and Harbors Act. In addition to the Commission approval of the change in crossing method, Mountain Valley also needs approval from the Corps, pursuant to section 10, prior to conducting those crossings.

²⁶⁷ Environmental Condition 8 also prohibits construction until Mountain Valley obtains approval from the Corps pursuant to section 10 of the Rivers and Harbors Act.

²⁶⁸ See *supra* note 262. Before additional work can proceed in the Jefferson National Forest, the Commission must lift the existing exclusion zone.

authorizations by other agencies are challenged, it would be within a court's discretion to stay those authorizations pending review.

152. Some commenters allege that the Commission must require Mountain Valley to obtain National Pollutant Discharge Elimination System permits from the States of Virginia and West Virginia for construction stormwater discharges.²⁶⁹ The States of Virginia and West Virginia issue and oversee compliance with NPDES permits. Virginia DEQ and West Virginia DEP both note that changes to construction plans, like the requested changes from open-cut to trenchless methods, require updates to state-approved plans.²⁷⁰ Both agencies indicate that their approval of those plans will ensure that stormwater is controlled in accordance with state water quality requirements.²⁷¹

IV. Conclusion

153. Based on our Certificate Policy Statement determination and our environmental analysis, we find under section 7 of the NGA that the public convenience and necessity requires approval of Mountain Valley's proposal, subject to the conditions in this order.

154. Compliance with the environmental conditions included in our orders is integral to ensuring that the environmental impacts of approved projects are consistent with those anticipated by our environmental analyses. Thus, Commission staff carefully reviews all information submitted. Only when satisfied that the applicant has complied with all applicable conditions will staff issue a notice to proceed with the activity to which the conditions are relevant. We also note that the Commission has the authority to take whatever steps are necessary to ensure the protection of environmental resources during construction and operation of the Amendment Project, including authority to impose any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the order, as well as the avoidance or mitigation of unforeseen adverse environmental impacts resulting from Amendment Project construction and operation.

155. Any state or local permits issued with respect to the jurisdictional facilities authorized herein must be consistent with the conditions of the amended certificate. The Commission encourages cooperation between interstate pipelines and local authorities. However, this does not mean that state and local agencies, through application of state or

²⁶⁹ *E.g.*, Allegheny-Blue Ridge Alliance September 13, 2021 Comments at 75-80.

²⁷⁰ Virginia DEQ's June 25, 2021 Letter at 4; West Virginia DEP's July 23, 2021 Letter at 2.

²⁷¹ Virginia DEQ's June 25, 2021 Letter at 4; West Virginia DEP's July 23, 2021 Letter at 2.

local laws, may prohibit or unreasonably delay the construction or operation of facilities approved by this Commission.²⁷²

156. The Commission on its own motion received and made a part of the record in this proceeding all evidence, including the application, and exhibits thereto, and all comments, and upon consideration of the record,

The Commission orders:

(A) The Certificate Order in Docket No. CP16-10-000 is amended, as described and conditioned herein, and as more fully described in the application and subsequent filings by the applicant, including any commitments made therein. In all other respects, the Certificate Order is unchanged.

(B) The authority issued in Ordering Paragraph (A) is conditioned on Mountain Valley's compliance with the environmental conditions set forth in the appendix to this order.

(C) Mountain Valley shall continue to comply with environmental conditions set forth in Appendix C to the Certificate Order.

(D) Mountain Valley shall comply with all applicable Commission regulations under the NGA, particularly the general terms and conditions set forth in paragraphs (a), (b), (c), (e), and (f) of section 157.20 of the regulations.

(E) Mountain Valley shall complete construction of the Mountain Valley Pipeline Project facilities and make them available for service within the timeframe conditioned in the Certificate Order, as amended by the Commission's October 9, 2020 Order (173 FERC ¶ 61,026 (2020)) extending the timeframe to complete construction, in accordance with section 157.20(b) of the Commission's regulations.

(F) Mountain Valley shall notify the Commission's environmental staff by telephone or e-mail of any environmental noncompliance identified by other federal,

²⁷² See 15 U.S.C. § 717r(d) (state or federal agency's failure to act on a permit considered to be inconsistent with Federal law); see also *Schneidewind v. ANR Pipeline Co.*, 485 U.S. 293, 310 (1988) (state regulation that interferes with FERC's regulatory authority over the transportation of natural gas is preempted) and *Dominion Transmission, Inc. v. Summers*, 723 F.3d 238, 245 (D.C. Cir. 2013) (noting that state and local regulation is preempted by the NGA to the extent it conflicts with federal regulation, or would delay the construction and operation of facilities approved by the Commission).

state, or local agencies on the same day that such agency notifies Mountain Valley. Mountain Valley shall file written confirmation of such notification with the Secretary of the Commission within 24 hours.

By the Commission. Chairman Glick and Commissioner Clements are concurring with a joint separate statement attached.
Commissioner Danly is concurring with a separate statement attached.

(S E A L)

Kimberly D. Bose,
Secretary.

APPENDIX A

As recommended in the environmental assessment (EA), and modified herein, this authorization includes the following conditions:

1. Mountain Valley shall follow the construction procedures and mitigation measures described in its amendment application and supplements including responses to staff data requests and as identified in the environmental assessment (EA), unless modified by the Order. Mountain Valley must:
 - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary of the Commission (Secretary);
 - b. justify each modification relative to site-specific conditions;
 - c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
 - d. receive approval in writing from the Director of the Office of Energy Projects (OEP), or the Director's designee, **before using that modification.**
2. The Director of OEP, or the Director's designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of the Order, and take whatever steps are necessary to ensure the protection of environmental resources during construction of the Amendment Project. This authority shall allow:
 - a. the modification of conditions of the Order;
 - b. stop-work authority; and
 - c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the Order as well as the avoidance or mitigation of unforeseen adverse environmental impact resulting from Amendment Project construction.
3. Mountain Valley shall continue to comply with environmental conditions set forth in Appendix C of the October 13, 2017 Certificate Order in Docket No. CP16-010-000.
4. The authorized facility locations shall be as shown in the EA, as supplemented by filed alignment sheets. **As soon as they are available, and before the start of**

construction, Mountain Valley shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

5. Mountain Valley shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP, or the Director's designee, **before construction in or near that area.**

This requirement does not apply to extra workspace allowed by the Commission's *Upland Erosion Control, Revegetation and Maintenance Plan* and/or minor field realignments per landowner needs and requirements which do not affect other landowners or sensitive environmental areas such as wetlands.

Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

- a. implementation of cultural resources mitigation measures;
 - b. implementation of endangered, threatened, or special concern species mitigation measures;
 - c. recommendations by state regulatory authorities; and
 - d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.
6. **Within 60 days of the acceptance of the authorization and before construction of the Amendment Project begins**, Mountain Valley shall file an Implementation Plan with the Secretary for review and written approval by the Director of OEP, or the Director's designee. Mountain Valley must file revisions to the plan as schedules change. The plan shall identify:

- a. how Mountain Valley will implement the construction procedures and mitigation measures described in its amendment application and supplements (including responses to staff data requests), identified in the EA, and required by the Order;
 - b. how Mountain Valley will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
 - c. the number of environmental inspectors (EIs) assigned, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;
 - d. company personnel, including EIs and contractors, who will receive copies of the appropriate material;
 - e. the location and dates of the environmental compliance training and instructions Mountain Valley will give to all personnel involved with construction and restoration (initial and refresher training as the project progresses and personnel change);
 - f. the company personnel (if known) and specific portion of Mountain Valley's organization having responsibility for compliance;
 - g. the procedures (including use of contract penalties) Mountain Valley will follow if noncompliance occurs; and
 - h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:
 1. the completion of all required surveys and reports;
 2. the environmental compliance training of onsite personnel;
 3. the start of construction; and
 4. the start and completion of restoration.
7. Mountain Valley must receive written authorization from the Director of OEP or the Director's designee **before commencing construction of any Amendment Project facilities**. To obtain such authorization, Mountain Valley must file with

the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).

8. Mountain Valley shall **not commence construction activities** associated with the Amendment Project **until** Mountain Valley receives authorization from the U.S. Army Corps of Engineers to complete its proposed open-cut crossings and to cross waterbodies subject to section 10 of the Rivers and Harbors Act.
9. Mountain Valley shall **not commence construction activities** associated with the Amendment Project **until** consultation with the U.S. Fish and Wildlife Service pursuant to the Endangered Species Act for the Mountain Valley Pipeline Project and Amendment Project is complete.
10. **Prior to commencing any nighttime construction activities associated with the eight trenchless crossing locations where nighttime construction is proposed**, Mountain Valley shall notify all landowners within 0.5 mile of nighttime (7:00 pm to 7:00 am) trenchless crossing activities (boring and pipe welding) prior to the start of these activities. Mountain Valley shall confirm its compliance with the required notification in its construction status reports.
11. **During any nighttime construction activities associated with the trenchless crossings**, Mountain Valley shall monitor noise levels, document the noise levels in the weekly status reports, and restrict the noise attributable to nighttime construction activities associated with the trenchless crossings to no more than a day-night average sound level (L_{dn}) of 55 decibels on the A-weighted scale (dBA), or no more than a 10 decibel increase over background levels where existing noise levels exceed 55 dBA L_{dn} , at any noise sensitive areas.
12. **Prior to construction**, Mountain Valley shall file with the Secretary for review and approval by the Director of OEP a revised *Karst Mitigation Plan* that requires coordination with the Virginia Department of Conservation and Recreation to identify crossing locations with high potential for surface stream loss and develop impact minimization measures, as appropriate.

APPENDIX B

Update to Appendix F in Commission Staff's August 13, 2021 Environmental Assessment															
Current Environmental Justice Community Data															
Geographic Area	No. of Crossings	Crossing Number	Total Population	White (%) ^g	African American/Black (%) ^a	American Indian/Alaska Native (%) ^a	Asian (%) ^g	Native HI & Other Pacific Islander (%) ^a	Some Other Race (%) ^g	Two or More Races (%) ^g	Hispanic Origin (any race) (%) ^a	Total Minority Populations (%) ^a	65 Year's Old and Older (%) ^h	Households in Poverty (%) ^g	
WEST VIRGINIA			1,817,305	92.0%	3.6%	0.2%	0.3%	0.0%	0.2%	1.6%	1.6%	8.0%	19.4%	17.3%	
Wetzel County			15,436	96.9%	1.1%	0.0%	0.0%	0.0%	0.3%	0.9%	0.9%	3.1%	22.8%	18.3%	
Block Group 4, Census Tract 305	N/A	Alignment Shift at MP 0.7	790	66.2%	18.5%	0.0%	0.0%	0.0%	0.0%	0.0%	15.3%	33.8%	12.2%	5.6%	
Block Group 5, Census Tract 305	1	A-008	666	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.4%	26.3%	
Lewis County			16,166	96.3%	0.2%	0.5%	0.5%	0.0%	0.0%	1.2%	1.2%	3.7%	20.2%	19.1%	
Block Group 2, Census Tract 9676	1	B-012	899	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	21.2%	28.0%	
Block Group 3, Census Tract 9676	1	B-015A	1,679	97.5%	0.0%	0.0%	0.0%	0.0%	0.0%	2.1%	0.4%	2.5%	20.7%	13.6%	
Webster County			8,386	99.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.1%	0.4%	22.7%	26.0%	
Block Group 1, Census Tract 9701	1	C-013A	684	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	35.1%	29.4%	
Block Group 2, Census Tract 9701	2	C-018, C-022*	1,001	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	25.4%	18.8%	
Block Group 4, Census Tract 9701	4	C-022*, C-024, C-028, C-035	1,515	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.0%	27.3%	
Block Group 1, Census Tract 9703	1	D-010	2,147	99.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.6%	0.2%	0.9%	20.8%	19.9%	
Nicholas County			25,078	96.9%	0.7%	0.4%	0.2%	0.0%	0.0%	1.0%	0.8%	3.1%	21.8%	17.5%	
Block Group 1, Census Tract 9504	4	D-022, D-028, D-034, D-035	986	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	23.9%	8.2%	
Block Group 2, Census Tract 9504	4	D-036, D-037, D-038, D-040, D-041*	1,457	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	19.1%	25.4%	
Block Group 4, Census Tract 9506	1	D-041*	1,144	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	30.1%	0.0%	
Block Group 3, Census Tract 9504	4	D-011, D-012, D-019, D-020	1,939	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.2%	13.2%	
Block Group 3, Census Tract 9506	1	D-048	1,798	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	19.9%	15.8%	
Block Group 1, Census Tract 9507	1	E-005	288	84.0%	0.0%	16.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.0%	59.4%	27.5%	
Greenbrier County			35,155	92.2%	2.8%	0.0%	0.8%	0.0%	0.5%	1.8%	2.0%	7.8%	22.6%	16.6%	
Block Group 1, Census Tract 9503	3	E-009, E-012, E-015	632	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.9%	46.5%	
Summers County			12,848	91.9%	4.5%	0.0%	0.0%	0.0%	0.0%	2.2%	1.5%	8.1%	24.2%	21.2%	
Block Group 1, Census Tract 6	4	F-014, F-015, F-016, F-017	516	87.8%	10.5%	0.0%	0.0%	0.0%	0.0%	0.0%	1.7%	12.2%	25.2%	34.8%	
Block Group 2, Census Tract 6	3	F-021, F-022, F-027	1,845	84.1%	11.2%	0.0%	0.0%	0.0%	0.0%	1.5%	3.2%	15.9%	13.3%	16.8%	
Monroe County			13,401	96.3%	0.9%	0.5%	0.0%	0.0%	0.0%	1.4%	0.9%	3.7%	24.8%	15.3%	
Block Group 4, Census Tract 9502	1	F-032	729	94.9%	0.0%	0.0%	0.0%	0.0%	0.0%	5.1%	0.0%	5.1%	36.4%	4.7%	
Block Group 2, Census Tract 9503	1	F-039	2,861	99.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.3%	0.4%	15.4%	13.7%	
VIRGINIA			8,454,463	61.3%	18.8%	0.2%	6.3%	0.1%	0.3%	3.1%	9.4%	38.2%	15.0%	10.3%	
Giles County			16,772	94.9%	2.2%	0.0%	0.1%	0.2%	0.0%	0.9%	1.7%	5.1%	21.3%	9.6%	
Block Group 1, Census Tract 9301	4	G-017*, G-019B, G-023, G-024	1,035	99.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.5%	22.3%	8.5%	
Block Group 3, Census Tract 9302	7	G-09, G-010, G-011, G-012, G-013, G-014, G-017*	1,258	93.2%	4.1%	0.0%	0.0%	0.0%	0.0%	1.8%	0.9%	6.8%	28.1%	13.4%	
Montgomery County			98,140	83.3%	4.4%	0.4%	6.6%	0.0%	0.6%	1.5%	3.2%	16.7%	12.2%	20.0%	
Block Group 2, Census Tract 213	3	H-009, H-015, H-016 and Route Adjustment at MP 230.8, H-017*	939	96.8%	0.0%	0.6%	0.0%	0.0%	0.0%	1.5%	1.1%	3.2%	22.7%	5.7%	
Block Group 1, Census Tract 214	2	H-017*, H-019, H-020*	714	81.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	18.3%	18.3%	4.1%	10.1%	
Block Group 2, Census Tract 214	3	H-020*, H-021, H-022	1,856	92.7%	4.2%	0.0%	0.0%	0.0%	0.0%	0.0%	3.1%	7.3%	6.6%	43.6%	
Roanoke County			93,823	85.8%	5.9%	0.2%	3.1%	0.0%	0.1%	1.8%	3.1%	14.2%	21.1%	8.1%	
Block Group 3, Census Tract 306	11	H-030, H-031, H-032, H-040, H-042, H-043, H-044, H-045, H-046, H-047A, H-048A	789	89.6%	0.0%	0.0%	1.5%	0.0%	0.0%	8.9%	0.0%	10.4%	31.1%	5.0%	
Franklin County			56,187	87.2%	7.4%	0.3%	0.5%	0.0%	0.3%	1.5%	2.8%	12.8%	22.8%	13.4%	
Block Group 1, Census Tract 201.02	1	I-048	1,070	86.5%	6.8%	0.0%	0.6%	0.0%	0.0%	6.1%	0.0%	13.5%	28.1%	4.8%	
Block Group 1, Census Tract 202	1	I-034	1,582	93.4%	4.4%	0.0%	0.0%	0.0%	0.0%	2.2%	0.0%	6.6%	11.4%	6.9%	
Block Group 2, Census Tract 202	6	046	1,392	87.7%	7.4%	0.5%	0.0%	0.0%	0.0%	0.0%	4.4%	12.3%	20.0%	6.9%	
Block Group 1, Census Tract 205	3	H-054, H-060, I-001A	1,861	98.9%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	1.1%	17.0%	8.5%	
Block Group 4, Census Tract 205	5	I-009, I-014, I-016, I-020, I-021, I-053, I-055, I-056, I-057, I-060B, I-061A, I-062, I-063, I-064, I-065, I-067, I-069A, I-070, I-073, I-074, I-076	2,169	87.5%	6.6%	0.0%	0.0%	1.6%	0.0%	0.0%	2.9%	1.4%	12.5%	24.7%	11.1%
Block Group 1, Census Tract 209	16		928	76.6%	19.2%	0.0%	2.2%	0.0%	0.0%	2.0%	0.0%	23.4%	20.2%	17.7%	
Pittsylvania County			61,256	74.1%	20.0%	0.1%	0.4%	0.0%	0.0%	2.8%	2.6%	25.9%	21.8%	15.7%	
Block Group 4, Census Tract 103	8	I-078, I-080, I-085, I-086, I-087, I-091, I-092, I-093	630	58.3%	40.0%	0.0%	0.0%	0.0%	0.0%	1.7%	0.0%	41.7%	13.2%	29.1%	
Block Group 1, Census Tract 105	8	I-111A, I-114, I-115, I-116, I-117, I-121, I-122, I-123	1,147	60.4%	38.4%	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	39.6%	29.6%	12.7%	

Update to Appendix F in Commission Staff's August 13, 2021 Environmental Assessment														
Current Environmental Justice Community Data														
Geographic Area	No. of Crossings	Crossing Number	Total Population	White (%) a/	African American/Black (%) a/	American Indian/Alaska Native (%) a/	Asian (%) a/	Native HI & Other Pacific Islander (%) a/	Some Other Race (%) a/	Two or More Races (%) a/	Hispanic Origin (any race) (%) a/	Total Minority Populations (%) a/	65 Years Old and Older (%) b/	Households in Poverty (%) c/
Block Group 3, Census Tract 105	4	L-101A, L-103, L-105, L-106A	2,267	54.2%	38.2%	0.0%	1.4%	0.0%	0.0%	1.6%	4.5%	45.3%	18.8%	14.2%
Block Group 2, Census Tract 106	4	L-094, L-095, L-096, L-097	1,712	78.0%	18.3%	0.0%	0.0%	0.0%	0.0%	2.6%	1.1%	22.0%	29.4%	14.6%

a Percent of Total Population (Table B03002 - Hispanic or Latino Origin by Race American Community Survey, 2019 ACS 5-Year Estimates Detailed Tables. U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates: <https://api.census.gov/data/2019/acs/acs5>). Accessed: May 13, 2021

b Sex By Age (Table B01001 - 2019 ACS 5-Year Estimates Detailed Tables. U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates: <https://data.census.gov/cedsci/all?q=B01001>). Accessed: November 22, 2021

c Percent of Households (Table B17017 - Poverty Status in the Past 12 months by Household Type by Age of Householder. 2019 ACS 5-Year Estimates Detailed Tables. U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates: <https://api.census.gov/data/2019/acs/acs5>). Accessed: May 13, 2021

N/A = Not applicable

* Crossing occurs in more than one Block Group

Gray shading denotes an Environmental Justice community.

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Mountain Valley Pipeline, LLC

Docket No. CP21-57-000

(Issued April 8, 2022)

GLICK, Chairman, CLEMENTS, Commissioner, *concurring*:

1. We concur in today's order. The only question before us today is whether to approve Mountain Valley's limited request to amend its certificate, primarily to change its method of crossing numerous waterbodies. We agree that Mountain Valley has met its burden to show that the proposed amendments are consistent with the public interest.

2. We write separately to explain our support for issuing today's order notwithstanding the U.S. Court of Appeals for the Fourth Circuit's decisions vacating (1) the Bureau of Land Management (BLM) and the Forest Service authorization to cross the Jefferson National Forest and (2) the Fish and Wildlife Service's Biological Opinion and Incidental Take Statement. We have previously voiced concerns with the Commission's practice of issuing conditional certificates prior to the pipeline developer obtaining the other federal permits necessary to build a proposed pipeline.¹ In particular, we have expressed concern that the Commission was putting the cart before the horse in allowing certificate holders to condemn private land and commence construction notwithstanding substantial uncertainty as to whether the project would ever be developed successfully. Those concerns may be heightened when, as here, the permits and authorizations needed to develop the project have been vacated—several times—by the courts.²

3. Today's order is different for several reasons. First, in one of its recent decisions vacating MVP's permits, the Fourth Circuit held that it was arbitrary and capricious for BLM to approve Mountain Valley's water crossing method "without *first* considering FERC's analysis."³ Considering that holding, we agree that it is appropriate for the

¹ *PennEast Pipeline Co.*, 174 FERC ¶ 61,056, at PP 1-2 (2021) (Glick & Clements, Comm'rs, concurring); see *Mountain Valley Pipeline, LLC*, 174 FERC ¶ 61,192, at P 1 (2021) (Glick, Chairman, Clements, Comm'r, dissenting).

² See, e.g., *Appalachian Voices v. U.S. Dep't of the Interior*, 25 F.4th 259, 271-77 (4th Cir. 2022) (vacating FWS Biological Opinion because it failed to adequately evaluate environmental baseline and cumulative effects for two listed species, and climate change).

³ *Wild Virginia v. U.S. Forest Serv.*, 24 F.4th 915, 930 (4th Cir. 2022) (emphasis added); *id.* at 929 ("MVP cannot construct the stream crossings outside the Jefferson

Commission to issue today's order, so that BLM can have the benefit of FERC's analysis to satisfy the court's remand. Second, Mountain Valley's usage of trenchless waterbody crossings will result in fewer environmental impacts than the crossing method that the Commission approved under the original certificate, meaning that today's order amending Mountain Valley's certificate will almost certainly represent an improvement over the status quo. Third, the record reflects that the Mountain Valley project is almost entirely constructed⁴ and the amendment project will not require taking any additional land by eminent domain.⁵

4. Finally, as to the Fourth Circuit's recent vacatur of the Biological Opinion, if FWS finds that the amendment would in fact jeopardize a listed species or a critical habitat, then no further construction would be appropriate and Mountain Valley likely would need to come back with another amendment. In addition, today's order does not authorize any change in the route or affect any new landowners, which helps to mitigate our longstanding concerns over the prospect of private property being condemned long before construction begins on a project that may never be fully approved.⁶

For these reasons, we respectfully concur.

Richard Glick
Chairman

Allison Clements
Commissioner

National Forest using the conventional bore method until FERC actually fully approves the amendment to the FERC Certificate to authorize that method.”).

⁴ Weekly Status Report No. 226, Docket No. CP16-10 (Mar. 25, 2022).

⁵ See *Mountain Valley Pipeline, LLC*, 179 FERC ¶ 61,013, at P 14 (2022).

⁶ See, e.g., *PennEast*, 174 FERC ¶ 61,056 at PP 3-4 (Glick & Clements, Comm'rs, concurring).

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Mountain Valley Pipeline, LLC

Docket No. CP21-57-000

(Issued April 8, 2022)

DANLY, Commissioner, *concurring*:

1. I concur with today's order granting the amendment authorization requested by Mountain Valley Pipeline, LLC (Mountain Valley).¹ I write separately to express two points.

2. *First*, as I previously stated,² while not fatal to this order's durability, I would have explicitly repudiated *Northern Natural Gas Company*³ and reaffirmed the Commission's prior position that "[w]ithout an accepted methodology, the Commission cannot make a finding whether a particular quantity of greenhouse gas [GHG] emissions poses a significant impact on the environment, whether directly or cumulatively with other sources, and how that impact would contribute to climate change."⁴ This is because, as the Commission has stated, it is unable to connect a particular project's GHG emissions to discrete, physical effects on the environment.⁵ The Council on Environmental Quality (CEQ) has found similarly.⁶ And the Commission's now-draft Interim GHG Policy

¹ See *Mountain Valley Pipeline, LLC*, 179 FERC ¶ 61,013 (2022) (*Mountain Valley*).

² See, e.g., *Iroquois Gas Transmission Sys., L.P.*, 178 FERC ¶ 61,200 (2022) (Danly, Comm'r, concurring in the judgment at PP 3-5).

³ See *Mountain Valley*, 179 FERC ¶ 61,013 at P 48 n.84 (citing *N. Nat. Gas Co.*, 174 FERC ¶ 61,189 (2021)).

⁴ *Dominion Transmission, Inc.*, 163 FERC ¶ 61,128, at P 67 (2018) (citation omitted).

⁵ See, e.g., *Nat'l Fuel Gas Supply Corp.*, 158 FERC ¶ 61,145, at P 188 (2017).

⁶ See CEQ, *Draft [National Environmental Policy Act (NEPA)] Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions*, at P 3 (Feb. 18, 2010), <https://obamawhitehouse.archives.gov/sites/default/files/microsites/ceq/20100218-nepa-consideration-effects-ghg-draft-guidance.pdf> ("it is not currently useful for the NEPA analysis to attempt to link specific climatological changes, or the

Statement⁷ does not alter these determinations.⁸ One can also not help but notice the Commission's mention of Mountain Valley's "carbon offset plan."⁹

3. *Second*, regarding the inclusion of a calculation of the Social Cost of Carbon from the project's emissions,¹⁰ the Commission has provided extensive discussion on why the use of the Social Cost of Carbon is not appropriate in project-level NEPA review, and why it cannot meaningfully inform the Commission's decisions on natural gas infrastructure projects under the Natural Gas Act.¹¹ Nothing can be gleaned from the numbers calculated by Commission staff in today's order.

For these reasons, I respectfully concur.

James P. Danly
Commissioner

environmental impacts thereof, to the particular project or emissions, as such direct linkage is difficult to isolate and to understand.”).

⁷ *Consideration of Greenhouse Gas Emissions in Nat. Gas Infrastructure Project Reviews*, 178 FERC ¶ 61,108 (2022) (Interim GHG Policy Statement); *see Certification of New Interstate Nat. Gas Facilities*, 178 FERC ¶ 61,197 (2022) (converting the recent policy statements to drafts).

⁸ *See* Interim GHG Policy Statement, 178 FERC ¶ 61,108 (Danly, Comm’r, dissenting at P 22) (“And while it is not acknowledged at all in the Interim Policy Statement’s procedural history, the Commission has repeatedly stated that ‘it cannot determine a project’s incremental physical impacts on the environment caused by GHG emissions,’ and CEQ has made similar statements.”) (citations omitted).

⁹ *See Mountain Valley*, 179 FERC ¶ 61,013 at P 47 (“We note that, in July 2021, Mountain Valley announced its carbon offset plan, by which it would purchase carbon offsets that are expected to be equivalent to 90% of the greenhouse gas emissions associated with operations of the Mountain Valley Pipeline Project over a 10-year period.”) (citation omitted).

¹⁰ *See id.* P 54.

¹¹ *See, e.g., Mountain Valley Pipeline, LLC*, 161 FERC ¶ 61,043, at P 296 (2017), *order on reh’g*, 163 FERC ¶ 61,197, at PP 275-97 (2018), *aff’d sub nom. Appalachian Voices v. FERC*, No. 17-1271, 2019 WL 847199, at *2 (D.C. Cir. 2019) (“[The

Commission] gave several reasons why it believed petitioners' preferred metric, the Social Cost of Carbon tool, is not an appropriate measure of project-level climate change impacts and their significance under NEPA or the Natural Gas Act. That is all that is required for NEPA purposes.”).

File Code: 2720
Date: January 11, 2021

Mr. Mitchell Leverette
Eastern States Director
Bureau of Land Management
5275 Leesburg Pike
Falls Church, VA 22041

Dear Mr. Leverette:

This letter is to communicate my concurrence for granting Mountain Valley Pipeline LLC (Mountain Valley), a right-of-way and temporary use permit to construct, operate, and maintain the Mountain Valley Pipeline (MVP) Project on lands administered by the Jefferson National Forest subject to the following Terms and Conditions:

1. Mountain Valley shall obtain and comply with the Right-Of-Way (ROW) Grant and Temporary Use Permits as approved by the Bureau of Land Management (BLM).
2. Mountain Valley must implement the construction procedures, mitigation measures, and other requirements applicable to the Jefferson National Forest contained in the July 2020 version of the Plan of Development (POD) and subsequent updates thereof that have been approved by the Forest Service. Additionally, any requests made by the company for activities not included in the approved POD or actions that fall outside of the ROW must be requested to the BLM as a variance and/or Federal Energy Regulatory Commission (FERC) as a variance, with concurrence from the Forest Service. Additional environmental analysis may be required as part of the National Environmental Policy Act. If accepted, the variance becomes an amendment to the POD. The amendment must be approved prior to the activity taking place (POD Appendix N [MVP 2020w]).
3. Mountain Valley shall comply with applicable provisions of Appendix C – Environmental Conditions of the FERC Order Issuing Certificates and Granting Abandonment Authority; Docket Nos. CP16-10-000 and CP16-13-000 (issued October 13, 2017).
4. Mountain Valley shall obtain Federal and State Clean Water Act permits and certifications applicable to National Forest System (NFS) lands, and must remain in compliance with Erosion and Sediment Controls Plans, as listed below:
 - Mountain Valley shall obtain required approvals/certifications applicable to NFS lands for 401 Certifications and 404 Permits (or waivers thereof) before beginning activity on NFS land that may impact waters of the U.S.



- Mountain Valley shall obtain required approvals/certifications for a Stormwater Permit from the Virginia Department of Environmental Quality before beginning construction on NFS land.
 - Mountain Valley shall obtain required approvals/certifications for a Stormwater Permit from the West Virginia Department of Environmental Protection before beginning construction on NFS land.
 - During and after construction on NFS land, Mountain Valley shall comply with the associated Erosion and Sediment Control Plan as approved by the Virginia Department of Environmental Quality.
 - During and after construction on NFS land, Mountain Valley shall comply with the associated Erosion and Sediment Control Plan as approved by the West Virginia Department of Environmental Protection.
5. Mountain Valley shall comply with the applicable Reasonable and Prudent Measures, and Terms and Conditions of the September 4, 2020 U.S. Fish and Wildlife Service (FWS) Biological Opinion for the MVP Project. Additionally, Mountain Valley shall implement all measures in the POD and Supplemental Biological Assessment. Mountain Valley shall also implement applicable mitigation measures recommended by FWS through any future Section 7(a)(4) Endangered Species Act (ESA) conferencing for future species that may occur. If species are listed as threatened or endangered under the ESA, any Reasonable and Prudent Measures and Terms and Conditions identified in a Supplemental Biological Opinion conducted under ESA 7(a)(2), must be implemented by Mountain Valley.
6. Mountain Valley shall implement any applicable mitigation measures found in and as disclosed in the June 2020 Supplemental Biological Evaluation for Forest Service Sensitive Species and the POD.
7. Mountain Valley shall implement the Historic Property Treatment Plan for the Appalachian National Scenic Trail (ANST) as outlined in the ANST Programmatic Agreement and the POD's ANST Contingency Plan.
8. Mountain Valley is not authorized to use NFS roads for activities associated with this project, except where the LOD is coincident with Mystery Ridge Road and with Brush Mountain Road.
9. Mountain Valley is not authorized to undertake activities related to construction on NFS lands until the company has obtained all Federal and State authorizations outstanding for the entire project.

Section 28 of the Mineral Leasing Act (MLA) as amended, authorizes the Secretary of the Interior, after consultation with the agencies involved, to grant rights-of-way or permits through affected Federal lands for natural gas pipelines when lands under the jurisdiction of two or more Federal agencies are involved.

The MVP project's proposed crossing of NFS lands and Army Corps of Engineer lands necessitates BLM's involvement in authorizing the project. The Forest Service and the BLM

were cooperating agencies with FERC as the lead agency in preparing the Final Environmental Impact Statement for this project.

The BLM and the Forest Service also closely coordinated with each other and the proponent in developing the MVP POD which contains measures to: protect and minimize environmental impacts; comply with applicable Federal and State requirements; and ensure consistency with the Jefferson National Forest's Land and Resource Management Plan, as amended. Given the extensive coordination between the Forest Service Southern Region and BLM Eastern States organizations, I consider the consultation requirement of the MLA to have been satisfied.

Forest Service regulations require that projects or activities authorized on NFS lands must be consistent with the applicable Forest and Resource Management Plan (Forest Plan). On January 11, 2021, the United States Department of Agriculture's Under Secretary of Natural Resources and Environment approved a project-specific amendment to the Jefferson National Forest Plan. This amendment modifies certain Forest Plan standards that, along with the terms, conditions, and stipulations listed above, will provide the required consistency between the Forest Plan and the MVP Project.

When project applications involve lands managed by two or more Federal agencies, BLM regulations at 43 CFR 2884.26 state that the BLM will only issue a ROW grant or permits once the heads of the agencies administering the lands involved have concurred. As Regional Forester, I am delegated the authority to concur on applications involving pipeline diameters 24 inches or greater.

If you have any questions, please contact Jim Twaroski, Director of Lands, Minerals, and Uses for the Southern Region; at jim.twaroski@usda.gov or 404-347-2871.

Sincerely,



KEN ARNEY
Regional Forester

cc: Joby Timm, Jim Twaroski, Dan Olsen



United States Department of the Interior



Bureau of Land Management

Eastern States

Southeastern States District Office

273 Market Street

Flowood, Mississippi 39232

<http://www.es.blm.gov>

August 24, 2018

IN REPLY REFER TO:
2880 (ESJ020) VMC

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE
Washington, DC 20426

Re: Mountain Valley Pipeline, LLC
Docket No. CP16-10-000
Mineral Leasing Act Section 28(p) Analysis for the Mountain Valley Pipeline

Dear Ms. Bose:

Enclosed for your docket please find the Bureau of Land Management's analysis of the Mountain Valley Pipeline project under section 28(p) of the Mineral Leasing Act of 1920. Please note that this analysis in itself does not constitute a record of decision or right-of-way grant.

Sincerely,

Victoria (Vicki) Craft
Project Manager

Enclosure (1)
-Practicality Analysis

CC: Public File, Docket No. CP16-10-000

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United States Department of the Interior



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<http://www.blm.gov/eastern-states>

AUG 23 2018

Mr. Joseph R. Balash
Assistant Secretary – Land and Minerals Management
U.S. Department of the Interior
1849 C Street NW
Washington, DC 20240

Re: Mineral Leasing Act Section 28(p) Analysis for the Mountain Valley Pipeline

Dear Mr. Balash:

Section 28(p) of the Mineral Leasing Act of 1920 provides that “[i]n order to minimize adverse environmental impacts and the proliferation of separate rights-of-way across Federal lands, the utilization of rights-of-way in common shall be required to the extent practical.”¹ On July 27, 2018, the U.S. Court of Appeals for the Fourth Circuit vacated the record of decision and right-of-way (ROW) grant for the Mountain Valley Pipeline (MVP). The court found that the record of decision did not address whether “the utilization of an existing right of way would be *impractical*,” and specified that the BLM on remand must “favor[] routes utilizing existing rights of way unless those alternatives [are] impractical.”²

The Bureau of Land Management (BLM) has prepared this supplemental analysis to address the court’s instructions on remand. As explained below, we conclude that the additional utilization of existing ROWs across federal lands would be impractical.

I. Background

In order to implement the court’s instructions, we have analyzed whether any route alternative exists that would result in greater collocation with other ROWs on federal lands than the route that was previously approved by the BLM, and that would be practical. Each of these two criteria is explained in greater detail below.

A. Collocation on Federal Lands

The first criterion that a route alternative must satisfy is that it must result in greater collocation with other ROWs on federal lands – that is, it must cross fewer miles of federal lands without

¹ 30 U.S.C. § 185(p).

² See *Sierra Club, Inc. v. U.S. Forest Serv.*, – F.3d –, 2018 WL 3595760, at *16 (4th Cir. July 27, 2018) (emphasis in the original).

collocation than the previously approved alternative. We limit our comparison of collocation to federal lands because section 28(p) aims to minimize “the proliferation of separate rights-of-way across Federal lands,” and because the BLM has no authority over the MVP route except to the extent that the route involves the use of federal lands.³

In order to determine the extent of collocation on federal lands, we rely on two independent assessments: one conducted by staff of the Federal Energy Regulatory Commission (FERC), and one conducted by MVP.⁴ Although the results of these two independent assessments are generally consistent, they occasionally provide different estimates of the extent of collocation on federal lands, because of the technical challenges inherent in measuring the lengths of potential pipeline routes. Where the two assessments provide conflicting results on the question of whether a given route alternative would result in greater collocation on federal lands than the previously approved route, we have assumed conservatively that the route alternative would satisfy this criterion, and proceeded to examine whether the route alternative would be practical.

B. Practicality

The second criterion that a route alternative must satisfy is that it must be practical. In interpreting the term “practical” for purposes of this analysis, we have taken into consideration the term’s common usage, as well as relevant administrative and judicial interpretations. Black’s Law Dictionary defines “practical” as meaning “[l]ikely to succeed or be effective,” and “[u]seful or suitable for a particular purpose or situation.”⁵ The BLM’s regulations note that one of the objectives of the BLM’s pipeline ROW program is to “[p]romote[] the use of rights-of-way in common considering engineering and technological compatibility,” and that the use of ROWs in common may be required “where safety and other considerations allow.”⁶ In the only judicial or administrative decision addressing section 28(p), the Interior Board of Land Appeals determined that this standard includes consideration of a route’s cost and land-disturbance footprint, affirming that a route alternative was not “practical” when it would have “require[d]

³ See § 185(c)(2),(p). We define federal lands, consistently with section 28, to exclude “lands in the National Park System.” See 30 U.S.C. § 185(b)(1).

⁴ See Email from Rich McGuire, FERC, to Victoria Craft, BLM (Aug. 16, 2018) (McGuire August 16, 2018 Email); Email from Megan Neylon, MVP, to Victoria Craft, BLM (Aug. 17, 2018) (Neylon August 17, 2018 Email). Unlike the figures reported in the FEIS for “[l]ength adjacent to existing right-of-way,” these assessments included collocation with both major ROWs such as pipelines or electric transmission lines and smaller ROWs such as roads. See FEIS at 3-20. Cf. 70 Fed. Reg. 20,970, 20,970 (April 22, 2005) (“Some examples of land uses which require a right-of-way grant include: transmission lines, communication sites, roads, highways, trails, telephone lines, canals, flumes, pipelines, and reservoirs.”). For this reason, along with the fact that the FEIS’s figures do not distinguish between miles of collocation on federal and non-federal lands, we do not generally rely on the FEIS’s figures for “[l]ength adjacent to existing right-of-way” for this analysis.

⁵ See “Practical,” Black’s Law Dictionary (10th ed. 2014).

⁶ See 43 C.F.R. §§ 2881.2(c), 2882.10(b). See also 70 Fed. Reg. at 21,033 (noting that “there may be situations where for technical or safety reasons it is not practical” to make use of an existing ROW).

construction of an additional 39 miles of pipeline at an estimated additional cost of \$37.5 million,” as well as “installation of an additional compressor station and ... the temporary disturbance of a substantially greater acreage of lands during construction.”⁷ Similarly, in interpreting a parallel standard in another statute, the Board affirmed that a route was not “practical” where it would have “require[d] construction of up to an additional 60 miles of 345 kV power line and ha[d] an adverse impact on an additional 60 miles of public and private land,” while “preclud[ing] the opportunity to improve” service to one of the project’s proposed customers.⁸ Finally, a regulation issued to implement section 404 of the Clean Water Act prohibits the issuance of a dredge or fill discharge permit “if there is a practicable alternative to the proposed discharge” that is environmentally preferable, and defines “practicable” as including “consideration [of] cost, existing technology, and logistics in light of overall project purposes.”⁹ In reviewing decisions made under this regulation by the U.S. Army Corps of Engineers (USACE), courts have deferred to the agency’s practicability determinations, and upheld its consideration of factors including cost, construction delays, logistical feasibility, and “the objectives of the applicant’s project.”¹⁰

Accordingly, we interpret the term “practical,” for purposes of this analysis, as referring to the suitability of a route alternative for achieving its purpose, and to the likelihood that attempting to utilize that route would succeed in achieving that purpose.¹¹ The purpose of any route alternative is to construct a pipeline to deliver natural gas from the MVP’s beginning point to its endpoint, via its mid-route delivery points, in a safe, environmentally responsible, and cost-effective manner.¹² In certain cases, however, as discussed below, a particular route alternative may also have a more specific purpose, such as mitigating the impact of the MVP on certain resources. Therefore, the determination of whether a route alternative is practical includes consideration of the construction challenges and potential safety hazards that would arise from constructing or operating the pipeline along the route;¹³ the environmental consequences of constructing the

⁷ *Wyo. Indep. Producers Ass’n*, 133 IBLA 65, 82 (1995).

⁸ *Paul Herman*, 146 IBLA 80, 105 (1998) (interpreting 43 U.S.C. § 1763).

⁹ See 40 C.F.R. §§ 230.3(f), 230.10(a).

¹⁰ See *Friends of Santa Clara River v. U.S. Army Corps of Eng’rs*, 887 F.3d 906, 912, 921-922 (9th Cir. 2018) (quotation marks omitted); *Friends of the Earth v. Hintz*, 800 F.2d 822, 833-834 (9th Cir. 1986); *Nat’l Parks Cons. Ass’n v. Semonite*, 311 F. Supp. 3d 350, 377-378 (D.D.C. 2018).

¹¹ See “Practical,” Black’s Law Dictionary.

¹² See MVP Final Environmental Impact Statement at 1-8 (June 23, 2017) (FEIS). While the section 28(p) analysis described here is distinct from the National Environmental Policy Act analysis contained in the FEIS, the information and analysis presented in the FEIS is in many instances relevant to the section 28(p) analysis.

¹³ See 43 C.F.R. §§ 2881.2(c), 2882.10(b); 70 Fed. Reg. at 21,033.

pipeline along the route;¹⁴ any resulting increase in the pipeline's length and footprint;¹⁵ the ability of the route to serve the MVP's mid-route delivery points;¹⁶ the additional costs associated with the alternative;¹⁷ and the likelihood that the route would achieve any specific purpose identified for that route alternative.¹⁸

Although our comparison of the extent of collocation is limited to federal lands, determining the practicality of a route requires consideration of the route as a whole. A route alternative may increase the extent of collocation on federal lands, but prove impractical because of technical or other considerations relating to the route as a whole.

II. The MVP and the Previously Approved Route

The MVP is intended "to transport natural gas produced in the Appalachian Basin to markets in the Northeast, Mid-Atlantic, and Southeastern United States."¹⁹ Specifically, the project is

¹⁴ We note that section 28(p) can be read as requiring "the utilization of rights-of-way-in common" only where such collocation would "minimize adverse environmental impacts" as compared to an alternative with less collocation. See 30 U.S.C. § 185(p). Had we applied a separate requirement that any route alternative must "minimize adverse environmental impacts" compared to the previously approved alternative, we would have concluded on this basis alone that none of the route alternatives would satisfy the criteria of section 28(p). See FEIS at 3-20, 3-22, 3-25, 3-32, 3-47 to 3-48, 3-51, 3-55, 3-62, 3-65, 3-70 (concluding that none of the route alternatives considered in this analysis would "provide a significant environmental advantage" over the previously approved route). In this case, however, we have not excluded any route alternatives based solely on their environmental impacts.

¹⁵ See *Wyo. Indep. Producers*, 133 IBLA at 82; see also *Paul Herman*, 146 IBLA at 105.

¹⁶ See, e.g., *Paul Herman*, 146 IBLA at 105. See also *Friends of Santa Clara River*, 887 F.3d at 912, 921 (requiring consideration of "the objectives of the applicant's project," so long as "those project objectives are not so narrowly defined as to preclude alternatives" (quotation marks omitted)). Each of the route alternatives would serve the MVP's beginning and endpoint.

¹⁷ See *Friends of Santa Clara River*, 887 F.3d at 921-923; *Wyo. Indep. Producers*, 133 IBLA at 82. In this case, the cost of each route alternative would be driven primarily by differences in length and in the extent of steep slopes, side slopes, and other challenging construction conditions. See INGAA Foundation, Inc., Final Report No. 2015-03, *Mitigation of Land Movement in Steep and Rugged Terrain for Pipeline Projects: Lessons Learned from Constructing Pipelines in West Virginia* at 6 (2016) (INGAA Rugged Terrain Report), available at <http://www.ingaa.org/File.aspx?id=28629> (noting that "the planning process must weigh the costs of longer alignments to avoid hazards versus cost of mitigation of the hazard"). Therefore, the information presented below about length and construction challenges serves, and was considered by the BLM, as a proxy for such cost information.

¹⁸ See *Friends of Santa Clara River*, 887 F.3d at 921. We note that this definition of practicality is broader than mere technical feasibility – a standard that some, but not all, of the route alternatives considered here would satisfy. See, e.g., FEIS at 3-32 (concluding that the Northern Pipeline – ACP Collocation Alternative is "likely ... technically infeasible"); *id.* at 3-119 (concluding that some of the remaining route alternatives "appear to be technically feasible").

¹⁹ FEIS at 1-8.

intended to transport natural gas from an existing interconnect in West Virginia to an existing natural gas pooling point and gas trading hub located along a major existing natural gas pipeline in Virginia.²⁰

The previously approved route connecting these locations would be 303.5 miles long, and would cross 3.5 miles of federal lands managed by the U.S. Forest Service within the Jefferson National Forest (JNF), in three discontinuous portions located at mileposts (MPs) 196.2 to 197.8, MPs 218.5 to 219.4, and MPs 219.8 to 220.8.²¹ The route would also cross 60 feet of federal lands managed by the USACE, at MP 66.8.²² The route would be collocated with an existing ROW for 1.0 miles of its crossing of the JNF, following a forest road known as Mystery Ridge Road at MPs 196.8 to 197.8.²³ The previously approved route would not be collocated with another ROW for any portion of its crossing of USACE lands.

In addition to its beginning and endpoints, the MVP is also intended to serve three mid-route delivery points that are relevant to this analysis: the WB Interconnect, located at MP 77.6 of the previously approved route; the Roanoke Gas Lafayette Tap, located at MP 235.7; and the Roanoke Franklin Tap, located at MP 261.3.²⁴ The location of the WB Interconnect is determined by existing natural gas infrastructure, while the locations of the two Roanoke Gas taps are determined by the service area of the utility purchaser that will operate those taps and by existing agreements with that purchaser.²⁵ The existence of these three mid-route delivery points was an important factor in the selection of the previously approved route, and in the approval of the MVP project by FERC.²⁶ Therefore, to the extent that any of the route alternatives would bypass these mid-route delivery points, that fact is relevant to the BLM's consideration of the practicality of that route alternative.

III. Route Alternatives

The BLM has analyzed nine route alternatives or families of route alternatives that would affect the MVP project's crossing of the JNF.²⁷ These route alternatives are analyzed in the order of the milepost at which each route alternative first diverges from the previously approved route.

²⁰ FEIS at 1-8, 3-3.

²¹ FEIS at 1-1, 1-14.

²² FEIS at 1-16, 4-277.

²³ FEIS App'x P at P-6; MVP Plan of Development at 1-7 (Nov. 30, 2017) (POD).

²⁴ FEIS at 2-14 to 2-15; FERC Order Issuing Certificates and Granting Abandonment Authority at 4 (Oct. 13, 2017) (FERC Certificate). Two additional mid-route facilities are located at points along the previously approved route that would not be affected by any of the route alternatives considered here. *See* FEIS at 2-14 to 2-15.

²⁵ *See* FEIS at 1-8, 2-14; MVP Resource Report 10 and Appendices at 10-2 to 10-3 (Oct. 23, 2015) (Resource Report 10).

²⁶ *See* FEIS at 1-8 to 1-9, 3-15; FERC Certificate at 3-5.

²⁷ Several of the route alternatives addressed in this analysis would also affect the location of, or necessity for, the crossing of USACE lands. Because the USACE crossing is so short compared with the JNF crossing, however, any differences in the length or location of the USACE crossing

A. Northern Pipeline – ACP Collocation Alternative

The Northern Pipeline – ACP Collocation Alternative would involve collocating the 42-inch-diameter MVP with the planned 42-inch-diameter Atlantic Coast Pipeline (ACP), along the ACP's proposed route.²⁸ This route alternative would diverge from the previously approved route at MP 37, and re-converge at the MVP's endpoint at MP 303.5.²⁹

For purposes of this analysis, the BLM assumes that the ACP would be constructed as proposed, and therefore that this route alternative would collocate the MVP with another ROW for the MVP's entire crossing of federal lands. Accordingly, this route alternative would provide greater collocation on federal lands than the previously approved route.

Constructing the two pipelines in parallel would raise serious constructability challenges:

[A] major disadvantage of the Northern Pipeline – ACP Collocation Alternative route is the necessity to construct two parallel pipelines along approximately 205 miles of the ACP route, much of which presents significant constructability issues related to topography and space. ... Based on [FERC's] review of aerial photography and topographic maps, ... in many areas, such as in Lewis and Upshur Counties, West Virginia and Augusta and Nelson Counties, Virginia,^[30] there is insufficient space along the narrow ridgelines to accommodate two parallel 42-inch-diameter ... pipelines. This would result in side slope (i.e., side-hill) or two-tone construction techniques, with additional acres of disturbance required for [temporary workspaces], given the space needed to safely accommodate equipment and personnel, as well as spoil storage. The constructability issues alone are likely to render this alternative technically infeasible.³¹

would not affect the outcome of the BLM's analysis for these route alternatives. As to alternatives apart from those addressed in this analysis, no route alternatives exist that would result in collocation of the USACE crossing and that are practical. A private landowner whose parcel is located approximately 2.5 miles from the USACE crossing proposed collocating the MVP with an existing pipeline near her property, but this proposal (which may not have resulted in collocation at the USACE crossing itself) would be impractical due to constructability and safety concerns. *See* FEIS at 3-112. No other route alternative has been identified that would involve collocation with that existing pipeline. *See* McGuire August 16, 2018 Email.

²⁸ FEIS at 3-29.

²⁹ FEIS at 3-29 to 3-30.

³⁰ These counties include much of the ACP's crossing of federal lands. *See* FEIS at 3-30.

³¹ FEIS at 3-32. *See also* FERC Order on Rehearing at 73, 163 FERC ¶ 61,197 (June 15, 2018) ("The area's steep slopes and narrow ridgeways make construction of two adjacent pipelines technically infeasible."). FERC's assessment is supported by information submitted by MVP. *See* MVP Responses to FERC Environmental Information Request at 177 (Mar. 31, 2016) (March 31, 2016 Responses) ("Significant mountaintop removal and material excavation would be required to obtain a proper level construction surface to work on during the pipeline

Moreover, the Northern Pipeline – ACP Collocation Alternative would cross at least 19.1 miles of federal lands – more than five times as much as the previously approved MVP route.³² Because a separate 125-foot-wide ROW may be required for each pipeline,³³ collocating the MVP with the ACP may result in a substantial increase in federal land disturbance compared with constructing each pipeline along its previously approved route.

Furthermore, the Northern Pipeline – ACP Collocation Alternative would include 22 more miles of side slope than the previously approved route, in addition to any side slope construction required by the need to fit two parallel pipelines on narrow ridgelines.³⁴ Construction along side slopes, where the gradient of the slope is perpendicular or oblique to the pipeline route, requires modified construction techniques and presents considerable safety and operational risks both during and after construction.³⁵ Although the terrain of the project area makes some degree of side slope construction unavoidable, and the project incorporates best management practices to mitigate the risks associated with side slopes, reducing side slopes is a key factor in comparing route alternatives for the MVP project.³⁶

Finally, because the Northern Pipeline – ACP Collocation Alternative would diverge from the previously approved route at MP 37, and re-converge only at the MVP's endpoint at MP 303.5, this route alternative would bypass all three of the mid-route delivery points discussed above.³⁷ The two Roanoke Gas taps, in particular, could not be relocated so as to meet the ACP's route, meaning that an alternative that follows the ACP route would require either forfeiting the

installation phase. ... There is insufficient space along the tops of the ridgelines for two adjacent large diameter pipelines in these areas. Constructing two large diameter pipelines in the mountainous terrain would add significant construction personnel risk with the amount of equipment necessary to move and install both pipelines in the steep terrain. Sidebooms do not have enough weight capacity or levered distance to hold or move a second pipe over the first pipe trench. Erosion and sediment control risks significantly increase with the amount of soil and steep slope disturbance required for the two 42-inch pipelines ditch excavation and soil control.”); Resource Report 10 at 10-16 (similar).

³² See FEIS at 3-31. The version of the ACP route included in that project's final environmental impact statement may cross even more federal lands. See ACP Final Environmental Impact Statement at 4-423 (July 2017).

³³ FEIS at 3-29.

³⁴ See FEIS at 3-32.

³⁵ FEIS at 2-37, 3-4, 4-52 to 4-56; INGAA Rugged Terrain Report at 26-28, 40-41; McGuire August 16, 2018 Email.

³⁶ FEIS at 3-3. See also INGAA Rugged Terrain Report at 30 (recommending that side slope areas “should be identified early in the project design and planning processes, and minimized to the greatest extent possible”); *id.* at 61 (“Careful planning and routing is always preferred to avoid or minimize potential threats from landslide and erosion hazards, but mitigation is usually required when such hazards cannot be avoided.”).

³⁷ See FEIS at 3-30.

purpose of serving this customer, or else building nearly 60 miles of additional pipeline in order to reach those taps.³⁸

For these reasons, we conclude that the Northern Pipeline – ACP Collocation Alternative is not practical.

B. Highway Collocation Alternative

The Highway Collocation Alternative is a route alternative that would follow public roads for as much of its route as possible.³⁹ More specifically, this route alternative would mostly be collocated with interstate highways, intersecting the previously approved route in the vicinity of MP 60 and crossing the JNF alongside Interstate 77.⁴⁰ For purposes of this analysis, we assume that this route alternative would collocate the MVP with an interstate highway ROW for the MVP project's entire crossing of federal lands, and would therefore provide greater collocation on federal lands than the previously approved route.

The FEIS examined two versions of this collocated route alternative, one that would be located within the highway ROWs and one that would be located "adjacent to, but outside of," the highway ROWs.⁴¹ The version that would be located outside the highway ROWs

would likely present numerous and substantive construction challenges, including traversing roadway overpasses and underpasses, large interchanges, elevated sections of roadway including bridges, areas congested with development and homes, and narrow valleys where the most suitable terrain (i.e., flat) is already partially or fully encumbered by the roadway.⁴²

The version of this route alternative that would be located within the highway ROWs, meanwhile, would likely be prohibited by state laws and policies.⁴³ In West Virginia, the state agency's utility placement policy "prohibits longitudinal occupancy inside the controlled access right of way, by any utility, on any type of [controlled] highway, ... except ... underground fiber

³⁸ FEIS at 3-14. *See also* March 31, 2016 Responses at 177 ("[MVP] will also serve Roanoke Gas which is located along its Proposed Route in southwest Virginia; a market that cannot be served by moving to the Northern Pipeline Alternative route."); Resource Report 10 at 10-8, 10-16 (similar).

³⁹ FEIS at 3-18.

⁴⁰ FEIS at 3-18 to 3-19.

⁴¹ FEIS at 3-18.

⁴² FEIS at 3-18. This version of the Highway Collocation Alternative would not "utiliz[e a ROW] in common," and therefore does not satisfy section 28(p) for that reason, as well.

⁴³ Federal regulations permit state agencies to establish policies regarding utility installations in interstate highway ROWs. *See* 23 C.F.R. § 645.209(c)(1). *See also* 30 U.S.C. § 185(v) ("The Secretary or agency head shall take into consideration and to the extent practical comply with State standards for right-of-way construction, operation, and maintenance.").

optic facilities.”⁴⁴ And in Virginia, where the JNF crossing is primarily located, state regulations provide that “[n]ew utilities will not be permitted to be installed parallel to the roadway longitudinally within the controlled or limited access right-of-way lines of any highway” except in “special cases,” and even then only if such installation would not “involve tree removal or severe tree trimming.”⁴⁵ This limitation on tree removal or trimming is likely incompatible with the placement of a natural gas pipeline.⁴⁶

In addition, the Highway Collocation Alternative would be 142.5 miles (almost 47%) longer than the previously approved route, cross six times as many miles of federal lands, and cross more than twice as many perennial waterbodies, resulting in substantial additional costs and environmental impacts.⁴⁷ This route alternative would also cross an additional 51 miles of side slopes and an additional 125 miles of lands with landslide potential, amplifying the constructability concerns described above.⁴⁸ It would also bypass the three mid-route delivery points discussed above.⁴⁹

For these reasons, we conclude that the Highway Collocation Alternative is not practical.⁵⁰

C. Alternative 1/Hybrid Alternative 1A

⁴⁴ See W. Va. Div. of Highways, *Accommodation of Utilities on Highway Right of Way and Adjustment and Relocation of Utility Facilities on Highway Projects*, at 2 (2007), available at https://transportation.wv.gov/highways/engineering/files/ACCOMMODATION_OF_UTILITIES.pdf.

⁴⁵ 24 Va. Admin. Code. § 30-151-301(2)(d). See also Va. Dep’t of Trans., *Utility Manual of Instructions: Utility Relocation Policies & Procedures*, at 8-7 (2011), available at http://www.virginiadot.org/business/resources/right_of_way/utility_manual02132012_techrev.pdf. Such installations must also satisfy other requirements, including that “the installation will not adversely affect the safety, design, construction, operation, maintenance or stability of the highway,” that “the accommodation will not interfere with or impair the present use or future expansion of the highway,” and that “any alternative location would be contrary to the public interest,” taking into account “the direct and indirect environmental and economic effects that would result from the disapproval of [such] use.” See § 30-151-301(2)(a)-(c).

⁴⁶ See FEIS at 3-18.

⁴⁷ FEIS at 3-20.

⁴⁸ FEIS at 3-20.

⁴⁹ See FEIS at 3-19. Although such an alternative was not analyzed in the FEIS, it may be possible to construct a route alternative that generally follows the previously approved route, but deviates from that route between MPs 150 and 250 in order to cross the JNF along existing highways. See FEIS at 3-19. Such a hypothetical route alternative might avoid bypassing the three mid-route delivery points discussed above, but would otherwise be subject to most of the same practical concerns.

⁵⁰ See also FEIS at 3-17 (“This alternative concept is not evaluated in detail below due to the associated construction challenges, logistical constraints, and environmental impacts which we determined render it technically infeasible and/or as not providing a significant environmental [sic] advantage compared to the proposed action.”).

Alternative 1 was designed to maximize collocation with an existing electric transmission line.⁵¹ Hybrid Alternative 1A is a variant that would follow the previously approved route through MP 135 and from there on follow the route of Alternative 1, re-converging with the previously approved route at its endpoint at MP 303.5.⁵² These two route alternatives are considered together here, since they are identical at the JNF crossing.⁵³ Both route alternatives would result in greater collocation on federal lands than the previously approved route, crossing fewer miles of federal lands overall and being collocated with the existing transmission line for the entirety of that crossing.⁵⁴

Collocating underground pipelines with electric transmission lines over long distances poses distinctive constructability and safety challenges that would be exacerbated in the circumstances of the MVP. Locating pipelines near transmission lines poses risks to pipeline workers from operating in close proximity to high voltage power lines, and increased risk of pipeline corrosion from interference with pipeline cathodic protection systems and from other forms of electrical interference.⁵⁵ These risks increase with parallel or near-parallel installation, especially at collocation lengths over a mile.⁵⁶ To mitigate these safety concerns, as well as concerns related to access for construction and operations, parallel installations typically involve adjacent or partially overlapping ROWs, rather than complete collocation.⁵⁷ Finally, because side slopes and

⁵¹ FEIS at 3-22. Alternative 1 was the original proposed alternative, but was supplanted by the previously approved route due to concerns regarding side slopes. *See* FEIS at 3-17; Resource Report 10 at 10-10 to 10-11.

⁵² FEIS at 3-25.

⁵³ Another route alternative, known as Hybrid Alternative 1B, would follow Alternative 1 through MP 135 and from there on follow the previously approved route. *See* FEIS at 3-25 to 3-26. Hybrid Alternative 1B is not considered here, since it would be identical to the previously approved route at the JNF crossing.

⁵⁴ *See* FEIS at 3-24, 3-27; McGuire August 16, 2018 Email; Neylon August 17, 2018 Email.

⁵⁵ *See generally* INGAA Foundation, Inc., Final Report No. 2015-04, *Criteria for Pipelines Co-Existing with Electric Power Lines* (2015) (INGAA Power Lines Report), available at <http://www.ingaa.org/File.aspx?id=24732>; McGuire August 16, 2018 Email.

⁵⁶ *See* INGAA Power Lines Report at 4, 45-49. The previously approved route would be collocated with electric transmission lines for numerous short stretches, but rarely for distances of a mile or more. *See* FEIS App'x P at P-1 to P-8.

⁵⁷ *See* McGuire August 16, 2018 Email (noting that in a typical configuration, the 50-foot-wide permanent pipeline ROW would be adjacent to the transmission line ROW, and the pipeline's temporary 100- to 125-foot-wide construction ROW would overlap with the transmission line ROW by 25 feet); FEIS at 3-22 ("The pipeline could be installed as close as 25 feet away from powerline infrastructure, with temporary workspace located even closer, but other configurations would also be required based on soil type and working conditions where the pipeline would be located much further away."). *See also* FEIS App'x P at P-1 to P-8 (listing offset distances between the centerline of the previously approved route and the edges of existing transmission line ROWs); INGAA Power Lines Report at 4, 46 (noting that interference risk is "Medium" for separation distances of 100 to 500 feet, and "High" for distances under 100 feet). MVP has also noted that constructing a major pipeline in the immediate vicinity of an electric transmission line poses "[c]onstructability and safety issues associated with ... the possibility of undermining

steep slopes⁵⁸ of the kind frequently encountered along the MVP's route pose a far greater challenge for pipelines than for electric transmission lines, which have a far smaller physical footprint and are capable of spanning stretches of challenging terrain, routes that are suitable for transmission line construction may be unsuitable for pipeline construction.⁵⁹ Therefore, while collocation with electric transmission lines can often be achieved, including in parts of the previously approved route of the MVP, the challenges of such collocation are highly relevant to the practicality analysis.

Alternative 1 would be over twenty miles longer than the previously approved route,⁶⁰ resulting in significant additional construction costs, and would pose significant technical challenges. In particular, Alternative 1 would cross 171.4 miles of steep slopes in excess of 20% grade – 42.8 miles more than the previously approved route, and over half the entire length of Alternative 1.⁶¹ Alternative 1 would also cross more miles of side slope than the previously approved route, including over 100 miles of “severe side slopes,”⁶² and would include two crossings of the New River, which the previously approved route avoids crossing.⁶³ These factors would pose substantial constructability and safety challenges.⁶⁴

power line towers.” MVP Responses to Data Requests issued January 27, 2017, at 570 (Feb. 17, 2017) (February 17, 2017 Responses).

⁵⁸ Construction along steep slopes where the gradient of the slope is parallel to the pipeline route poses many of the same challenges as construction along side slopes, though such challenges are typically less severe than in side slope conditions. FEIS at 2-49, 3-25, 4-28, 4-45, 4-52 to 4-56; INGAA Rugged Terrain Report at 7, 24. *See also* MVP Responses to Data Requests issued December 24, 2015, at 238 (Jan. 15, 2016) (describing construction and safety challenges associated with steep slopes).

⁵⁹ *See* McGuire August 16, 2018 Email. *See also* Resource Report 10 at 10-10 to 10-11 (“While the overhead transmission lines span significant areas of slide [sic] slope, these areas would be required to be crossed directly by the pipeline.”); February 17, 2017 Responses at 570 (“It is also important to recognize that the design requirements for a ROW for one type of infrastructure are not necessarily the same for other types of infrastructure.”).

⁶⁰ FEIS at 3-24.

⁶¹ *See* FEIS at 3-24.

⁶² FEIS at 3-24; Resource Report 10 at 10-10, 10-14.

⁶³ FEIS at 3-24. As explained by FERC staff, crossing the New River poses both constructability challenges and environmental concerns. *See* McGuire August 16, 2018 Email (“The New River in the immediate vicinity of the proposed route ranges from about 300 to 350 feet wide (a major river crossing). It is not a complete obstacle, as it could be crossed (likely via [horizontal directional drilling], although with a risk of an inadvertent release of drilling mud into the River), however as a significant environmental resource, avoidance (which was accomplished with the proposed route) if possible was preferred.”). Alternative 1 would also cross 38 more perennial waterbodies and 14.5 more miles of karst terrain. FEIS at 3-24.

⁶⁴ *See also* Resource Report 10 at 10-11 (“MVP determined that Route Alternative 1 represented insurmountable construction challenges, as well as a high risk of slope failure and pipeline slips, once the pipeline was to be in operation. ... [M]uch of the existing right-of-way was ultimately found unsuitable for pipeline construction ...”).

Hybrid Alternative 1A would pose many of the same challenges as Alternative 1. While this route alternative would be shorter than Alternative 1 and include fewer miles of steep slope, it would still be 6.3 miles longer than the previously approved route, and feature 140.8 miles of steep slope (almost 10% more than the previously approved route), as well as both crossings of the New River.⁶⁵ Hybrid Alternative 1A would also cross 177.2 miles of side slope (over 10% more than the previously approved route, exceeding even Alternative 1), and a significant portion of the “severe side slope” crossed by Alternative 1.⁶⁶ The additional miles of steep slope and side slope, compared with the previously approved route, would “present[] substantially more obstacles to safe construction, increas[e] extra workspace requirements, and potentially affect[] worksite stability during construction and after restoration.”⁶⁷

Both Alternative 1 and Hybrid Alternative 1A would also pose constructability challenges associated with the necessary crossing of the Blue Ridge Parkway. While the previously approved route would cross the Parkway in an open grassy area, allowing the pipeline to bore under the Parkway, Alternative 1 and Hybrid Alternative 1A would cross the Parkway in a location flanked on one side by a wetland and floodplain and on the other by a short, steep slope, which together would complicate the boring process.⁶⁸

In addition, Alternative 1 would bypass the three mid-route delivery points discussed above, while Hybrid Alternative 1A would bypass two of the three.⁶⁹

For these reasons, we conclude that Alternative 1 and Hybrid Alternative 1A are not practical.

D. Variations 110, 110R, and 110J

Variations 110, 110R, and 110J were developed in order to avoid a number of sensitive resources located in the general vicinity of the JNF crossing, between MPs 175 and 235.⁷⁰ Each of these variations would cross more miles of federal lands than the previously approved route but would be collocated for fewer of those miles.⁷¹ Therefore, these route alternatives do not satisfy the criteria of section 28(p).⁷²

E. SR 635-ANST Variation

⁶⁵ FEIS at 3-25, 3-27 to 3-28. Hybrid Alternative 1A would also cross 22 more perennial waterbodies. FEIS at 3-27.

⁶⁶ FEIS at 3-24 to 3-25, 3-28; Resource Report 10 at 10-14.

⁶⁷ FEIS at 3-25.

⁶⁸ FEIS at 4-324 to 4-325; Resource Report 10 at 10-61.

⁶⁹ See FEIS at 3-26.

⁷⁰ FEIS at 3-44 to 3-45.

⁷¹ See McGuire August 16, 2018 Email; Neylon August 17, 2018 Email.

⁷² Furthermore, we note that Variation 110 crosses a designated wilderness area within the JNF, which renders this route variation impractical. See FEIS at 3-44, 3-46. See also Letter from U.S. Forest Service to FERC (May 16, 2016) (noting lack of authority to approve a pipeline within a wilderness area).

The SR 635-ANST Variation, located between MPs 191.7 and 207.8, was developed in order to examine the feasibility of reducing impacts on hikers traveling along the Appalachian National Scenic Trail (ANST) by crossing the ANST at the same location as an existing state road.⁷³ This route variation would cross 2.9 miles more federal lands than the previously approved route, and would not be collocated for any part of its crossing.⁷⁴ Therefore, the SR 635-ANST Variation does not satisfy the criteria of section 28(p).⁷⁵

F. CGV Variation

The CGV Variation, located between MPs 195 and 200, was developed in order to examine the feasibility of collocating the MVP with two existing pipelines that cross the JNF.⁷⁶ This route alternative would provide increased collocation on federal lands, replacing a 1.7 mile crossing of federal lands of which 1 mile is collocated with a 1.6 mile crossing that is mostly or entirely

⁷³ FEIS at 3-52.

⁷⁴ FEIS at 3-54; McGuire August 16, 2018 Email; Neylon August 17, 2018 Email. While the SR 635-ANST Variation would cross the ANST at the same location as the state road, the route alternative would not continue alongside that existing road. *See* McGuire August 16, 2018 Email. To the contrary, due to the topography of the area, the SR 635-ANST Variation would be forced to parallel the ANST for one mile. *See* MVP Responses to Data Requests issued January 27, 2017 and Supplemental Materials (Mar. 2, 2017) (March 2, 2017 Responses) at 39; MVP Additional Responses to June 28, 2016 Data Request at 63 (July 18, 2016) (July 18, 2016 Responses). In light of the purpose of section 28(p), we do not consider the ANST, which is a congressionally designated national scenic trail, *see* 16 U.S.C. § 1244(a)(1), to be an existing ROW with which Congress intended to encourage collocation of pipelines.

⁷⁵ Moreover, even if the SR 635-ANST Variation provided greater collocation than the previously approved route, this route alternative would be impractical. The environmental, constructability, and safety effects of the SR 635-ANST Variation would be mixed: the variation would be 1.5 miles shorter and would affect 89.2 fewer acres of interior forest, but would cross 2.9 more miles of federal lands and cross more wetlands, perennial waterbodies, and miles of inventoried roadless areas; similarly, the variation would cross fewer miles of steep slope and side slope, but more miles of land with landslide potential. FEIS at 3-52. More importantly, however, the SR 635-ANST Variation would be unlikely to succeed at its purpose, to reduce the impact of the MVP on ANST users. Whereas the previously approved route would cross the ANST perpendicularly, and preserve a 300-foot forested buffer on either side of the ANST by boring under the trail, the SR 635-ANST Variation would be forced to parallel the trail for about a mile, as noted above, likely increasing visual impacts on the trail. *See* FEIS at 3-52 to 3-53; March 2, 2017 Responses at 39; July 18, 2016 Responses at 63. Moreover, the low topography of the trail crossing site would limit the length of the borehole, eliminating the forested buffer and further increasing the visual impacts. March 2, 2017 Responses at 39; July 18, 2016 Responses at 63. Furthermore, the SR 635-ANST Variation would bring the MVP ROW closer to the ANST's Wind Rock overlook, increasing visual impacts on this overlook. March 2, 2017 Responses at 39. For these reasons, the SR 635-ANST Variation is not likely to succeed at its purpose of reducing impacts on users of the ANST, rendering the route impractical.

⁷⁶ FEIS at 3-48.

collocated.⁷⁷ The elimination of less than three-quarters of a mile of uncollocated crossing of federal lands would come at a cost of 9 more miles of total pipeline, however, including 4.1 more miles of steep slope and 4.6 more miles of side slope.⁷⁸ The CGV Variation would also result in 136.3 more acres of construction disturbance, including 60.8 more acres on forested land; increase the MVP's potential impacts on the watershed relied on by the Red Sulphur Public Service District, a public water supply utility; and bring the MVP ROW closer to the ANST's Angel's Rest overlook, increasing visual impacts on this overlook.⁷⁹ For these reasons, we conclude that the CGV Variation is not practical.

G. AEP-ANST Variation

The AEP-ANST Variation, located between MPs 195.4 and 200, was developed in order to examine the feasibility of reducing impacts on hikers traveling along the ANST by crossing the ANST at the same location as an existing electric transmission line.⁸⁰ The AEP-ANST Variation would cross approximately 0.9 more miles of federal lands than the previously approved route, while providing, at best, no more than 0.8 miles of additional collocation on federal lands.⁸¹ Because the AEP-ANST Variation involves at least 0.1 mile more uncollocated crossing of federal lands, this route alternative provides less net collocation on federal lands, and does not satisfy the criteria of section 28(p).⁸²

⁷⁷ FEIS at 3-50; *id.* App'x P at P-6; POD at 1-7; McGuire August 16, 2018 Email; Neylon August 17, 2018 Email. While the FEIS indicates that the relevant portion of the previously approved route contains zero miles "adjacent to existing right-of-way," this figure considers only major features such as transmission lines and pipelines, and excludes the previously approved route's collocation with a forest road, as noted above. See FEIS at 3-20, 3-50.

⁷⁸ FEIS at 3-50; McGuire August 16, 2018 Email; Neylon August 17, 2018 Email. Underscoring the constructability and safety concerns associated with the additional steep slopes and side slopes, the same pipeline ROW with which this route alternative would be collocated was previously the site of a slope failure related to side slopes. See FEIS at 4-45, 4-67, 4-69. See also INGAA Rugged Terrain Report at 7 (noting that "[l]andslide and erosion hazards are more commonly found, or created, ... where the proposed alignment intersects existing landslide[s]").

⁷⁹ FEIS at 3-50; March 2, 2017 Responses at 44.

⁸⁰ FEIS at 3-52, 3-55.

⁸¹ See FEIS at 3-54; McGuire August 16, 2018 Email; Neylon August 17, 2018 Email.

⁸² The AEP-ANST Variation would also pose constructability and safety concerns. The general concerns related to collocating the MVP with electric transmission lines are discussed above. In the specific context of the AEP-ANST Variation, these challenges include more miles of steep slope, side slope, shallow bedrock, and areas with landslide potential than the previously approved route. FEIS at 3-54. Moreover, this route alternative would be 3.2 miles longer, would cross more perennial waterbodies and forested land (but less inventoried roadless area, inventoried semi-primitive area, interior forest, and karst area), would result in an additional 48.9 acres of construction disturbance and a larger area of forested land disturbance during both construction and operation, and would increase the MVP's potential impacts on the Red Sulphur Public Service District watershed. FEIS at 3-54; March 2, 2017 Responses at 40.

H. Brush Mountain Alternatives 1 and 2

Brush Mountain Alternatives 1 and 2, located between MPs 219.5 and 220.7, were developed in order to reduce impacts to the Craig Creek watershed.⁸³ Brush Mountain Alternative 1 would feature the same amount of federal lands crossing and the same amount of collocation as the previously approved route, and therefore does not satisfy the criterion of providing greater collocation on federal lands.⁸⁴ Brush Mountain Alternative 2, meanwhile, may provide greater collocation, but by no more than 0.22 miles.⁸⁵ Any such increase in collocation, meanwhile, would come at the cost of a larger increase in the total mileage (0.3 additional miles), the mileage of side slope (0.4 additional miles), and the mileage of lands with landslide potential (0.3 additional miles).⁸⁶ Because Brush Mountain Alternative 2 would entail greater

Furthermore, like the SR 635-ANST Variation, the AEP-ANST Variation would be unlikely to accomplish its purpose of reducing impacts on users of the ANST. Under either the AEP-ANST Variation or the previously approved route, hikers would experience a clearing at the location where the trail crosses the existing electric transmission line, and no clearing where the previously approved route crosses the trail (due to the 300-foot forested buffer). *See* FEIS at 3-52, 4-312; FEIS App'x S figs. 1a to 7b. The majority of new visual impacts on trail users would therefore occur, under either scenario, not due to near-field impacts at the location where the previously approved route crosses the trail, but rather due to more distant views of the MVP ROW from various points along the trail. *See* FEIS at 4-312; *see generally* FEIS App'x S. The AEP-ANST Variation would not reduce the overall visual footprint of the MVP ROW, and may in fact increase that overall footprint due to the larger area of forested land disturbance. *See also* March 2, 2017 Responses at 40 (noting that "the visual impact on ANST users would likely be greater because of the open view that trail users have when within the [transmission line] right-of-way"). Moreover, the AEP-ANST Variation would also bring the MVP ROW closer to the Angel's Rest overlook, increasing visual impacts on this overlook. March 2, 2017 Responses at 40. Therefore, the AEP-ANST Variation is not likely to succeed at its purpose of reducing impacts on users of the ANST

For these reasons, we conclude that the AEP-ANST Variation is not practical.

⁸³ FEIS at 3-61 to 3-62.

⁸⁴ FEIS at 3-64; Neylon August 17, 2018 Email. Brush Mountain Alternative 1 also poses a significant constructability and safety concern related to an area of especially steep slope, over 43% grade. FEIS at 3-62 to 3-64; March 2, 2017 Responses at 47; MVP Responses to Data Requests issued January 27, 2017, at 139 (Feb. 23, 2017).

⁸⁵ One assessment estimated that Brush Mountain Alternative 2 would cross 1.3 miles of federal lands with no collocation, and therefore would offer no collocation advantage. *See* Neylon August 17, 2018 Email. The other assessment estimated that the route alternative would cross 1.18 miles of federal lands with 0.4 miles of collocation, for a net of 0.78 miles of federal lands without collocation. McGuire August 16, 2018 Email. By contrast, the corresponding segment of the previously approved route would cross 1.0 miles of federal lands, with between 0 and 0.2 miles of collocation, for a net of between 0.8 and 1.0 miles of federal lands without collocation. Neylon August 17, 2018 Email; FEIS at 3-64.

⁸⁶ FEIS at 3-64; MVP Responses to Data Requests issued January 27, 2017, at 140 (Feb. 23, 2017); March 2, 2017 Responses at 48. The FEIS also concluded that Brush Mountain Alternative 2 would not offer a significant environmental advantage compared to the previously

constructability and safety challenges than the previously approved route while providing at best a marginal increase in collocation on federal lands, we conclude that this route alternative is impractical.

I. Slussers Chapel Variations

The Slussers Chapel Variations consist of two route alternatives located between MPs 220.7 and 223.7 that were developed in order to reduce impacts on the Slussers Chapel Conservation Site.⁸⁷ One route alternative, Modified Variation 250, would replace a portion of the route located entirely on non-federal lands with a route that would cross 2.3 miles of federal lands, and therefore does not satisfy the criterion of increased collocation on federal lands.⁸⁸ The other route alternative, the VADCR Slussers Chapel Conservation Site Avoidance Variation, would replace a portion of the route that crosses 0.04 miles of federal lands with a route that would cross 2.54 miles of federal lands, and therefore does not appear to satisfy this criterion, either.⁸⁹ This route alternative would also traverse a narrow ridgetop with a designated wilderness area on one side, steep slopes on the other side, and an existing forest road along the ridge, posing significant constructability and safety concerns that the previously approved route avoids and that render this route alternative impractical.⁹⁰ For these reasons, we conclude that these route alternatives do not satisfy the criteria of section 28(p).

IV. Conclusion

As the analysis above demonstrates, none of the route alternatives would result in greater collocation on federal lands and be practical. Several of the route alternatives would not result in greater collocation on federal lands. Each of the remaining route alternatives would be impractical due to a combination of constructability and safety challenges, increased

approved route. FEIS at 3-65. Because the purpose of Brush Mountain Alternative 2 is to reduce environmental impacts, *see* FEIS at 3-61 to 3-62, the failure to achieve a significant environmental advantage also renders this route alternative impractical.

⁸⁷ FEIS at 3-69 to 3-70. A third route alternative, Variation 250, would not affect the MVP's crossing of federal lands, and therefore is not relevant to this analysis. FEIS at 3-71. Moreover, Variation 250 was adopted by FERC and incorporated into the MVP route. FERC Certificate at 60; *id.* App'x C at 7.

⁸⁸ FEIS at 3-71, 3-74.

⁸⁹ FEIS at 3-72.

⁹⁰ FEIS at 3-69. *See also* February 17, 2017 Responses at 195-196 (“[The Slussers Chapel Variation] significantly increases the construction risks due to its placement along the ridgeline of Brush Mountain. There is an existing Forest Service Road (Forest Road 188/Brush Mountain Road) along the ridge top, with the boundary of Brush Mountain Wilderness north of and parallel to the road. Mountain Valley would need to maintain a 50-foot buffer between the Wilderness Boundary and the edge of construction work area, which would require that the 125-foot-wide construction right-of-way encompass Forest Road 188 as well as significant side slope areas along the south side of the road. In addition, during construction, this section of Forest Road 188 would be closed for an extensive period of time to regular vehicle or foot traffic.”).

environmental impacts, increased length and footprint, increased cost,⁹¹ and inability to serve the purposes of the MVP or the specific purpose of the route alternative in question. Therefore, we conclude that the additional utilization of existing ROWs across federal lands would be impractical.

Sincerely,



Mitchell Leverette
Acting State Director, Bureau of Land Management, Eastern States

I concur

I do not concur



Joseph R. Balash
Assistant Secretary - Land and Minerals Management, U.S. Department of the Interior

⁹¹ As noted above, the BLM has considered the information presented above about length and construction challenges as a proxy for cost information.

Attachment J

OCTOBER 2, 2015



ECONOMIC BENEFITS OF THE MOUNTAIN VALLEY PIPELINE PROJECT IN WEST VIRGINIA

CRITICAL THINKING
AT THE CRITICAL TIME™

DISCLAIMER

The information contained herein has been prepared based upon financial and other data provided to FTI from the management and staff of EQT Corporation and from public sources. There is no assurance by anyone that this information is accurate or complete. FTI has not subjected the information contained herein to an audit in accordance with generally accepted auditing standards. Accordingly, FTI cannot express an opinion or any other form of assurance on, and assumes no responsibility for, the accuracy or correctness of the historical information or the completeness and achievability of the projected financial data, information and assessments upon which the enclosed report is presented.

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Special thanks to the research and analytical contributions of Drew Ernest and Patricia Hogan

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Executive Summary

EQT Corporation retained FTI Consulting (“FTI”) to examine the potential economic benefits of the Mountain Valley Pipeline (“MVP”) project to the State of West Virginia and the ten eleven counties through which the project is proposed. The MVP is a natural gas pipeline that will traverse approximately 300 miles across West Virginia and Virginia, including the West Virginia counties of Wetzel, Harrison, Doddridge, Lewis, Braxton, Webster, Nicholas, Greenbrier, Fayette, Summers, and Monroe, as shown in Figure 1.

Three types of economic benefits would occur from the construction and operation of the MVP project. These benefits include:

- **Construction Spending Benefits:** Expenditures on goods and services in the State would translate into job creation; economic benefits to West Virginia suppliers, their employees, and the overall economy; and new tax revenues.
- **Operational Benefits:** Once in service, the project would require a skilled workforce to operate and maintain the pipeline. Also, it would generate annual property tax revenues for the counties, providing an additional stream of funds.
- **Direct-Use Benefits:** The State and counties would benefit from the potential direct use of gas from the MVP project. The project would enhance gas service already available, help enable new gas service, and expand opportunities for commercial and manufacturing activities.

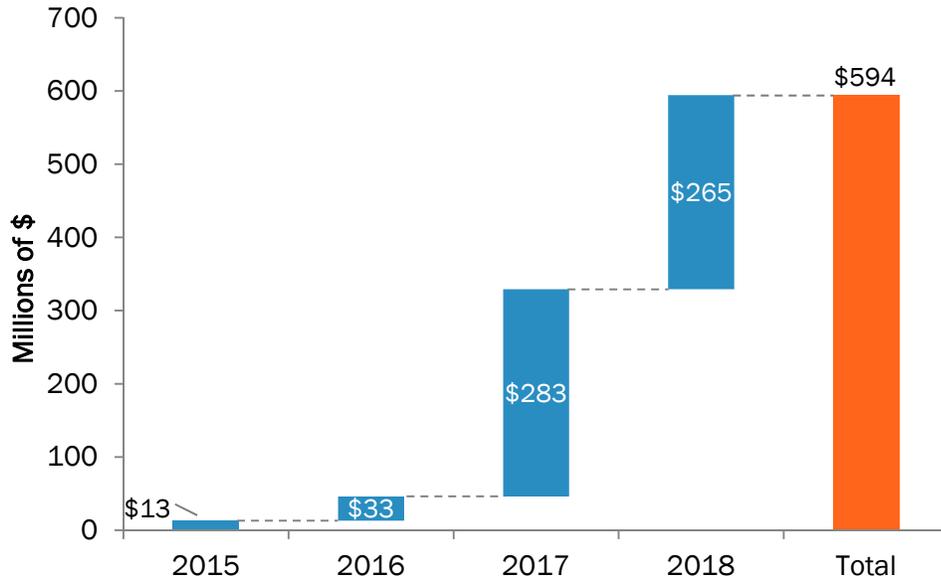
Construction Spending Benefits

From 2015 to 2018, the MVP project owners plan to spend \$811 million directly on resources (equipment, materials, labor, and services) in West Virginia. This direct spending would translate into \$594 million in cumulative Gross Regional Product over the four-year period, as summarized in Figure 2.

Figure 1 – Proposed MVP Path through West Virginia

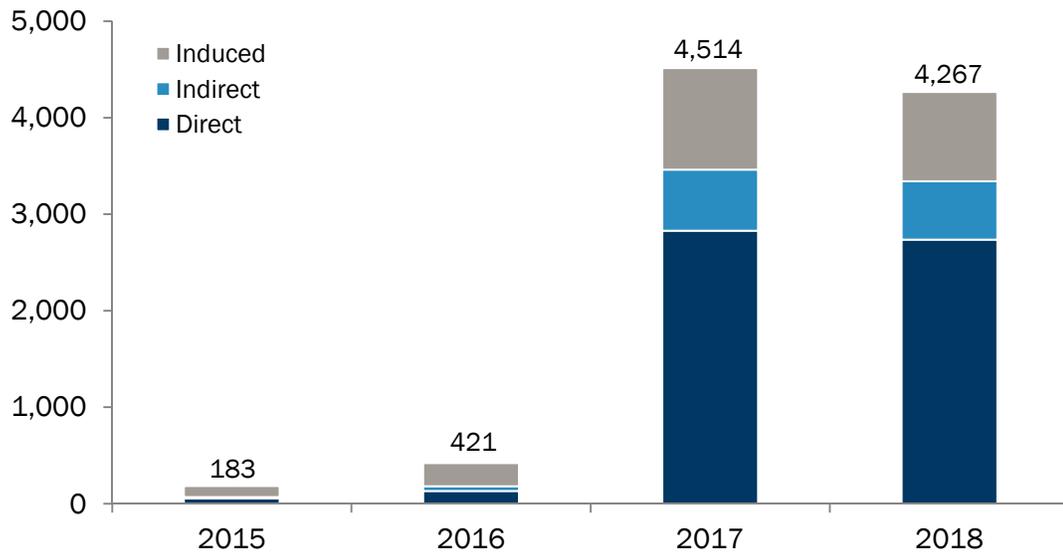


Figure 2 – MVP Additions to West Virginia’s Gross Regional Product



The MVP project would create more than 4,500 jobs at the peak of construction in 2017. 2,829 of these jobs would be directly associated with the project (labeled “direct” in Figure 3); 633 jobs would be created along the supply-chain (“indirect”); and 1,052 jobs would be created in the general economy.

Figure 3 – MVP Jobs Created in West Virginia by Year¹

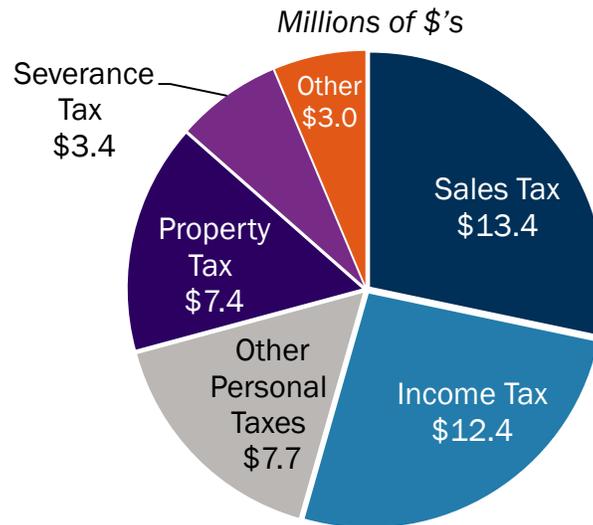


¹ The jobs shown in the figure are annual, full-time equivalent jobs (or job-years) that the MVP project contributes to the West Virginia economy from 2015-2018.

Cumulatively, the MVP project would create 9,384 job-years over the course of construction.

Another benefit of the MVP project is the increased state and local tax revenues that result from the economic ripple effect of construction expenditures. As shown in Figure 4, the project would generate \$47 million in aggregate tax revenues from 2015 to 2018.

Figure 4 – West Virginia State and Local Tax Revenues Generated during Construction, 2015–2018



Operational Benefits

Once in service, the MVP project would continue to benefit West Virginia's economy in three main areas. The first is in operational employment and spending. Ongoing operation and maintenance of the pipeline would support a total of 54 jobs across the state with average annual wages and benefits of almost \$65,000.

Annual tax revenues through ad valorem taxes (property taxes) represent the second area of operational benefits. Based on the estimated pipeline investments and county property tax rates, the MVP project owners would pay up to \$17 million in taxes annually. This amounts to 17% of the total 2013 combined budgets for the eleven counties.

Direct-use benefits of the pipeline's natural gas represent the third area where West Virginia and the counties potentially could benefit from the project and are discussed in further detail below.

Direct-Use Benefits

Residential, Commercial, and Municipal Buildings

In terms of direct gas-use benefits, the MVP project could provide significant fuel cost savings to the residential, commercial, and municipal sectors of Monroe, Summers, and Webster counties through fuel switching (i.e., switching fuels used for space heating and water heating from propane, fuel oil, diesel, and electricity to natural gas). These three counties have limited gas access compared to the

remaining eight counties along the proposed pipeline in West Virginia. The MVP proposed route will pass near the major towns in these counties (see Table 1).

Table 1 – Distance to MVP Proposed Route from Towns and Areas in Monroe, Summers, and Webster Counties

County	Major Towns	Distance from MVP Proposed Route
Monroe	• Union	8.2 mi.
	• Alderson	5.5 mi.
	• Peterstown	5.5 mi.
Summers	• Hinton	7.8 mi.
Webster	• Webster Springs	7.2 mi.
	• Cowen	1.2 mi.

Transportation Sector

The transportation sector in the eleven counties represents the largest opportunity for fuel switching. Conversion of the eleven counties’ fleet vehicles such as school buses, sanitary waste vehicles, and county vehicles could result in approximately \$500,000 in annual fuel switching savings. This amount includes the full cost of the delivered gas and CNG infrastructure required. Further savings, and thus disposable income, could be realized across the counties if the CNG stations were made available for public consumption. Furthermore, this amount is based on current low fuel prices. Savings would be significant higher if fuel prices were to increase.

Transitioning vehicles to natural gas (i.e., fuel switching) has become an increasing priority in West Virginia. In 2012, the Governor issued an executive order to create a Natural Gas Vehicle Task Force.² The State also has provided helpful tax credits to enable compressed natural gas (CNG) vehicle deployment.³ Using these credits, IGS Energy CNG Services (IGS) constructed and placed into operation three large-scale, public CNG refueling stations along Interstate 79 in the last two years (see Figure

Figure 5 - Locations of IGS's Three CNG Stations Along I-79



² *Natural Gas Vehicle Task Force Report*, February 2013.

³ See <http://www.afdc.energy.gov/laws/all?state=WV>

5). One of these stations is located in Jane Lew in Lewis County and another in Bridgeport in Harrison County. Braxton County is one of the eleven counties along the proposed MVP route and could be another potential site for a CNG station along the I-79 corridor.

Interstate 64 represents another major corridor for potential CNG refueling stations in West Virginia. The interstate runs from St. Louis, MO, to the Virginia coast, and it intersects with Charleston near the IGS station along I-79. Summers and Greenbrier counties could be worthy candidates for future Interstate 64 CNG stations, especially as they are along the proposed MVP project path.

Future Benefits

The MVP project would provide manufacturing investment opportunities within the state and the counties. FTI interviews with county leaders indicate that natural gas access can be a major factor in businesses deciding to expand and locate operations in a county, particularly energy-intensive and advanced technology manufacturing. These businesses provide large economic benefits to communities from an employment, wage, and tax revenue perspective. Harrison County serves as an example. It has a thriving aerospace services industry in which the average annual wage is \$72,000. Harrison County also has an unemployment rate of only 5.2%.

Altogether, the proposed MVP project would provide a number of economic and employment benefits to West Virginia and the counties through which the project is planned. During construction, these benefits would result from capital spent directly within West Virginia and the counties. Once in service, MVP will employ people within the state to help operate and maintain the pipeline. Also, counties will collect property taxes from the pipeline. Finally, the pipeline will provide sizable opportunities for direct gas use in areas with and without gas access. These opportunities include additional supply reliability, fuel switching savings, and new energy-intensive and advanced technology businesses started in West Virginia.

1. Introduction

1.1. Project Background

The proposed MVP project is a FERC-regulated natural gas pipeline system that would span approximately 300 miles from the northern part of West Virginia to the southwestern part of Virginia.⁴ It is expected to provide at least two billion cubic feet per day or 3% of current U.S. gas demand to markets in the Mid- and South- Atlantic regions. The pipeline as proposed would pass through eleven West Virginia counties.

EQT Corporation has retained FTI Consulting (“FTI”) to examine the MVP project’s potential economic benefits along three areas – economic growth and employment resulting from construction expenditures, operational benefits in terms of jobs created and ad valorem taxes paid by the MVP project owners, and direct gas-use opportunities that would result within the counties.

1.2. Approach

Below we summarize the approaches taken for determining the economic benefits in the three areas.

Construction Economic Impacts and Job Creation Benefits

FTI applied the IMPLAN model to estimate the economic impact and jobs created from construction activities in West Virginia. The IMPLAN model is a general input-output modeling software and data system that tracks the movement of money through an economy, looking at linkages between industries along the supply chain, to measure the cumulative effect of spending in terms of job creation, income, production, and taxes. The IMPLAN data sets represent all industries within the regional economy – rather than extrapolating from national averages – and are derived primarily from data collected by federal agencies.⁵

The economic impacts that IMPLAN calculates can be broken into direct impacts, indirect impacts, and induced impacts, defined as follows:

- **Direct impacts:** the economic activity resulting from the MVP capital costs spent on industries residing in West Virginia. These are the industries that provide the ‘direct’ materials, construction labor, construction management, and technical services (e.g., engineering and

⁴ The MVP would be constructed and owned by Mountain Valley Pipeline, LLC, a joint venture of EQT Corporation (NYSE: EQT) and NextEra US Gas Assets, LLC, an indirect, wholly owned subsidiary of NextEra Energy, Inc (NYSE: NEE).

⁵ The 2012 IMPLAN Dataset includes data from the U.S. Bureau of Labor Statistics (BLS) Covered Employment and Wages (CEW) program; U.S. Bureau of Economic Analysis (BEA) Regional Economic Information System (REA) program; U.S. BEA Benchmark I/O Accounts of the U.S.; BEA Output estimates; BLS Consumer Expenditure Survey; U.S. Census Bureau County Business Patterns (CBP) Program; U.S. Census Bureau Decennial Census and Population Surveys; U.S. Census Bureau Censuses and Surveys; and U.S. Dept. of Agriculture Census.

design, surveying, and permitting) for the project. This is the first order impact of the MVP expenditures within the state.

- **Indirect impacts:** the economic activity resulting from the ‘direct’ industries spending a portion of their revenues on goods and services provided by their supply chain in West Virginia. These supply chain industries represent the second order or ‘indirect’ impacts of the original MVP expenditures in West Virginia.
- **Induced impacts:** the economic activity resulting from the spending of the income earned by employees within the ‘directly’ and ‘indirectly’ affected industries. The benefactors of induced impact are primarily consumer-related businesses such as retail stores, restaurants, and personal service industries. These ‘induced’ impacts represent the third order impact.

Through the direct, indirect, and induced impact calculations, IMPLAN provides the economic ripple effect, or multiplier, that tracks how each dollar of input, or direct spending, cycles through the economy to suppliers and ultimately to households.

The first step of the IMPLAN process was to collect the estimate for state-only spending for each of the major project cost categories. These categories included the following:

- Pipeline Materials
- Compressor materials
- Meters and regulator devices
- Technical services such as engineering design, survey, and permitting
- Construction and commissioning services
- Land and right of way acquisitions

Of the \$3.5 billion that the MVP project owners plan to spend, \$811 million is planned to be spent *directly* in West Virginia, with the difference being spent in Virginia and outside the two states.

FTI then assigned these cost categories to one of the 440 IMPLAN economic sectors as inputs to the model. The model was then run from 2015 to 2018 to provide the following direct, indirect, and induced economic impacts:

- **Gross Regional Product (GRP):** an industry’s value of production over the cost of its purchasing the goods and services required to make its products. GRP includes wages and benefits paid to wage and salary employees and profits earned by self-employed individuals (labor income), monies collected by industry that are not paid into operations (profits, capital consumption allowance, payments for rent, royalties and interest income), and all payments to government (excise taxes, sales taxes, customs duties) with the exception of payroll and income taxes.
- **Employment Contributions:** direct, indirect, and induced annual average jobs for full-time, part-time, and seasonal employees and self-employed workers.

- **State, Local, and Federal Taxes:** payments to government that represent employer collected and paid social security taxes on wages, excise taxes, sales taxes, customs duties, property taxes, severance taxes, personal income taxes, corporate profits taxes, and other taxes.
- **Labor Income:** the wages and benefits paid to wage and salary employees and profits earned by self-employed individuals. Labor income demonstrates a complete picture of the income paid to the entire labor force within the model.

Section 2.1 provides the results of the IMPLAN construction and employment benefits analysis.

Operational Job Creation and Ad Valorem Tax Benefits

The MVP project would create jobs within the state to operate and maintain the pipeline and would generate ad valorem tax (property tax) revenues for the counties along the proposed route. To estimate the job benefits of ongoing operations, FTI collected data from EQT on the annual direct employment required within the state to support the pipeline. We then applied the data within the IMPLAN framework described above to determine the total state-wide direct, indirect, and induced employment numbers and average wages.

For ad valorem taxes, FTI performed an analysis in conjunction with EQT utilizing a combination of gross cost and capitalized income approaches. To arrive at the project's gross cost-basis, FTI and EQT segmented the MVP cost budget into county-level cost budgets by allocating the materials, construction, commissioning, and related services costs for pipeline, meters, and regulators on a per mile basis. We then added in the materials, construction, and commissioning costs for materials specific to a county.⁶

The capitalized income approach was developed by creating a pro-forma financial analysis⁷, generating the necessary revenues to set the net present value of the project to zero, and then capitalizing the income stream. The gross cost and capitalized income approaches were given weightings of 40% and 60%, respectively, based on FTI conversations with West Virginia tax officials and tax attorneys. We next determined each county's ad valorem tax revenues by multiplying the weighted average tax basis by the assessment ratio of 60% and then by the county property tax rate.⁸ Section 2.2 provides the outcome of the operational benefits of the proposed MVP project.

Direct-Use Benefits

Direct-use benefits represent the third area of economic benefits from the proposed project. These benefits include fuel switching savings (e.g., replacing electricity, propane or fuel oil with gas) across

⁶ The MVP project plans to locate compressor stations in four counties along the proposed route.

⁷ The pro-forma was developed using a set of proxy assumptions for operational and maintenance costs, selling, general, and administrative costs, cost of capital, debt/equity ratio, construction and long-term interest rates, and depreciation method and period.

⁸ For oil and gas property in West Virginia, only 60% of the property tax rate is applied.

all economic sectors along with commercial and manufacturing expansions enabled by gas supply and access. As part of this assessment, FTI conducted reviewed press statements, conducted interviews with private and public entities in the counties and states, and interviewed local distribution companies and municipal agencies to gauge the fuel switching and manufacturing expansion potential in the counties.

Because eight of the eleven counties assessed in this analysis have gas access in major towns and areas and because the manufacturing sector representation is low in most of the counties, FTI's direct-use benefits analysis is mostly qualitative. The quantitative exception involved estimating the potential savings if municipal and private fleet vehicles in the counties were to switch to natural gas from gasoline and diesel. Based on public sources and interviews with county officials, we were able to approximate the number of fleet vehicles and their annual fuel consumption to develop a fuel savings estimate. We then applied costs for infrastructure development needed to support the fuel switching in order to calculate the net annual savings.

In addition to highlighting the current opportunities for fuel switching, we reviewed the potential for future opportunities that could result from having access to abundant natural gas supplies. We profiled several case studies in West Virginia of future manufacturing expansion potential that could occur with access to the MVP project. Section 2.3 provides the results from the direct-use benefits analysis.

2. Economic Benefits of the Mountain Valley Pipeline

2.1. Construction Economic Impacts and Job Creation

The MVP project owners estimate construction expenditures within the state to be \$811 million from 2015 to 2019, and these expenditures would translate into job creation and economic growth for the State and the counties. Figure 6 provides a breakdown of the cumulative MVP expenditures by major spending category in West Virginia.

Figure 6 – MVP Capital Expenditures in West Virginia Construction by Major Spending Category



This spending would result in construction peak year value-added or Gross Regional Product (“GRP”) of \$283 million in West Virginia. Over the course of the project construction, the project would generate \$594 million in cumulative GRP as shown in Figure 7.

Figure 7 – MVP Contributions to Gross Regional Product

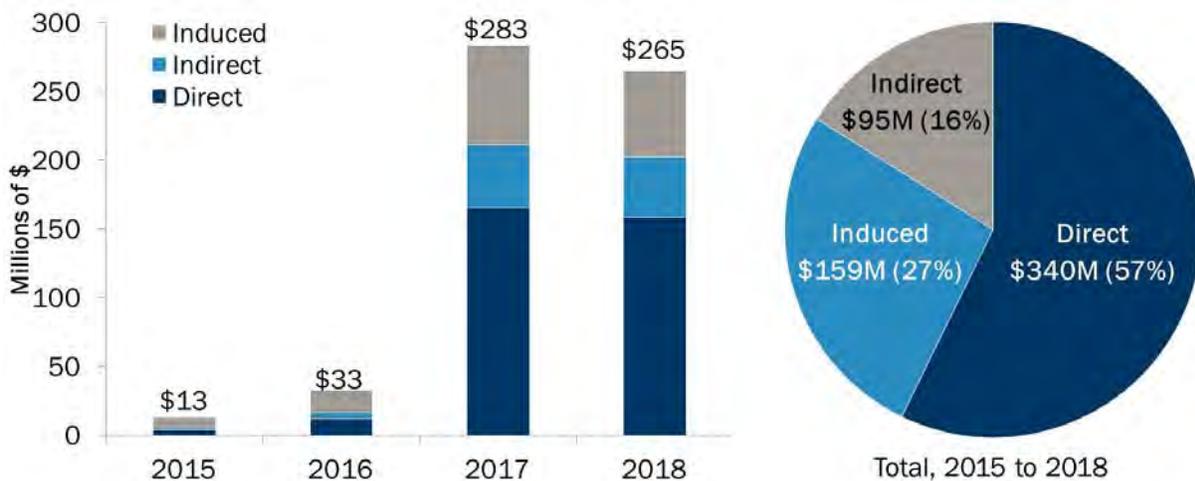
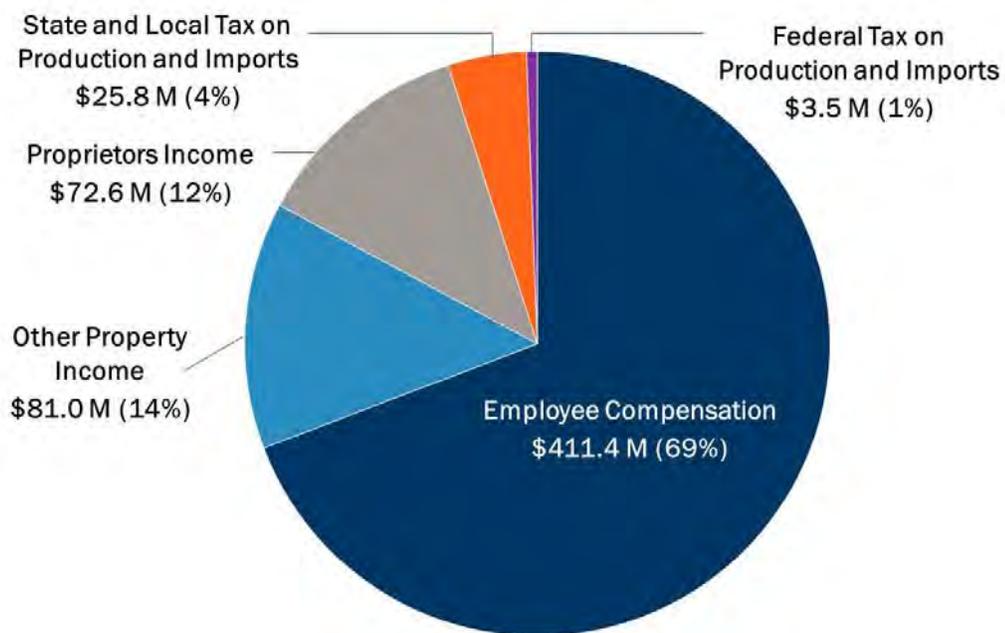


Figure 7 shows GDP segmented into direct, indirect, and induced GRP. As previously mentioned, 'direct' refers to the GRP occurring from the capital expenditures within the industry sectors immediately impacted. 'Indirect' represents the GRP impacts from suppliers to the directly impacted industries. 'Induced' GRP reflects the local spending of employee's wages and salaries of directly and indirectly affected industries.

GRP is defined as the summation of employee compensation, proprietor's income, other property income, and Federal, State, and local taxes on production and imports. Figure 8 shows that \$29 million in cumulative Federal, State, and local taxes would be generated from the MVP project construction.

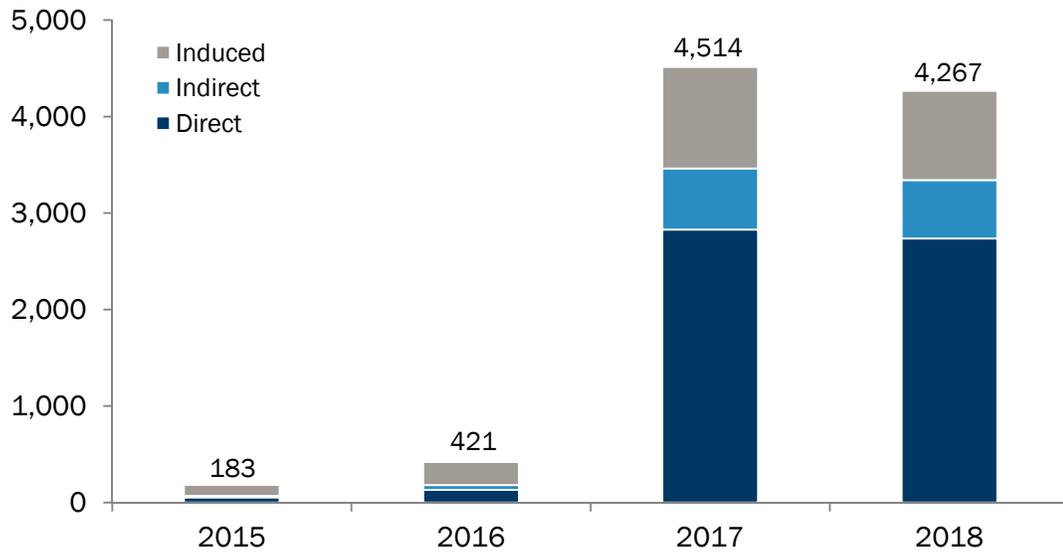
Figure 8 – Composition of MVP's Cumulative Gross Regional Product Contributions



In addition to the GRP benefits, the project will create 4,200 to 4,500 jobs within the state during peak construction activity (2017 and 2018). These jobs include construction jobs, indirect jobs (i.e., jobs created in the state by suppliers to the direct industries impacted), and induced jobs (i.e., jobs created in the state via the spending of construction workers and employees of businesses hired to supply materials and services in constructing the pipeline). Cumulatively, the MVP project would create nearly 9,400 job-years over the course of construction as shown in Figure 9.⁹

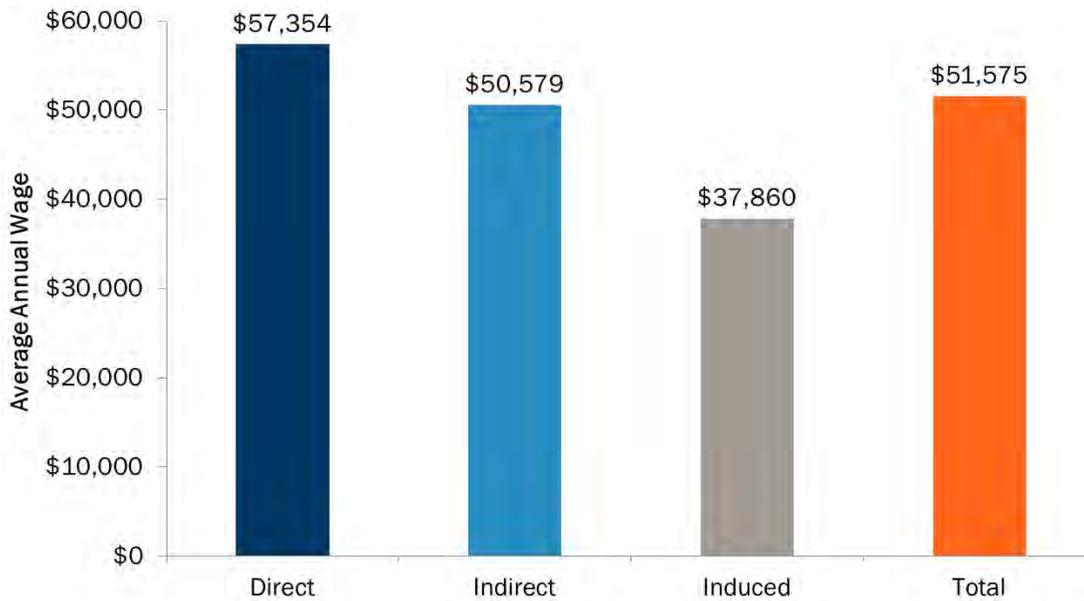
⁹ The MVP employment contributions are directly tied to the capital spending in each year and are best expressed in 'job-years'. A job-year is the equivalent of one full-time job lasting a single year.

Figure 9 – MVP Employment Contributions



The MVP employment contribution also would have a positive impact on West Virginia labor income. Figure 10 shows the average labor income per employee for direct, indirect, and induced jobs contributed by the MVP project.

Figure 10 – MVP West Virginia Average Employee Labor Income



2.2. Operational Benefits

The MVP project would contribute employment and generate county property or ad valorem taxes during operation. Once in service, operation and maintenance activities on the pipeline would

support a total of 54 jobs across the state with average annual wages and benefits of almost \$65,000 per job contributed.

In terms of property tax benefits, Table 2 shows the estimated ad valorem taxes generated by county once the pipeline is in service and compares these taxes to the counties' general fund budget.

Table 2 – Estimated Annual MVP Ad Valorem Taxes during Operation¹⁰

County	General Fund Total Revenues	Annual MVP Ad Valorem Taxes	Percent of General Fund Total Revenues
Braxton	\$ 4,387,000	\$ 1,500,000	34%
Doddridge	\$ 5,589,000	\$ 470,000	8%
Fayette	\$ 11,333,000	\$ 840,000	7%
Greenbrier	\$ 11,305,000	\$ 1,730,000	15%
Harrison	\$ 26,631,000	\$ 2,120,000	8%
Lewis	\$ 10,898,000	\$ 1,980,000	18%
Monroe	\$ 2,809,000	\$ 1,840,000	66%
Nicholas	\$ 8,390,000	\$ 2,240,000	27%
Summers	\$ 3,290,000	\$ 890,000	27%
Webster	\$ 2,531,000	\$ 1,610,000	64%
Wetzel	\$ 13,460,000	\$ 1,740,000	13%
Total 10 Counties	\$ 100,625,000	\$ 16,980,000	17%

Source: West Virginia State Auditors Office; FTI and EQT Calculations

In total, the ad valorem taxes generated during operation could represent up to 17% of the general fund revenues among all eleven West Virginia counties. In Monroe and Webster counties, the ad valorem taxes could represent approximately two-thirds of the general fund revenues.

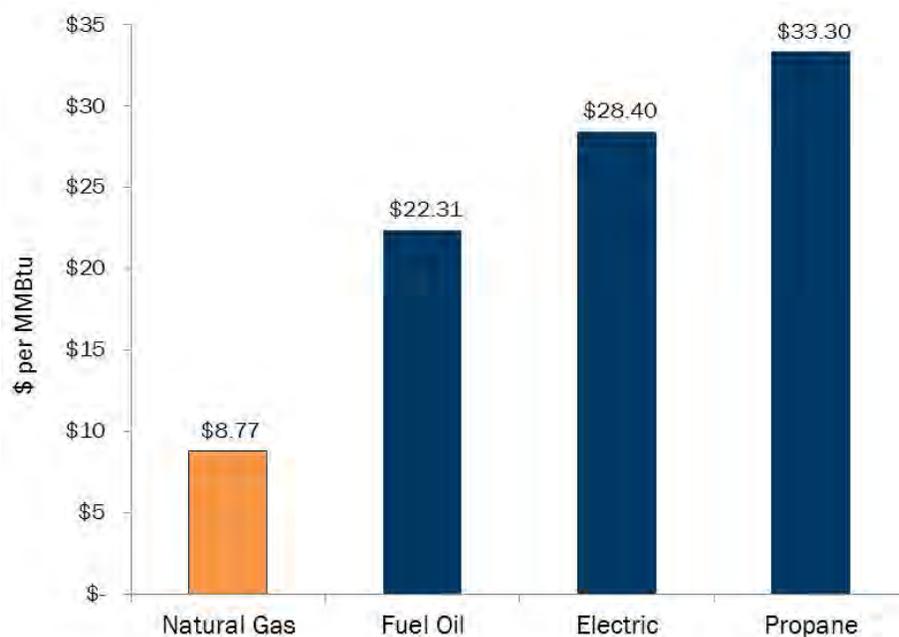
¹⁰ Dollars have been rounded to the nearest \$1,000. General Fund figures reflect the latest data available at https://www.wvsao.gov/LocalGovernment/ConBud_14-15.aspx

2.3. Direct-Use Benefits – Existing Opportunities

The shale gas revolution has helped lower natural gas prices almost 60% since 2008, which in turn has created a number of opportunities for greater investment, job creation and economic growth throughout the U.S. economy. Shale also has increased supply of natural gas, which has led to more price stability.

In West Virginia, natural gas prices have been more than 50% lower than other primary fuel sources as shown in Figure 11, making natural gas an economically attractive alternative to the residential, commercial, and municipal sectors.

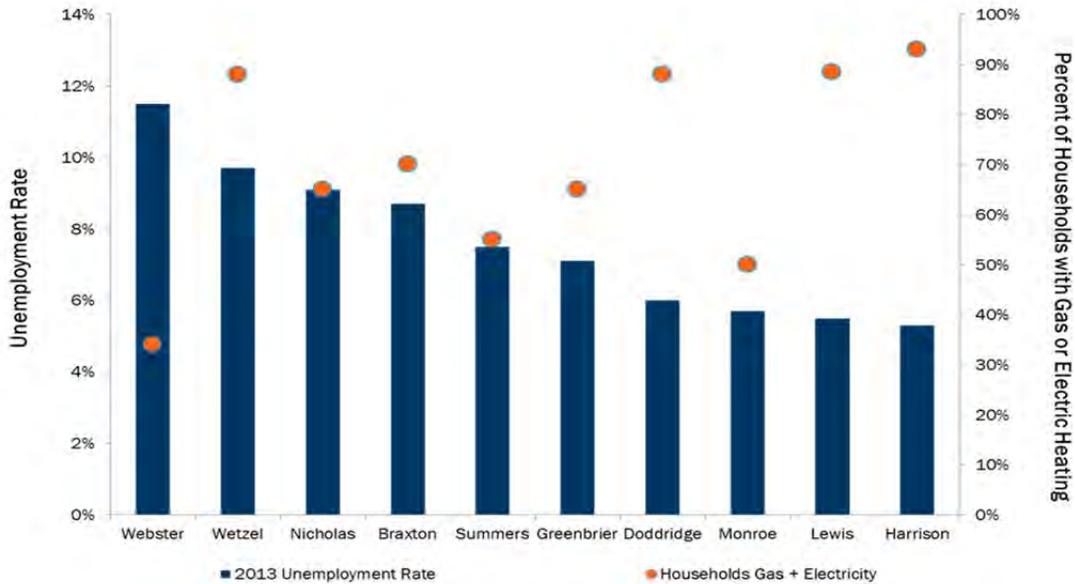
Figure 11 – 2014 Average Residential Winter Fuel Costs in West Virginia¹¹



The benefits of natural gas access go beyond consumer fuel cost savings. Natural gas Infrastructure is vital to the overall health of a local economy. For example, Figure 12 shows the unemployment rates in the eleven counties versus the percentage of households using natural gas or electric for space heating. While there are many factors involved in the health of a local economy, the general trend shows that infrastructure access can be correlated to economic performance.

¹¹ Used EIA residential prices for fuel oil and propane; used average Monongahela Power Co. residential price from EIA for electricity; used Dominion Hope industrial tariff for natural gas.

Figure 12 – Unemployment by County vs. Percent of Households Using Natural Gas or Electricity for Space Heating



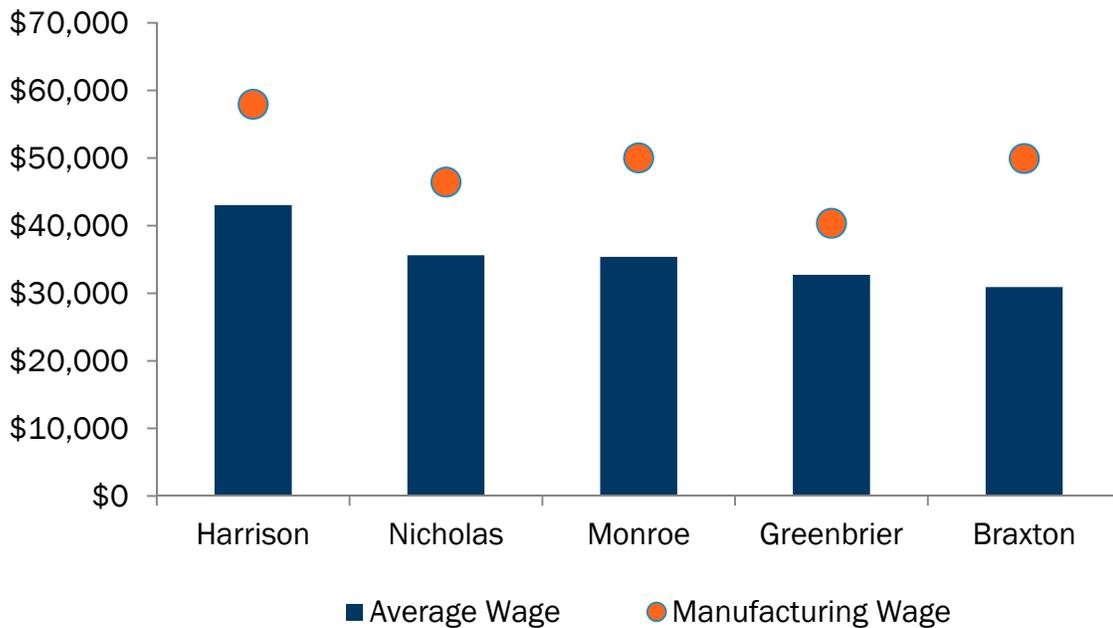
This is economic common sense – counties with extensive infrastructure access (rail, water, electricity, natural gas, interstates, broadband, etc.) are simply provided more opportunities to grow their economy. The contrast between Harrison and Webster counties – two counties along the proposed route – illustrates this point as highlighted in Table 3.

Table 3 – Comparison of Harrison and Webster County Economic Performance

	Harrison	Webster	
Infrastructure Access	Electric utility	County-wide	County-wide
	Gas access	79% of households	1% of households
	Water utility	All major towns	Limited to 8 mi. stretch along Rt. 20
	Interstate transport	I-79	N/A
	Rail transport	Clarksburg, Wallace, Shinnston, Bridgeport	Cowen
	Broadband	All major towns	Very limited
Economic Metrics	GDP per Capita (2014)	\$61,000	\$33,000
	Average Annual Wage (2013)	\$43,036	\$37,199
	Unemployment Rate (2014)	5.2%	11.3%

Infrastructure capacity and access also present opportunities for higher wages. As shown Figure 13, counties with energy-intensive and advanced technology manufacturing offer a significantly higher wage relative to other sectors. Manufacturing is an important growth engine to a community because manufacturing produces a multiplier effect by providing employees with more disposable income relative to other sectors as well as promoting growth in other industries that support manufacturing as part of the supply chain. Natural gas access also is important to retaining existing manufacturers who are searching for ways to reduce costs given natural gas' attractive costs relative to electricity, propane, and fuel oil.

Figure 13 – Employee Wage Comparison in Counties with Energy Intensive and Advanced Technology Manufacturing



In this section we review fuel switching and business expansion opportunities as they relate to the eleven counties along the proposed MVP route.

2.3.1. Fuel Switching Opportunities

Natural gas access is abundant in many parts of West Virginia due to the state’s long history of natural gas production. Eight of the eleven counties along the proposed MVP route have natural gas access in the major towns and areas. The MVP project could provide additional access and reliability to the residential, commercial, and municipal customers in these counties.

Three counties with limited gas access along the proposed route – Monroe, Summers, and Webster – could benefit significantly from the MVP project if they were to switch a sizable portion of their residential, commercial, and municipal energy users over to natural gas. Table 4 provides the location of the MVP project relative to major towns and other natural gas pipelines in these counties.

Table 4 – MVP Proximity to Major Towns and Other Pipelines in Counties with Limited Natural Gas Access

County	Proximity to Major Towns	Major Pipelines Intersecting MVP
Monroe	<ul style="list-style-type: none"> • Union – 8.2 mi. • Alderson – 5.5 mi. • Peterstown – 5.5 mi. 	Columbia Gas
Summers	<ul style="list-style-type: none"> • Hinton – 7.8 mi. 	Columbia Gas
Webster	<ul style="list-style-type: none"> • Webster Springs – 7.2 mi. • Cowen – 1.2 mi. 	N/A

Below we discuss the fuel switching potential for each of these counties in further detail.

Monroe County

Monroe County is a 474 square-mile county located in West Virginia with a population of 13,483. It is primarily a farming county, with a mix of livestock (cattle, dairy, and sheep) and crop farming (hay, corn, oats, wheat, and tobacco). Timber is also a major contributor to the economy.¹² Monroe County's nominal GDP in 2014 was \$190 million or \$14,107 per person.¹³ The county's economy has grown below the national average (-1.2% vs. 2.4%), but its unemployment has remained low relative to West Virginia and the national average (5.6% vs. 6.5% in West Virginia and 6.2% nationally)

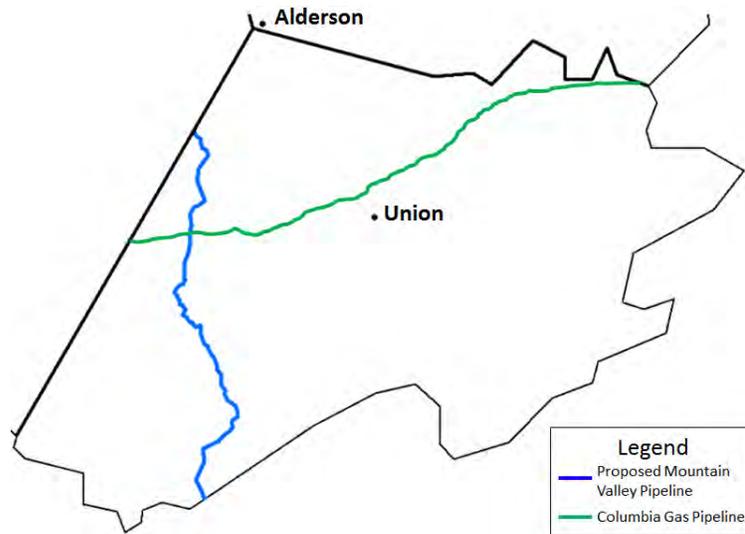
Union is the county seat and has a population of 565, Alderson, which is 40 miles from Union, is the largest town with a population of 1,184. Peterstown, 25 miles from Union, has a population of 653. Together these three towns represent 18% of the county's population.

In Monroe County, the MVP project would provide a vital north-south corridor as the Columbia Gas pipeline runs east-west (see Figure 14).

¹² <http://www.wvencyclopedia.org/articles/2024>

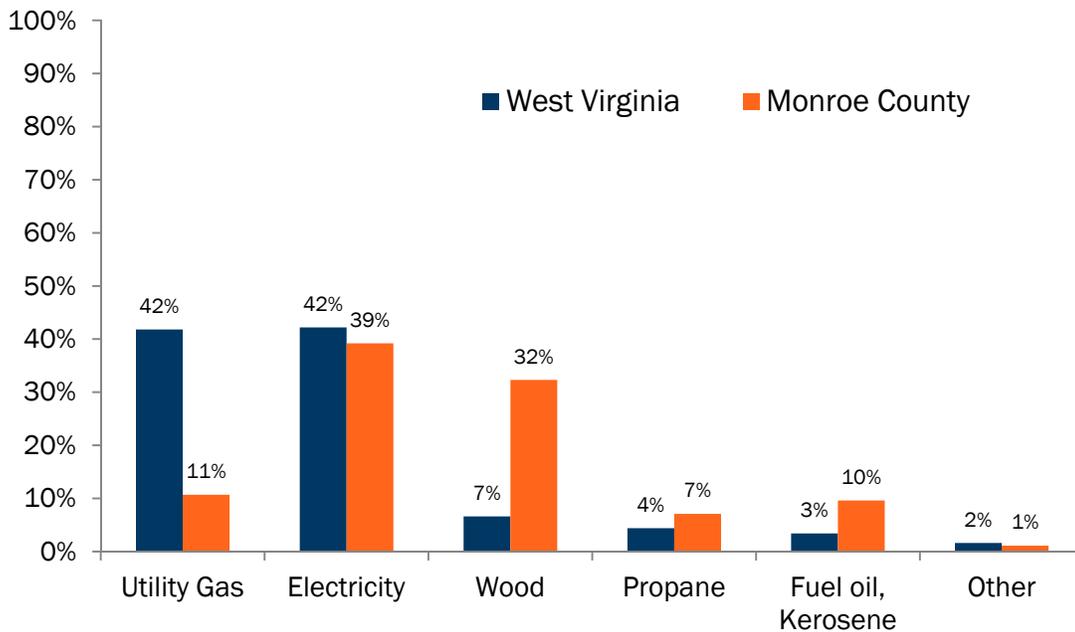
¹³ National Association of Counties. <http://www.uscounties.forg/countyTracker/index.html>

Figure 14 – Monroe County Pipelines – Existing and Proposed



The MVP project could offer fuel switching access opportunities to residential, commercial, municipal, and manufacturing customers in Monroe County. On the residential side, a relatively small percentage (11%) of homes in the county is heated with natural gas (see Figure 15). Commercial and municipal gas usage typically follows suit as gas consumption typically is driven by accessibility.

Figure 15 – Primary Space Heating Fuel Used in Monroe County versus the State, Percentage of Housing Units¹⁴



¹⁴ 2013 US Census Bureau 5 Year American Community Survey

There are two specific municipal opportunities in the county. Two schools located in Peterstown are heated using electricity that could be switched to gas.

The MVP project also could provide additional access to existing manufacturers if connected to the Columbia Gas pipeline. Below are the two main manufacturers in the county:

- **UTC Corporation:** UTC, formerly Goodrich, is a global supplier of systems and services for the aerospace and defense industries. The company employs 400 people at its Sensors and Integrated Systems plant in Union, WV. The facility is 140,000 square feet, and it is powered by a combination of electricity and natural gas.
- **M-Rock:** The company is a stone and brick designer and manufacturer in Peterstown, WV, and employs 25 people and has annual revenue of \$1M.

Summers

Summers County is a 368 square-mile county located in south-east West Virginia with a population of approximately 13,500 and has a household count of approximately 5,500. Summers County's economy has had challenges. Its nominal GDP in 2014 was \$221 million or \$16,316 per person.¹⁵ The real GDP shrunk by 1.9% from 2013 to 2014¹⁶ compared to the U.S. GDP real growth of 2.4%¹⁷ during the same time period. Additionally, the county unemployment rate was 7.4% in 2014, compared to 6.5% in West Virginia and 6.2% nationally.

Hinton is the county seat and largest city with a population of 2,676 and represents 20% of the county population. Hinton has gas access.

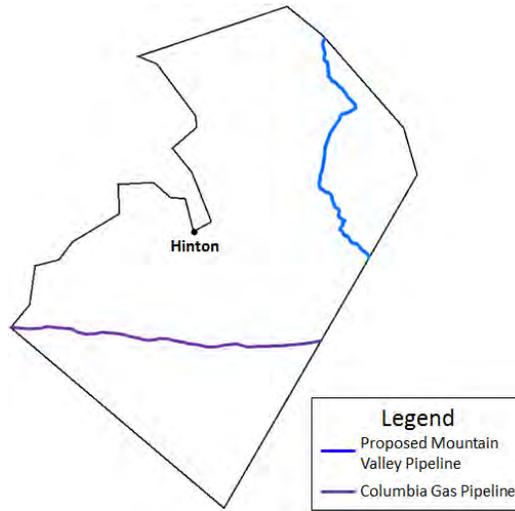
Like Monroe County, Summers County has the Columbia Gas pipeline running east-west through the county, and the MVP project would provide a vital north-south natural gas corridor (see Figure 16).

¹⁵ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

¹⁶ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

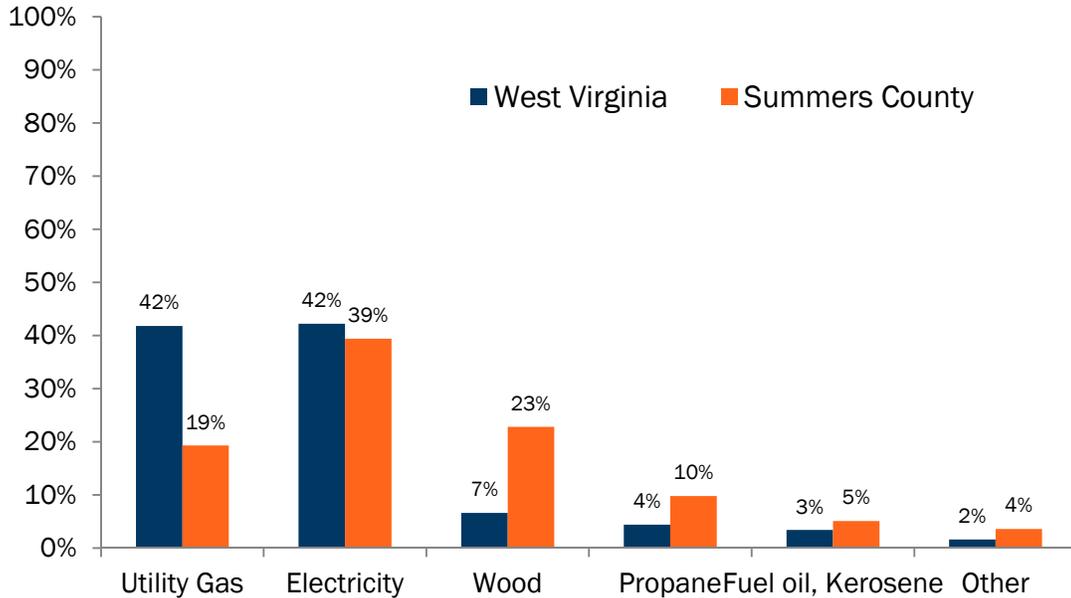
¹⁷ <http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm>; file "gdp2q15_2nd.xls" Table 1 – Real Gross Domestic Product and Related Measures: Percent Change from Preceding Period.

Figure 16 – Summers County Natural Gas Pipeline Map



The MVP project could offer fuel switching opportunities across all economic sectors. On the residential side, a relatively small percentage (19%) of homes in Summers County is heated with natural gas (see Figure 17). These are mainly homes in Hinton. Commercial and municipal natural gas customers have access in Hinton as natural gas consumption typically is driven by accessibility.

Figure 17 – Primary Space Heating Fuel Used in Summers County versus the State, Percentage of Housing Units¹⁸



¹⁸ 2013 US Census Bureau 5 Year American Community Survey

The planned route of the MVP pipeline would run through the northeastern portion of Summers County. The route would be near Alderson (5.5 miles away), which is just outside the county on the border of Monroe and Greenbrier counties. Alderson is an important economic center for this portion of Summers County. As such, the community in Summers County area near Alderson could benefit from having gas access for fuel switching purposes.

Webster

Webster County is a 556 square-mile county located in the center of West Virginia. It has a population of approximately 8,900 and has a household count of approximately 4,000. The county's economy has had some challenges. Its nominal GDP in 2014 was \$294 million or \$33,000 per person.¹⁹ While the county's GDP grew by 2.8% from 2013 to 2014²⁰ compared to the U.S. GDP real growth of 2.4%²¹ during the same time period, the county's unemployment rate has been high – 11.3% in 2014 compared to 6.5% in West Virginia and 6.2% nationally.

Webster Springs is the largest town with a population of 776 and is also the county seat. Cowen is the second largest town in the county with a population of 541. Together these towns represent approximately 15% of the county's population.

Overall, the economic development in the county has been scattered mainly due to a lack of infrastructure. There is no major interstate that runs through the county. As such, infrastructure is primarily available along the Route 20 corridor, which runs from Camden-on-Gauley in the southern part of the county through, Cowen, Webster Springs, nearby Diana, and Cleveland on the northern part of the county.

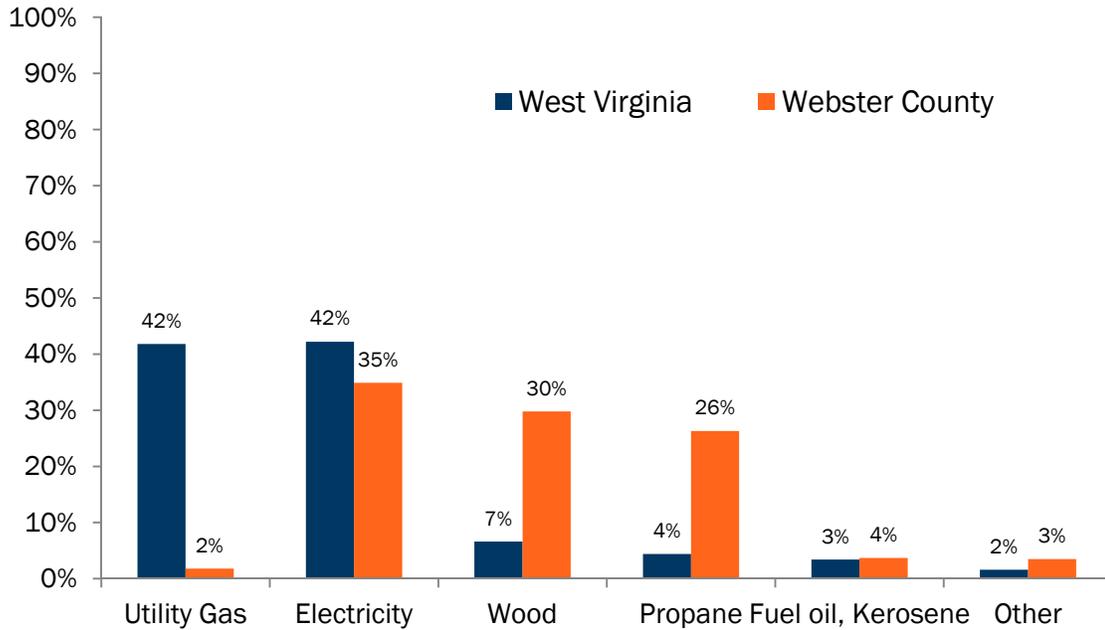
Currently there is no gas service in the county. Electricity, wood, and propane are the main residential home heating sources for the county as shown in Figure 18.

¹⁹ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

²⁰ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

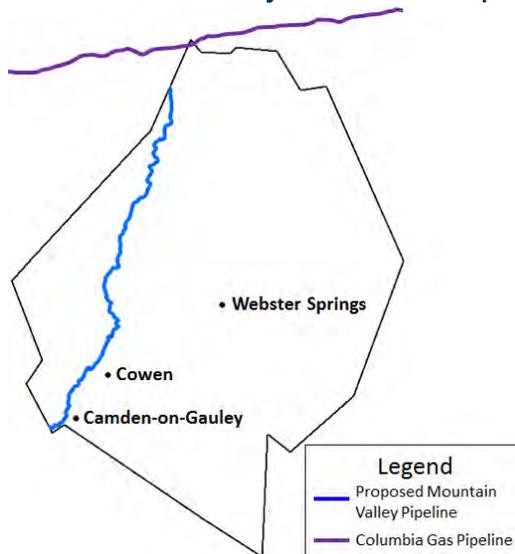
²¹ <http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm>; file "gdp2q15_2nd.xls" Table 1 – Real Gross Domestic Product and Related Measures: Percent Change from Preceding Period.

Figure 18 - Primary Space Heating Fuel Used in Webster County versus the State, Percentage of Housing Units²²



The residential, commercial, and municipal sectors, particularly in Cowen and Camden-on-Gauly, could benefit from the MVP pipeline as it would run through the western part of the county as shown in Figure 19.

Figure 19 - Webster County Natural Gas Pipeline Map



²² 2013 US Census Bureau 5 Year American Community Survey

Within Webster County, Cowen represents the best opportunity for fuel switching as the MVP project would run within 1.2 miles of the town. Cowen has a population of 541, and it does not have gas access. Furthermore, Cowen offers the best opportunities for business expansion due to its flat terrain and rail access.

2.3.2. Business Expansion Opportunities

A major natural gas pipeline, such as the proposed MVP project, can draw new businesses that require high volumes of natural gas, particularly energy-intensive and advanced technology manufacturers. These businesses can provide large economic benefits to communities from an employment, wage, and tax revenue perspective as their multiplier effects (the amount of indirect and induced GRP and employment created per dollar of investment) is large. For example, for each job created within the petrochemical industry 12 other jobs are created along the supply chain and from general economic spending.²³ The multiplier or ripple effects for the petrochemical industry are large because the industry has an above average capital investment to direct employment ratio.

In this section we discuss existing, business expansion opportunities in select counties along the proposed MVP route. These opportunities mainly center on West Virginia's gas sector as a number of counties along the proposed route have sizable natural gas operations. The MVP pipeline offers an opportunity for developers to move their natural gas via the pipeline to ten other counties in West Virginia, six counties in Virginia, and a large portion of the U.S. Southeast

Doddridge

The primary growth sector for Doddridge County in recent years has been the oil and gas sector. Mark West in 2013 opened a new gas processing facility outside West Union that employs approximately 25 people. The company plans to triple its capacity in the near future. During the construction of the facility, Mark West employed about 200 local electricians, pipefitters, welders, carpenters and other tradespeople.²⁴ The Mark West facility, along with other parts of natural gas industry, provides on average wages that are 2.5 times higher than the county average as shown in Table 5 in the Resources and Mining sector.

²³ IMPLAN, 2012

²⁴ <http://www.wvillustrated.com/story/20280391/new-markwest-natural-gas-processing-online-in-doddridge-co>

Table 5 – Annual Average Wages in Doddridge County by Sector²⁵

Sector	Average Annual Wage
Resources and Mining	\$104,946
Construction	\$40,780
Government	\$32,216
Commercial	\$25,549
Manufacturing	N/A
Weighted Average	\$39,016

Table 5 illustrates that the natural gas industry is an important near-term driver for Doddridge County's economic performance.

Lewis

Existing manufacturing expansion opportunities in Lewis County are limited. Viking Pools, which manufactures hot tubs, spas and whirlpool baths, and Tamarack Log Homes, which manufactures log homes, are large employers but likely have few needs for additional gas supplies. Both are located at the industrial park near the Jane Lew exit of I-79.

The primary growth sector for Lewis County in recent years has been the natural gas industry. The county has become an operational hub for many companies involved in Marcellus Shale development. Companies such as Nexus Drilling, Chesapeake Energy, and Superior Well Services have expanded operations significantly, employing approximately 1,500 people or 20% of the workforce in the county. The average wage for oil and gas extraction employees in Lewis County has been ~\$77,300. It is worth noting that Lewis County now has the third lowest unemployment in the state after Monongalia and Jefferson counties.

This boon has been helpful in offsetting manufacturing decline. In 2013 Halliburton shut down their cement plant operations in Weston, WV, and moved it 150 miles away to Zanesville, OH. The company had employed approximately 75 people.

Wetzel

The primary growth sector for Lewis County in recent years has been the oil and gas sub-sector under Resources and Mining. The drilling activity in Wetzel has led to a boom in government revenue with a large increase in tax revenue. Local property tax revenue has nearly tripled since 2005 with

²⁵ Workforce WV. http://www.workforcewv.org/lmi/Earnings_N_Wages/EnW.html

significant increases to severance tax revenue as well.²⁶ The average wage for oil and gas extraction employees in Wetzel County has been ~\$73,800.

FTI has found that gas development represents the near-term economic growth opportunity for the county. Wetzel County could benefit further from natural developments in the county by training more county residents to work in the field and exploring approaches for transitioning out-of-state workers to be re-located within the county. This would provide additional disposable income within the counties borders.

2.4. Direct-Use Benefits – Future Opportunities

The shale gas revolution in the last few years has created a manufacturing renaissance in the United States. The increased supply of natural gas has stabilized prices leading to greater investment, job creation and economic growth. Manufacturing is an important growth engine to a community because manufacturing produces a multiplier effect that promotes growth in other industries.

Our interviews with county representatives, regional partnership leaders, and manufacturers inside and outside the county identified that businesses value abundant and reliable gas service, and that access to natural gas is a primary criterion for determining where to locate new manufacturing facilities. Anecdotal evidence from these interviews place lost manufacturing opportunities at 50% for counties without gas access. Clearly, access to a pipeline could have considerable impacts on the local economy in terms of jobs, economic output, and tax revenues.

Below we highlight the major manufacturing employers in eight of the eleven counties along the proposed route. Additional gas access to these manufacturers could help enable expansions by providing a low-cost resource to their operations.

²⁶ <http://www.wvpolicy.org/wp-content/uploads/2014/04/Impacts-of-Drilling-in-Wetzel-County.pdf>

Table 6 – Major Manufacturing and Oil & Gas Employers by County

County	Major Manufacturing and Oil & Gas Employers	Products	Est. Employees
Braxton	Weyerhaeuser	Oriented strand board	140
	Appalachian Timber Services	Rail ties	80
	Braxton Lumber	Lumber Mill	20
Doddridge	Mark West	Natural Gas Processing	
Greenbrier	ABB	Industrial motors	160
	Mullican Flooring	Hardwood flooring	120
Harrison	Aurora Flight Services	Aerospace vehicles	160
	Bombardier Services	Airline maintenance	400
	Europtec	Glass fabrication	60
	Graftech	Graphite products	175
	Pratt & Whitney	Airline repair/engine manufacturing	400
	Stockmeier Urethanes	Chemicals products	15
Lewis	Viking Pools	Bathtub and spas	75
	Tamarack Log Homes	Log homes	7
Monroe	UTC Aerospace Systems	Aerospace products	400
	M-Rock	Stone/brick design	25
Nicholas	B/E Aerospace	Aircraft cabin products	160
	Columbia Wood Products	Hardwood products	380
Webster	Allegheny Wood Products	Hardwood products	175
	Jim C. Hamer Company	Hardwood products	75
	Northwest Hardwoods	Hardwood products	

Beyond these existing manufacturers, new manufacturers could emerge with the development of the MVP project. The Marcellus and Utica shale gas formations have created a number of manufacturing opportunities for West Virginia, Pennsylvania, and Ohio. Together, these two gas formations account for 16.6 Bcf/d or more than 20% of U.S. production²⁷ and are enticing companies to build massive chemical projects in these states. Several projects to build ethane crackers are being considered, and the MVP project along with other oil and gas infrastructure project may attract these and similar manufacturing investments to West Virginia, spurring economic growth, high-paying jobs, and additional tax revenues for the counties and State.

²⁷ EIA Drilling Productivity Report, October 14, 2014.

Below we present four case studies on proposed projects that, if built, would have significant economic benefits to West Virginia and surrounding areas.

1. Odebrecht

Odebrecht is a Brazilian conglomerate consisting of businesses in the fields of engineering, construction, chemicals and petrochemicals. It has proposed the construction and operation of a world-scale ethane cracker and three polyethylene manufacturing plants in Parkersburg, WV, along with water treatment and energy co-generation facilities.²⁸ Odebrecht estimates the plant to cost \$3.8 billion. Typically, ethane project investments of this magnitude employ more than 2,000 construction workers at their peak and 200-300 full-time employees during operation. The facility would be supplied by ethane and natural gas from the Marcellus and Utica shales.

This proposal is an example of how West Virginia could move further down the value chain from a fuels producer to a producer of value added petrochemical products. As Kevin DiGregorio, Executive Director of West Virginia-based Chemical Alliance Zone, stated, “[a] cracker in West Virginia just makes sense. The chemical industry historically follows abundant raw materials, and the vast amount of ethane in the Marcellus Shale provides a great foundation for new chemical manufacturing investments.”²⁹

Odebrecht has stated that a final investment decision will be made by the end of 2015.

2. Aither

Aither Chemical is evaluating locations in OH, PA, and WV to build a plant that would produce ethylene and related products.³⁰ Aither estimates the plant would cost \$200 to \$750 million and create 200 permanent jobs and 2,000 temporary construction jobs, with indirect job creation from the project resulting in as many as 1,400 more permanent jobs.³¹ The plant would produce up to 600 million pounds of ethylene, 300 million pounds of acetic acid, 80 million pounds of carbon dioxide, and 40 million pounds of carbon monoxide each year, generating \$450 million in annual revenues. The plant would use natural gas and ethane from the Marcellus Shale.

The Aither plant is another example of the manufacturing potential in the Marcellus and Utica areas. The economic benefits of these facilities are highly multiplicative, with 7– 10 times the indirect jobs (jobs related to supplier to these facilities) being created. The supply chain economic benefits are recognized by state governments. For example, West Virginia Governor Earl Ray Tomblin signed into

²⁸ “Odebrecht Moves Forward with WV Cracker Plant Plans.” Marcellus Drilling News. Sep. 2, 2014.

<http://marcellusdrilling.com/2014/09/odebrecht-moves-forward-with-wv-cracker-plant-plans>

²⁹ “Industry Leaders Speak on Cracker.” The Weirton Daily Times. Dec. 2, 2013.

<http://www.weirtondailytimes.com/page/content.detail/id/607182/Industry-leaders-speak-on-cracker.html?nav=5006>

³⁰ “Aither Chemicals Mulls Plans for Cracker and PE plant in Marcellus Shale region.” Plastics News. April 18, 2013.

<http://www.plasticsnews.com/article/20130418/NEWS/130419906/aither-chemicals-mulls-plans-for-cracker-and-pe-plant-in-marcellus-shale-region>

³¹ <http://www.plasticsnews.com/article/20130418/NEWS/130419906/aither-chemicals-mulls-plans-for-cracker-and-pe-plant-in-marcellus-shale-region>

law in 2012 a tax incentive plan designed to lure an ethane cracker plant to West Virginia. The law gives a 25-year property tax break to companies that spend more than \$2 billion on such a facility.

3. Other Opportunities in the Region

Other similar investments reflect the potential for West Virginia counties to attract these types of manufacturing opportunities.

Shell has proposed the construction of an ethane cracker in Monaca, PA, in Beaver County, 35 miles northwest of Pittsburgh. The facility would be capable of producing 1.5 million tons of ethylene and 1.6 million tons of polyethylene annually and employ 400 people. Supporting the plant's operations would be three on-site natural gas-fired turbines, four emergency diesel generators, two cooling towers, and a water treatment facility.³²

A partnership of PTT Global Chemical and Marubeni Corp is evaluating the construction of an ethane cracker on a 400-acre site at Mon River Industrial Park in Allenport, PA, as well as two undisclosed locations in Ohio and West Virginia, to take advantage of the natural gas supply from the Marcellus and Utica formations.³³

Appalachian Resins plans to construct a \$1 billion ethane cracker plant on a 50-acre site in Monroe County, OH, 130 miles east of Columbus. The project, which had initially been planned for West Virginia, is expected to bring 150 to 200 full-time jobs once the plant is running. The plant would be about one-third the size of the Shell and Odebrecht plants and could open in late 2018 or early 2019.³⁴

³² Natural Gas Intelligence. "Shell Chemical Details Plans for PA Cracker in First Permit Application." Aug 5, 2014. <http://www.naturalgasintel.com/articles/99275-shell-chemical-details-plans-for-pa-cracker-in-first-permit-application>

³³ "Thai-Japanese Duo Angling for Another Marcellus Ethane Cracker." PowerSource. Sep. 28, 2014. <http://powersource.post-gazette.com/powersource/companies-powersource/2014/10/16/Brazil-group-visits-to-learn-more-about-shale/stories/201410150210>

³⁴ "Cracker Plant in the Works for Monroe County." The Columbus Dispatch. Oct. 16, 2014. <http://www.dispatch.com/content/stories/business/2014/08/29/cracker-plant-in-the-works-for-monroe-county.html>

3. Summary

The proposed MVP pipeline would provide a number of direct-use benefits to the eleven counties in West Virginia through which the pipeline would run. First, the pipeline would benefit existing customers as it would help ensure future access to a reliable supply of natural gas. Natural gas is already abundant in many parts of West Virginia due to the state's long history of gas operations. Eight of the eleven counties along the proposed MVP route have natural gas access in the major towns and areas. The MVP project could provide additional access and reliability for the residential, commercial, and municipal customers in these counties.

Second, the shale gas revolution has helped lower natural gas prices, making natural gas an economically attractive alternative to existing fuel sources. Counties with limited access to natural gas could realize significant benefits from the MVP pipeline if they were to switch a sizeable portion of their residential, commercial, municipal, and manufacturing customers from the existing fuel source over to natural gas. In Monroe County and Summers County, which both have limited access to natural gas, the MVP project would provide a north to south corridor to complement the Columbia Gas pipeline that runs east to west. In Webster County, which does not currently have access to natural gas, the MVP pipeline would run through the western part of the county and within 1.2 miles of the town of Cowen, the second-largest town in the county.

Third, a major natural gas pipeline like the MVP could draw new businesses that require high volumes of natural gas, particularly energy-intensive and advanced technology manufacturers that pay high wages. An example is Harrison County, which has a thriving aerospace industry, an average annual wage of \$72,000, and an unemployment rate of 5.2%. Mark West in Doddridge County serves as another example of manufacturing benefits. The company plans to triple the capacity of its gas processing facility in Doddridge County, which provides wages 2.5 times higher than the county's average. Further evidence of the potential for natural gas to attract major investments in manufacturing is illustrated from investments in ethane cracker plants that are being considered. These include several plants being considered by Odebrecht, Aither, Shell, PTT Global/Marubeni, and Appalachian Resins.

These types of investments can provide large economic benefits to communities from an employment, wage, and tax revenue perspective. Input-output modeling software such as IMPLAN can help to estimate the magnitude of these impacts. In addition to the initial economic impact of the investment, businesses along the supply chain benefit through ripple, or multiplier, effects, as do households in the form of higher wages and disposable income.

Appendix: County Economic and Energy Profiles

1. Braxton

Economic Profile

Braxton County is a 517 square-mile county located in the center of West Virginia. It has a population of approximately 14,500 and has a household count of approximately 5,800. The county has had an underperforming economy. Its nominal GDP in 2014 was \$371 billion or \$25,600 per person.³⁵ The real GDP declined by 1.2% from 2013 to 2014³⁶ compared to the U.S. GDP real growth of 2.4%³⁷ during the same time period. Additionally, the county unemployment rate has been high – 8.8% in 2014 compared to 6.5% in West Virginia and 6.2% nationally.³⁸

Sutton is the largest town with a population of 1,030 and is also the county seat. Gassaway is the second largest town in the county with a population of more than 900. Together these towns represent approximately 13% of the county's population. The vast majority of the population lives in rural parts of the county that does not have access to natural gas.

The county counted 343 employers in 2013 with total employment of 3,814 or 11.1 employees per employer.³⁹ Approximately 9% of the County residents work in manufacturing as shown in Table 7.

Table 7 – Employment in Braxton County by Sector⁴⁰

Sector	Employment	Percent of Total Employment
Commercial	2,293	60%
Government	938	25%
Manufacturing	330	9%
Construction	206	5%
Resources and Mining	47	1%
Total	3,814	100%

³⁵ NACO County Tracker, 2013.

³⁶ Ibid.

³⁷ <http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm>; file "gdp2q15_2nd.xls" Table 1 – Real Gross Domestic Product and Related Measures: Percent Change from Preceding Period.

³⁸ Bureau of Labor Statistics

³⁹ Workforce WV. http://www.workforcewv.org/lmi/Earnings_N_Wages/EnW.html

⁴⁰ Ibid.

While the commercial sector represents a large portion of the Braxton County economy, manufacturing is also an important sector. Manufacturing employs 330 workers, representing 9% of the jobs in the county. Below are some of the largest manufacturers:

- **Weyerhaeuser:** A public company, located in Heaters, that produces oriented strand board for the construction industry. The facility can produce approximately 500 million square feet of OSB per year, and it employs 140 people.
- **Appalachian Timber Services:** A privately-owned company that produces cross ties, switch ties, bridge ties, timber crossings, and custom wood products for the rail industry. It employs approximately 80 people.
- **Braxton Lumber:** A privately-owned lumber mill in Heaters. It employs approximately 20 people with annual revenue of \$100K.

All three companies are closely situated nearby the I-79 corridor. These facilities mainly use electricity to drive their operations. For Weyerhaeuser, natural gas is used for process heating.

In Braxton County, the economic impact of manufacturing jobs is clear. As Table 8 shows, manufacturing wages are the second highest across all job sectors in the county (\$57,944 per year) and are 35% higher than the average wage in the County.

Table 8 – Annual Average Wages in Braxton County by Sector⁴¹

Sector	Average Annual Wage
Resources and Mining	\$83,048
Manufacturing	\$57,944
Government	\$54,172
Construction	\$52,844
Commercial	\$34,899
Weighted Average	\$43,036

Energy Profile

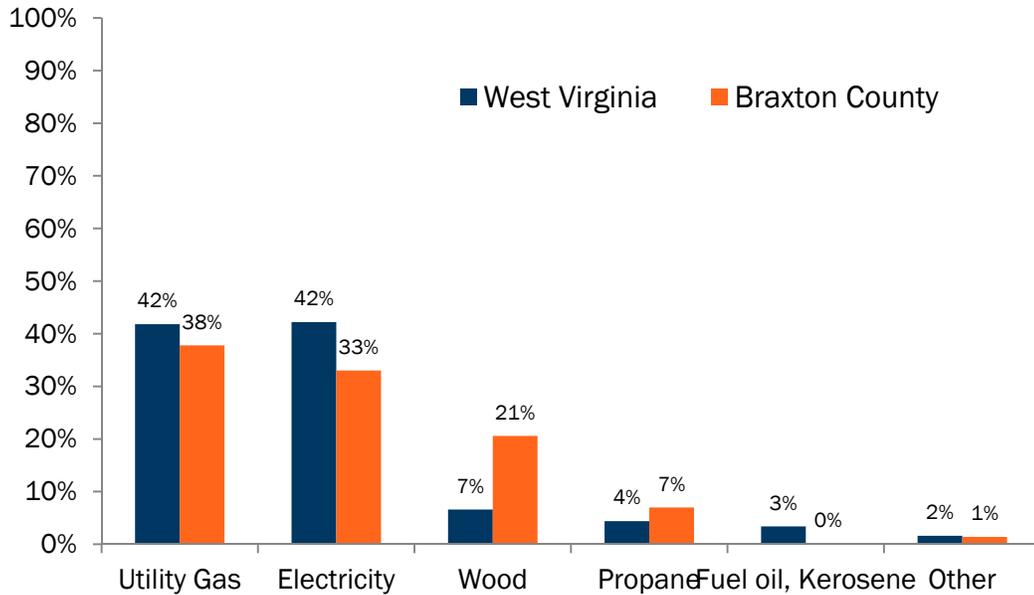
There is a surprising amount of gas accessibility in Braxton County given its low population density. The gas source for Sutton and Gassaway is from West Virginia gas productions wells (native supply).

Natural gas and electricity are the main residential home heating sources for the county as shown in Figure 20. A large portion of households in the county's towns use natural gas as their primary fuel

⁴¹ Workforce WV. <http://www.workforcewv.org/lmi/EandWAnnual/ew13cnty025.html>.

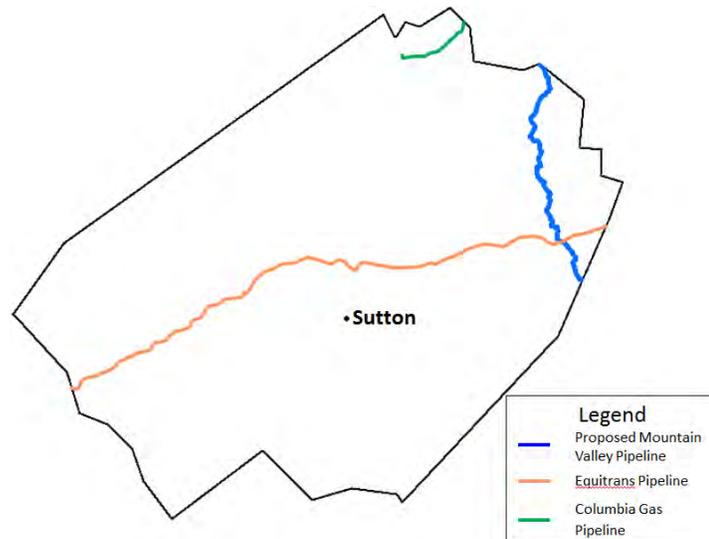
source for home and water heating. Typically, commercial and municipal buildings follow the same pattern since natural gas use often is driven by accessibility. Dominion Hope serves these towns.

Figure 20 - Primary Space Heating Fuel Used in Braxton County versus the State, Percentage of Housing Units⁴²



The residential, commercial, and municipal sectors could benefit significantly from the proposed MVP pipeline as it would intersect on the east side of the county with the Columbia Gas Transmission Corporation’s pipelines as shown in Figure 21. The MVP pipeline, if connected to this pipeline, could provide gas supply to Braxton County consumers as native production declines.

Figure 21 - Braxton County Natural Gas Pipeline Map



⁴² 2013 US Census Bureau 5 Year American Community Survey

2. Doddridge

Economic Profile

Doddridge County is a 320 square-mile county located in the northwest part of West Virginia with a population of approximately 8,300 and has a household count of approximately 3,000. The county has a growing economy. Its nominal GDP in 2014 was \$174 million or \$20,877 per person.⁴³ The real GDP grew by 3.3% from 2013 to 2014, after growing nearly 20% the previous year,⁴⁴ compared to the U.S. GDP real growth of 2.4%⁴⁵ during the same time period. Additionally, the county unemployment rate was 5.9% in 2014, compared to 6.5% in West Virginia and 6.2% nationally.

West Union is the county seat and is the largest town with a population of 825. The Route 23 corridor in the northern part of the county is considered the population center of the county.

Doddridge County has experienced economic development challenges because of a lack of infrastructure. There is no interstate and mainline water access is restricted to an approximately eight-mile stretch along Route 23. There is also limited 3-phase electricity, which is required for large manufacturing and commercial facilities, and limited broadband.

In 2013, the county counted 110 employers with total employment of 1,246 or 11.3 employees per employer.⁴⁶ A majority of the county employment is in the commercial and government sectors (79%) as shown in Table 9.

Table 9 – Employment in Doddridge County by Sector⁴⁷

Sector	Employment	Percent of Total Employment
Commercial	455	36%
Government	530	43%
Resources and Mining	144	12%
Construction	119	10%
Manufacturing	0	0%
Total	1,248	100%

⁴³ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

⁴⁴ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

⁴⁵ <http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm>; file “gdp2q15_2nd.xls” Table 1 – Real Gross Domestic Product and Related Measures: Percent Change from Preceding Period.

⁴⁶ WorkForce WV: http://www.workforcewv.org/Imi/Earnings_N_Wages/EnW.html

⁴⁷ WorkForce WV: http://www.workforcewv.org/Imi/Earnings_N_Wages/EnW.html

Resource and mining represents 12 % of the county employment and is composed entirely of oil and gas production. This sub-sector has grown in recent years.⁴⁸ As evidence, Mark West in 2013 opened a new gas processing facility outside West Union that employs approximately 25 people. The company plans to triple its capacity in the near future. During the construction of the facility, Mark West employed about 200 local electricians, pipefitters, welders, carpenters and other tradespeople.⁴⁹

As Table 10 shows, the resources and mining industry, which includes the Mark West facility, has significantly higher wages, on average, than the other major sectors.

Table 10 – Annual Average Wages in Doddridge County by Sector⁵⁰

Sector	Average Annual Wage
Resources and Mining	\$104,946
Construction	\$40,780
Government	\$32,216
Commercial	\$25,549
Manufacturing	N/A
Weighted Average	\$39,016

Natural gas is important to the county's economic growth. FTI found that oil and gas development represents the near-term economic growth driver for the county. The MVP pipeline offers an opportunity for developers to move their natural gas via the pipeline to ten other counties in West Virginia, six counties in Virginia, and a large portion of the U.S. Southeast, which could translate into significant impacts to the county's economy. In Lewis County, for example, the oil and gas sector comprises approximately 20% of the workforce and the average wages for the sector lead all other sectors. Coincidentally, Lewis County has the third lowest county unemployment rate in the State.

While having good timber resources, the timber industry currently is not very active due to economics. This is partially due to infrastructure constraints as timber companies are challenged to get timber out of the county via the existing road infrastructure.

There are no major manufacturers in Doddridge County; however, Simonton Windows in neighboring Ritchie County is a large employer of county residents.

⁴⁸ <http://www.drillingedge.com/west-virginia/doddridge-county>

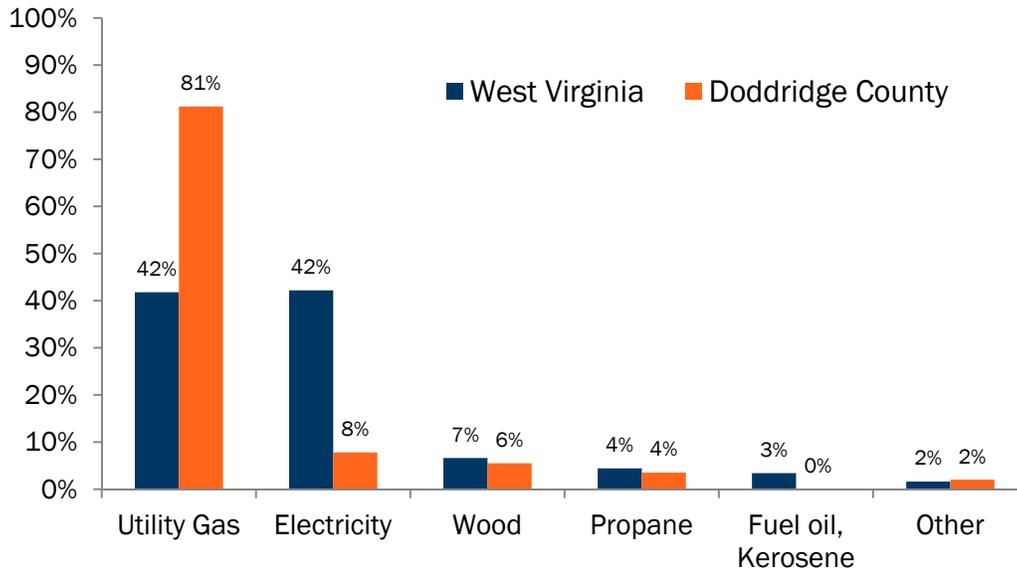
⁴⁹ <http://www.wvillustrated.com/story/20280391/new-markwest-natural-gas-processing-online-in-doddridge-co>

⁵⁰ WorkForce WV: http://www.workforcewv.org/Imi/Earnings_N_Wages/EnW.html

Energy Profile

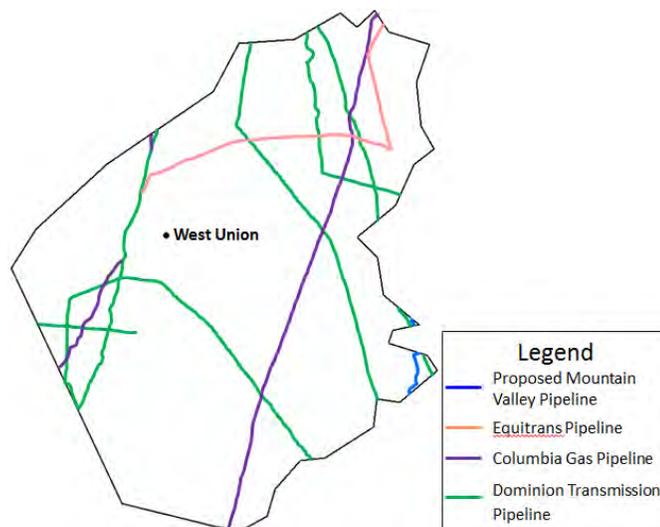
Due to native natural gas production, gas is the primary residential home heating source for the county as shown in Figure 22. Typically commercial and municipal buildings follow the same pattern since natural gas as a fuel choice often is driven by accessibility. Peoples Gas serves West Union.

Figure 22 – Primary Space Heating Fuel Used in Doddridge County versus the State, Percentage of Housing Units⁵¹



All sectors could benefit significantly from the MVP pipeline as it would intersect the Dominion pipeline on the east side of the county (Figure 23). If connected with this pipeline, MVP could provide gas supply as native production declines.

Figure 23 – Doddridge County Natural Gas Pipeline Map



⁵¹ 2013 US Census Bureau 5 Year American Community Survey

3. Greenbrier

Economic Profile

Greenbrier County in West Virginia covers 1,025 square miles and is home to 35,644 residents. The county has a relatively strong economy. Its nominal GDP in 2014 was \$1.3 billion or \$36,472 per person.⁵² The real GDP declined by 1.5% from 2013 to 2014⁵³ compared to the U.S. GDP real growth of 2.4%⁵⁴ during the same period. Additionally, the county unemployment rate was 7.0% in 2014, compared to 6.5% in West Virginia and 6.2% nationally.

Lewisburg is the county seat and with 3,330 residents is the most populous city. Other cities include Ronceverte (pop. 1,765; five miles from Lewisburg), White Sulphur Springs (pop. 2,444; 10 miles from Lewisburg), and Fairlea (pop. 1,747; 2 miles from Lewisburg). The community of Maxwelton is home to the Rahall Technology and Business Center, a 137,000 square foot facility adjacent to the Greenbrier Valley Airport, and which the Greenbrier Chamber of Commerce describes as the eastern anchor of the I-64 technology corridor between Lewisburg, White Sulphur Springs, and Beckley. The Greenbrier Valley Economic Development Corporation (GVEDC) owns the facility in addition to the Fountain Springs business park in Monroe County and the Edray business park in Pocahontas County.

The county counted 1,108 employers in 2013 with total employment of 13,524 or 12.2 employees per employer.⁵⁵ Approximately 6% of the County residents work in manufacturing (see Table 11).

Table 11– Employment in Greenbrier County by Sector⁵⁶

Sector	Employment	Percent of Total Employment
Commercial	9,566	71%
Government	2,478	18%
Manufacturing	768	6%
Construction	368	3%
Resources and Mining	344	3%
Total	13,524	100%

⁵² National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

⁵³ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

⁵⁴ <http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm>; file “gdp2q15_2nd.xls” Table 1 – Real Gross Domestic Product and Related Measures: Percent Change from Preceding Period.

⁵⁵ Workforce WV. http://www.workforcewv.org/lmi/Earnings_N_Wages/EnW.html

⁵⁶ Ibid.

In Greenbrier County, manufacturing employs over 700 workers, representing 6% of the jobs in the county. Below are some of the largest manufacturers in the county:

- **ABB:** ABB is a large supplier of industrial motors and drives, generators for the wind industry, and power grids, with 145,000 employees worldwide. Its Lewisburg manufacturing center produces process automation instrumentation. The plant is 95,000 square feet and employs 160 people.
- **Mullican Flooring:** Mullican is a manufacturer of hardwood flooring products in Ronceverte, WV, with approximately 120 employees.

In Greenbrier County, the manufacturing sector provides a significant economic impact as shown in Table 12. Manufacturing wages are the second highest across all job sectors in the county (\$40,323 per year) and are 23% higher than the average wage in the county.

Table 12 – Annual Average Wages in Greenbrier County by Sector⁵⁷

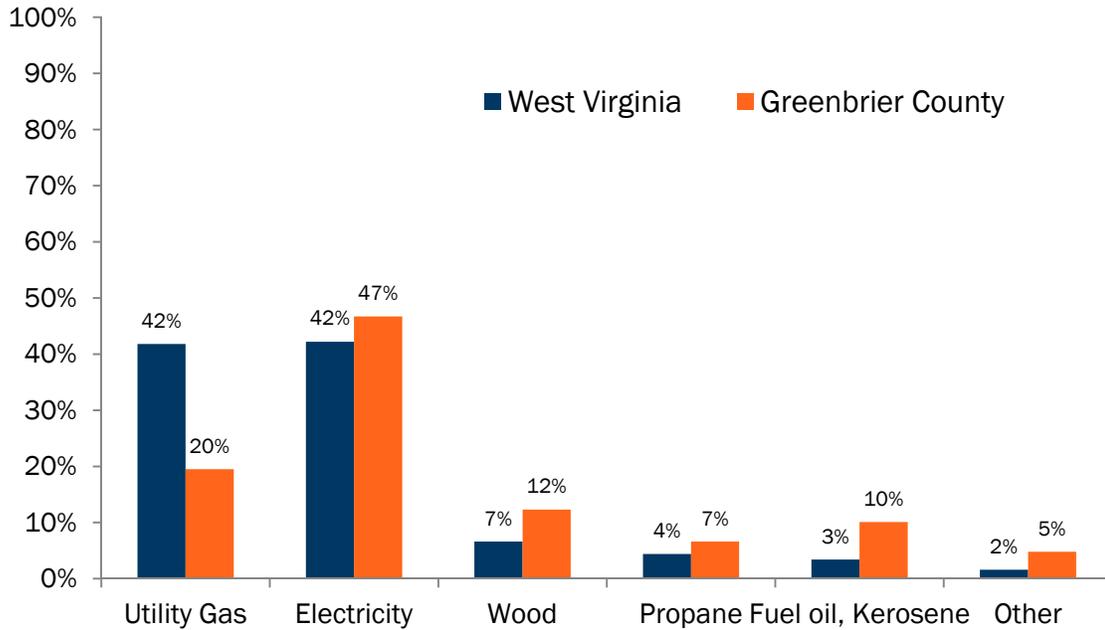
Sector	Average Annual Wage
Resources and Mining	\$59,974
Manufacturing	\$40,323
Government	\$35,973
Commercial	\$30,416
Construction	\$29,282
Weighted Average	\$32,718

Energy Profile

Residential, commercial, and municipal access to natural gas also is available in the larger towns. Homes in rural areas rely on wood, propane and fuel oil for heat. Overall residential natural gas usage in Greenbrier County is significantly lower than the rest of the state (See Figure 24).

⁵⁷ WorkForce WV. http://www.workforcewv.org/Imi/Earnings_N_Wages/EnW.html

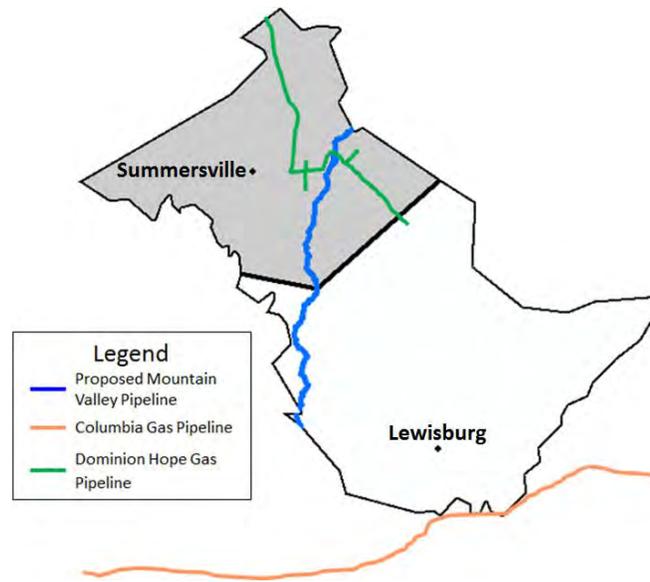
Figure 24 - Primary Space Heating Fuel Used in Greenbrier County versus the State, Percentage of Housing Units⁵⁸



The Mountain Valley pipeline is currently planned to traverse the western section of the county. Most the towns and businesses are in the Lewisburg area and toward the eastern border. The pipeline could bring natural gas supply to the western portion of the county, which could enable economic growth. See Figure 25 below.

⁵⁸ 2013 US Census Bureau 5 Year American Community Survey.

Figure 25 – Greenbrier County Natural Gas Pipeline Map



Outside of Lewisburg, The Greenbrier resort in White Sulphur Springs is one of the largest commercial consumers of electricity and natural gas in the county and the state. The complex includes 710 bedrooms, 9 restaurants and a casino. Due to its size, the resort buys its natural gas from wholesale marketing company. It then pays a transport charge to deliver the gas. Additional gas supply in Greenbrier County would be welcomed by the resort.

For the manufacturing sector in Greenbrier County, the primary fuel sources are electricity and natural gas. Natural gas is used mainly for heating. The manufacturing facilities are located where natural gas sources are available, so there is no fuel switching potential.

4. Harrison

Economic Profile

Harrison County is a 417 square-mile county located in north-central West Virginia with a population of approximately 69,000 and has a household count of approximately 27,900. The county has a strong economy. Its nominal GDP in 2013 was \$4.2 billion or \$60,900 per person.⁵⁹ The real GDP declined by 0.3% from 2013 to 2014⁶⁰ compared to the U.S. GDP real growth of 2.4%⁶¹ during the same time period. Additionally, the county unemployment rate was 5.2% in 2014, compared to 6.5% in West Virginia and 6.2% nationally.

Clarksburg is the largest town with a population of 16,360 and is also the county seat, followed by Bridgeport (pop. 8,149) and then Shinnston (pop. 2,186). Together these three towns and cities represent approximately 40% of the county's population.

The county counted 2,091 employers in 2013 with total employment of 34,881 or 16.7 employees per employer.⁶² A majority of the county employment is in the commercial and government sectors (86%). Approximately 6% of the County residents work in manufacturing as shown in Table 13.

Table 13 – Employment in Harrison County by Sector⁶³

Sector	Employment	Percent of Total Employment
Commercial	22,048	63%
Government	7,965	23%
Manufacturing	2,097	6%
Construction	1,702	5%
Resources and Mining	1,069	3%
Total	34,881	100%

In Harrison County, the economic impact of manufacturing jobs is clear. As Table 14 shows, manufacturing wages are the second highest across all job sectors in the county (\$57,944 per year) and are 35% higher than the average wage in the County.

⁵⁹ "County Tracker 2013 – Harrison County, WV," National Association of Counties, January 2014.

⁶⁰ Ibid.

⁶¹ <http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm>; file "gdp2q15_2nd.xls" Table 1 – Real Gross Domestic Product and Related Measures: Percent Change from Preceding Period.

⁶² WorkForce WP: http://www.workforcewv.org/lmi/Earnings_N_Wages/EnW.html; FTI analysis.

⁶³ Ibid.

Table 14– Annual Average Wages in Harrison County by Sector⁶⁴

Sector	Average Annual Wage
Resources and Mining	\$83,048
Manufacturing	\$57,944
Government	\$54,172
Construction	\$52,844
Commercial	\$34,899
Weighted Average	\$43,036

In Harrison County, manufacturing employs over 2,000 workers, representing 6% of the jobs in the county. The primary fuel sources for Harrison County manufacturers are electricity and natural gas. Below are some of the largest manufacturers in the county:

- **Aurora Flight Services:** the company develops and manufactures advanced unmanned systems and aerospace vehicles. In Bridgeport, the shop fabricates and assembles composites and metal aerostructures.
- **Bombardier Services Corporation:** The privately-held company does business in Bridgeport, WV, as the West Virginia Air Center, a modern, 125,000 square foot facility where it employs 400 people to perform airline maintenance, repair, and overhaul services.
- **EuropTec:** a manufacturer of acid etched anti-glare glass, EagleEtch®, and a specialist in glass processing and fabrication for the display industry. It employs approximately 60 people.
- **Graftech:** The privately-held company has a facility in Anmoore, WV, where it produces specialty carbon and graphite products through a baking process in natural gas-fired, high temperature ovens and electrically heated furnaces from raw materials consisting of petroleum coke and coal tar pitch.
- **Pratt & Whitney Engine Services (PWES):** The company provides aerospace and manufacturing jobs to 400 employees at its overhaul and repair facility in Bridgeport, WV. In 1988 and 1999, PWES expanded its operations by adding 123,000 square feet, bringing the overall size to 200,000 square feet. Additionally, in 1997, the Joint Primary Aircraft Training System (JPATS) Program began in Bridgeport. New JPATS engines are assembled and tested and the overhaul and repair of the engines are completed at the Bridgeport facility. These engines directly support the aircraft that are used to train new U.S. Air Force and Navy pilots.

⁶⁴ WorkForce WP: http://www.workforcewv.org/lmi/Earnings_N_Wages/EnW.html; FTI analysis.

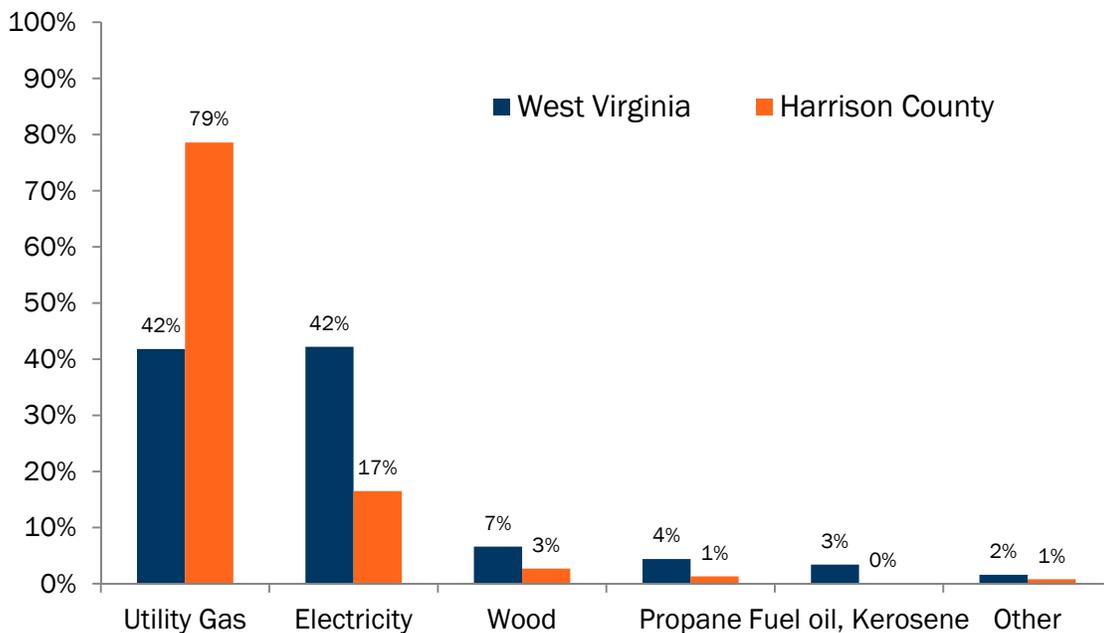
- Stockmeier Urethanes:** a German company that produces polyurethane products such as sport surfaces, weather-resistant elastomers for roofs, parking decks and trucks, structural adhesives, casting resins for cable, electrical and technical applications, and ancillary products such as cleaners and catalysts. The Clarksburg facility is a blending facility that employs approximately 15 people.

PWES, Bombardier, and Aurora are situated at the Mid-Atlantic Aerospace Complex located at the North Central West Virginia Airport, which is adjacent to I-279. The average annual salary for the 650 employees in the aerospace industry in Harrison County is \$72,000. This park has natural gas access provided by Dominion Hope.

Energy Profile

Natural gas is the main residential home heating sources for the county (see Figure 26). We understand that a large portion of households in populated areas use natural gas as their primary fuel source for home and water heating. Typically, commercial and municipal buildings follow the same pattern since natural gas as a fuel choice often is driven by accessibility. We confirmed that twenty-four schools in the Harrison County system are served by natural gas from Dominion Hope.

Figure 26 – Primary Space Heating Fuel Used in Harrison County versus the State, Percentage of Housing Units⁶⁵

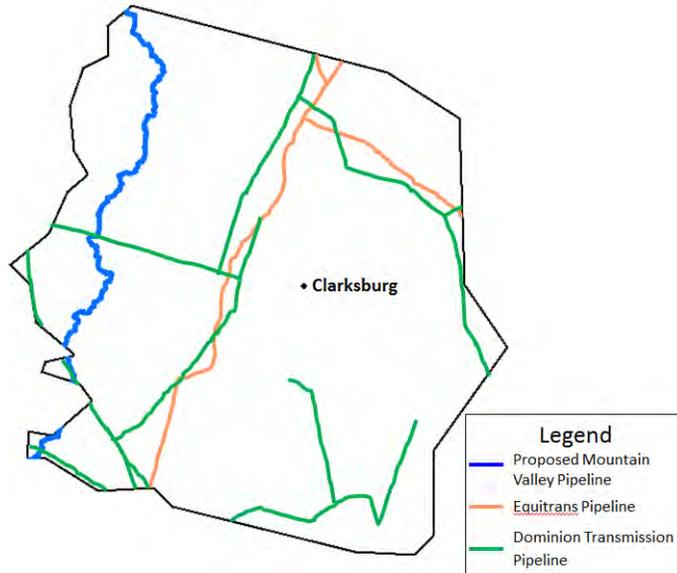


The residential, commercial, and municipal sectors could benefit significantly from the MVP pipeline as it would intersect the Dominion pipelines on the west side of the county as shown in Figure 27.

⁶⁵ 2013 US Census Bureau 5 Year American Community Survey

The MVP pipeline, if connected with this pipeline, could provide gas supply to Harrison County consumers as native production declines.

Figure 27 – Harrison County Natural Gas Pipeline Map



5. Lewis

Economic Profile

Lewis County is a 390 square-mile county located in north-central West Virginia at the crossroads of Interstate 79 and U.S. 33. It has a population of approximately 16,500 with a household count of approximately 6,900. The county has a strong economy. Its nominal GDP in 2014 was \$1.2 billion or \$72,939 per person.⁶⁶ The real GDP grew by 4.6% from 2013 to 2014⁶⁷ compared to the U.S. GDP real growth of 2.4%⁶⁸ during the same time period. Additionally, the county unemployment rate was 5.4% in 2014, compared to 6.5% in West Virginia and 6.2% nationally.

Weston is the county seat with a population of 4,110. There is also the small town of Jane Lew with a population of around 400. Together these areas represent approximately 27% of the county's population.

The county counted 482 employers in 2013 with total employment of 7,120 or 14.8 employees per employer.⁶⁹ A large portion of the county employment is in the commercial and government sectors (71%). Within Medical care for central West Virginians is today one of the county's chief sources of employment and income.⁷⁰

Resources and mining, the second largest sector, is focused completely on gas development, which has been a growth sector for the county. Approximately 3% of the County residents work in manufacturing as shown in Table 15.

Table 15 – Employment in Lewis County by Sector⁷¹

Sector	Employment	Percent of Total Employment
Commercial	3,647	51%
Resources and Mining	1,530	21%
Government	1,450	20%
Construction	270	4%
Manufacturing	223	3%
Total	7,120	100%

⁶⁶ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

⁶⁷ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

⁶⁸ <http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm>; file "gdp2q15_2nd.xls" Table 1 – Real Gross Domestic Product and Related Measures: Percent Change from Preceding Period.

⁶⁹ WorkForce WV: http://www.workforcewv.org/lmi/Earnings_N_Wages/EnW.html

⁷⁰ <http://www.wvencyclopedia.org/articles/1362>

⁷¹ WorkForce WP: http://www.workforcewv.org/lmi/Earnings_N_Wages/EnW.html

Viking Pools, which manufactures hot tubs, spas and whirlpool baths, represents the primary manufacturing employer in Lewis County. Tamarack Log Homes (which is classified as construction, but could be considered quasi-manufacturing) is another large employer. Both are located at the industrial park near the Jane Lew exit of I-79.

The annual average wages for the construction and manufacturing sectors in Lewis County range from \$41,200 to \$45,100 as shown in Table 16, which is around the average for the county and is well below the annual average salary of \$72,000 at the more high-end manufacturing facilities of Bombardier and Pratt & Whitney in Harrison County.

Table 16– Annual Average Wages in Lewis County by Sector⁷²

Sector	Average Annual Wage
Resources and Mining	\$77,305
Construction	\$45,087
Manufacturing	\$41,174
Government	\$35,641
Commercial	\$33,896
Weighted Average	\$44,231

The primary growth sector for Lewis County in recent years has been the oil and gas sub-sector under Resources and Mining. The county has become an operational hub for many companies involved in Marcellus Shale development. Companies such as Nexus Drilling, Chesapeake Energy, and Superior Well Services have expanded operations significantly, employing approximately 1,500 people or 20% of the workforce in the county. The average wage for oil and gas extraction employees in Lewis County has been ~\$77,300. It is worth noting that Lewis County now has the third lowest unemployment in the state after Monongalia and Jefferson counties.

This boon has been helpful in offsetting manufacturing decline. In 2013 Halliburton shut down their cement plant operations in Weston, WV, and moved it 150 miles away to Zanesville, OH. The company had employed approximately 75 people.

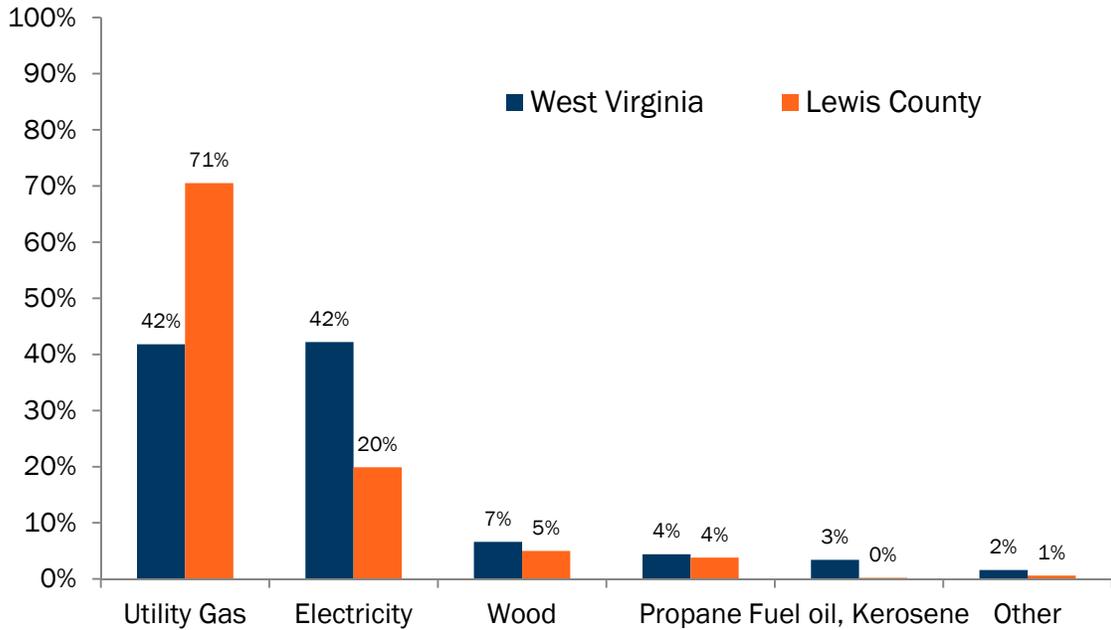
Energy Profile

Large quantities of oil and natural gas were found around 1900 in Lewis County, which created a manufacturing boom. The gas attracted several glass manufacturers to the county. Gas production is still a major part of the county's profile, and production continues in the Weston and Jane Lew areas.

⁷² WorkForce WP: http://www.workforcewv.org/lmi/Earnings_N_Wages/EnW.html; FTI analysis.

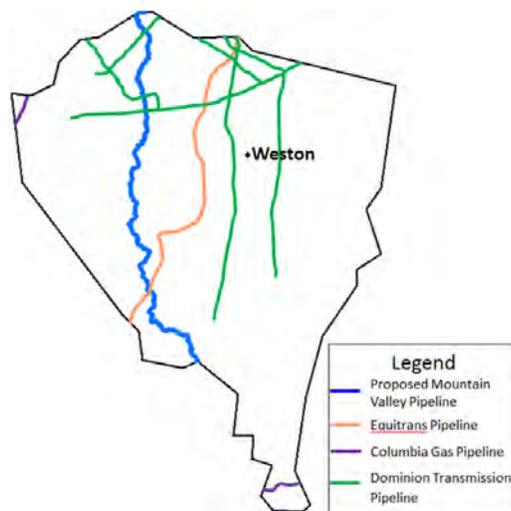
Due to native natural gas production, gas is the primary residential home heating source for the county as shown in Figure 28. Typically commercial and municipal buildings follow the same pattern since natural gas as a fuel choice often is driven by accessibility. Dominion Hope serves these towns.

Figure 28 – Primary Space Heating Fuel Used in Lewis County versus the State, Percentage of Housing Units⁷³



All economic sectors could benefit significantly from the MVP pipeline as it would overlap with the Equitrans and Dominion Pipelines as shown in Figure 29. The MVP pipeline, if connected, could provide additional gas supply to Lewis County consumers as native production declines.

Figure 29 – Lewis County Natural Gas Pipeline Map



⁷³ 2013 US Census Bureau 5 Year American Community Survey

6. Monroe

Economic Profile

Monroe County is a 474 square-mile county located in West Virginia with a population of 13,483. Its nominal GDP in 2014 was \$190 million or \$14,107 per person.⁷⁴ The county has had a relatively underperforming economy. The real GDP declined by 1.2% from 2013 to 2014⁷⁵ compared to the U.S. GDP real growth of 2.4%⁷⁶ during the same time period; however, the country unemployment rate was 5.6% in 2014, compared to 6.5% in West Virginia and 6.2% nationally.

Union is the county seat and has a population of 565, Alderson, which is 40 miles from Union, is the largest town with a population of 1,184. Peterstown, 25 miles from Union, has a population of 653. Together these three towns represent 18% of the county's population.

Monroe County is primarily a farming county, with a mix of livestock (cattle, dairy, and sheep) and crop farming (hay, corn, oats, wheat, and tobacco). Timber is also a major contributor to the economy.⁷⁷

The county counted 230 employers in 2013 with total employment of 1,888 or 8.2 employees per employer.⁷⁸ Monroe only has one major employer, UTC Aerospace, which represents approximately 21% of the jobs in the county (see Table 17).

Table 17 – Employment in Monroe County by Sector⁷⁹

Sector	Employment	Percent of Total Employment
Government	718	38%
Commercial	617	33%
Manufacturing	400	21%
Construction	111	6%
Resources and Mining	42	2%
Total	1,888	100%

⁷⁴ National Association of Counties. <http://www.uscounties.forg/countyTracker/index.html>

⁷⁵ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

⁷⁶ <http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm>; file "gdp2q15_2nd.xls" Table 1 – Real Gross Domestic Product and Related Measures: Percent Change from Preceding Period.

⁷⁷ <http://www.wvencyclopedia.org/articles/2024>

⁷⁸ Workforce WV. <http://www.workforcewv.org/lmi/EandWAnnual/ew13cnty025.html>.

⁷⁹ Workforce WV. <http://www.workforcewv.org/lmi/EandWAnnual/ew13cnty025.html>.

UTC, formerly Goodrich, is a global supplier of systems and services for the aerospace and defense industries and is located in Union. The facility is 140,000 square feet, and it is powered by a combination of electricity and natural gas. The other major employer in the county is M-Rock, which is a stone and brick designer and manufacturer in Peterstown, WV, and employs 25 people and has annual revenue of \$1M.

The manufacturing sector provides the highest average annual wage in Monroe County (see Table 18).

Table 18 – Annual Average Wages in Monroe County by Sector^{80,81}

Sector	Average Annual Wage
Manufacturing	\$50,000
Government	\$41,120
Construction	\$29,283
Resources and Mining	\$26,426
Commercial	\$20,959
Weighted Average	\$34,573

There are a number of county residents who work outside the county at The Greenbrier resort at White Sulphur Springs, the Celanese plant in Narrows, Virginia, and MeadWestvaco plant in Covington, Virginia.⁸²

Energy Profile

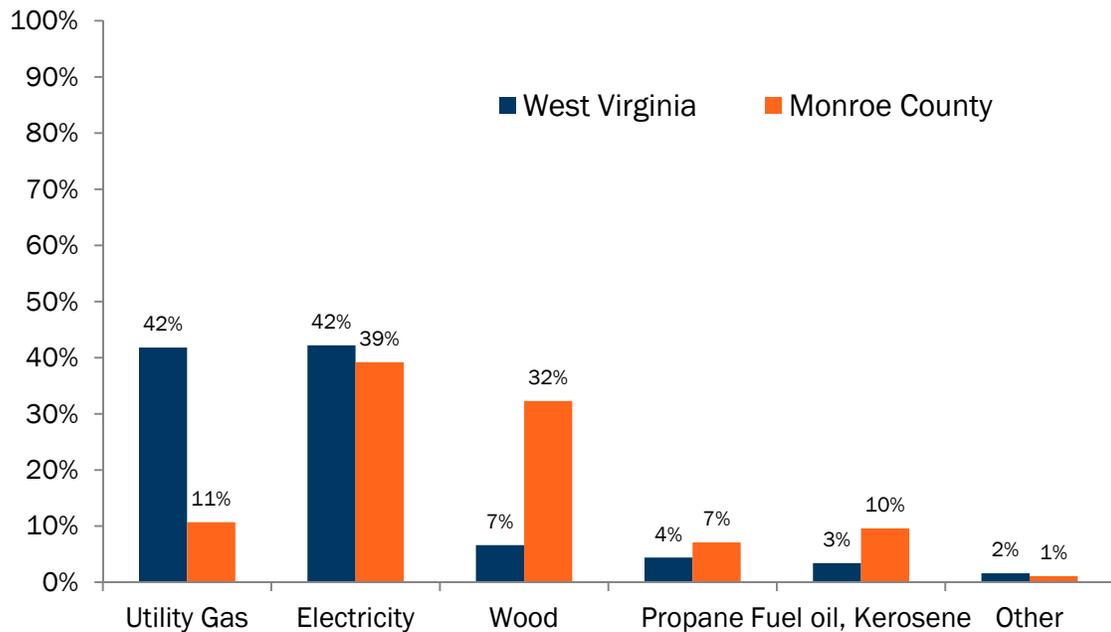
Electricity and wood are the main residential home heating sources for the county (see Figure 30). Typically, commercial and municipal buildings follow the same pattern since fuel choice often is driven by accessibility so there is ample opportunity for switching to natural gas with potential access in the county. Monroe only has natural gas service in the small towns of Union and Petersburg.

⁸⁰ Workforce WV. <http://www.workforcewv.org/Imi/EandWAnnual/ew13cnty025.html>.

⁸¹ We assumed \$50,000 for the UTC manufacturing facility in Monroe that employs approximately 400 people because data for UTC was not available. This is a conservative assumption, relative to the \$72,000 average wage for aerospace jobs in Harrison County.

⁸² <http://www.wvencyclopedia.org/articles/2024>

Figure 30 – Primary Space Heating Fuel Used in Monroe County versus the State, Percentage of Housing Units⁸³



While there is a Columbia Gas pipeline that runs east-west through the county, most of the communities in the county do not have gas access or have very limited gas access.⁸⁴ It is possible that the residential, commercial, and municipal sectors could benefit significantly from the MVP pipeline as it would intersect with the Columbia Gas Pipeline on the west side of the county as shown in Figure 31.

The MVP pipeline could provide access to existing manufacturers if connected to the existing Columbia Gas pipeline.

Two of the schools in the county are heated using natural gas. The other two schools, both located in Peterstown, are heated using electricity. They are within the service area for natural gas, but they are older buildings that have always used electricity.

⁸³ 2013 US Census Bureau 5 Year American Community Survey

⁸⁴ Interviews with Monroe county officials indicated that part of Peterson is served by Mountaineer and that other towns likely do not have gas access.

Figure 31 – Monroe County Pipelines – Existing and Proposed



7. Nicholas

Economic Profile

Nicholas County is a 654 square-mile county located in the center of West Virginia. It has a population of approximately 26,000. The county has had an underperforming economy. Its nominal GDP in 2014 was \$937 million or \$36,072 per person.⁸⁵ The real GDP grew by 1.4% from 2013 to 2014⁸⁶ compared to the U.S. GDP real growth of 2.4%⁸⁷ during the same time period. Additionally, the county unemployment rate has been high – 9.0% in 2014 compared to 6.5% in West Virginia and 6.2% nationally.⁸⁸

Summersville is the largest town with a population of 3,572 and is also the county seat. Richwood, 25 miles to the east, has a population of 2,051. Together these two towns represent approximately 20% of the county's population.

The county counted 711 employers in 2013 with total employment of 7,983 or 11.2 employees per employer.⁸⁹ A large portion of the county employment is in the commercial and government sectors (79%) as shown in Table 19.

Table 19 – Employment in Nicholas County by Sector⁹⁰

Sector	Employment	Percent of Total Employment
Commercial	4,539	57%
Government	1,746	22%
Manufacturing	741	9%
Resources and Mining	700	9%
Construction	257	3%
Total	7,983	100%

Approximately 9% of the County residents work in manufacturing. Below are the largest manufacturers in the county:

⁸⁵ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

⁸⁶ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

⁸⁷ <http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm>; file “gdp2q15_2nd.xls” Table 1 – Real Gross Domestic Product and Related Measures: Percent Change from Preceding Period.

⁸⁸ Bureau of Labor Statistics

⁸⁹ Workforce WV. <http://www.workforcewv.org/lmi/EandWAnnual/ew13cnty025.html>.

⁹⁰ Workforce WV. <http://www.workforcewv.org/lmi/EandWAnnual/ew13cnty025.html>.

- **B/E Aerospace:** the company is a manufacturer of aircraft cabin interior products and a leading provider of aerospace fasteners, consumables, and logistics services. This is a global company with its De-Icing Systems location in Fenwick, WV. The facility employs approximately 160 people.
- **Columbia Forest Products:** the company is North America’s largest manufacturer of hardwood plywood and hardwood veneer products, with a manufacturing location in Craigsville, WV. The facility employs approximately 380 people.

Together, Columbia Wood Products and B/E Aerospace the companies employ approximately 70% of those employed in the county’s manufacturing sector.

Manufacturing has had a significant economic impact In Nicholas County. As Table 20 shows, manufacturing wages are the second highest across all job sectors in the county (\$46,434 per year) and are 30% higher than the average wage in the County.

Table 20 – Annual Average Wages in Nicholas County by Sector⁹¹

Sector	Average Annual Wage
Resources and Mining	\$70,155
Manufacturing	\$46,434
Government	\$39,355
Construction	\$34,554
Commercial	\$27,133
Weighted Average	\$35,609

Outside of the manufacturing sector, Nicholas County is known for economic resources including bituminous coal, limestone quarries, timber, fruit farms, tobacco, and livestock.⁹²

Within the residential, commercial, and municipal sectors, we identified a few fuel switching opportunities. Two schools use coal boilers for space heating and water heating, and one school uses propane.

⁹¹ Workforce WV. <http://www.workforcewv.org/lmi/EandWAnnual/ew13cnty025.html>.

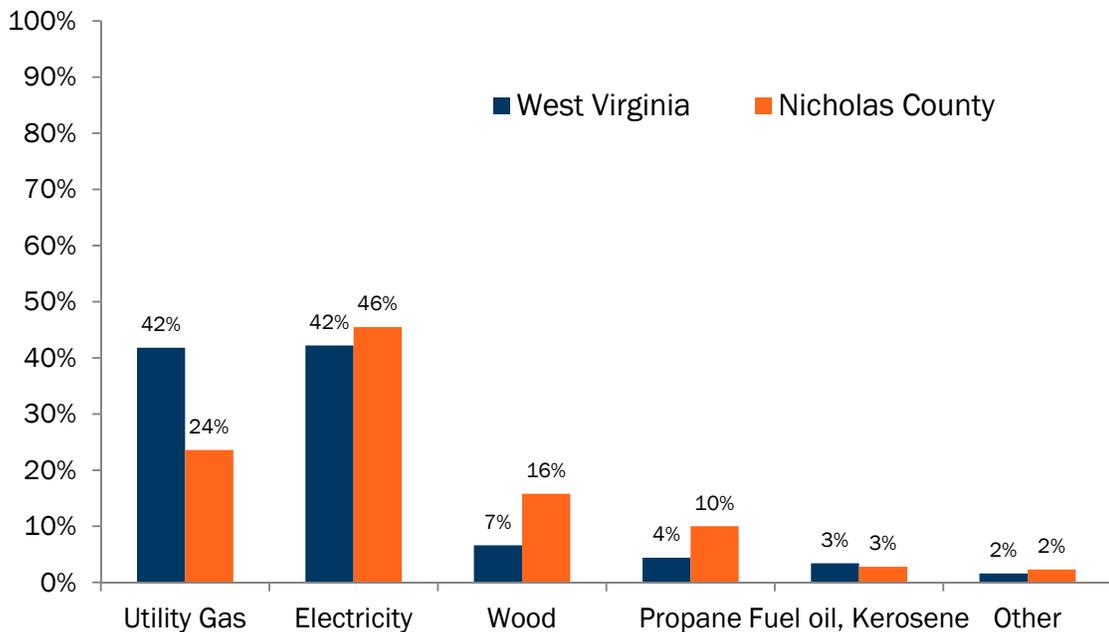
⁹² <http://www.wvencyclopedia.org/articles/1670>

Energy Profile

There is a surprising amount of gas accessibility in Nicholas County given its low population density. The gas source for Summersville and Richwood is from West Virginia gas production wells (native supply).

Electricity is the main residential home heating source for the county as shown in Figure 32, and it is mainly used a heating source outside of Summersville and Richwood. It is worth noting that Nicholas County is home to the Summersville Hydroelectric Project – an 80 MW hydro plant that generates 220 gigawatt hours annually.

Figure 32 – Primary Space Heating Fuel Used in Nicholas County versus the State, Percentage of Housing Units⁹³



Within Summersville and Richwood, a large portion of households use natural gas as their primary fuel source for home and water heating. Typically, commercial and municipal buildings follow the same pattern since natural gas as a fuel choice often is driven by accessibility. Dominion Hope is the utility serving these towns.

The residential, commercial, and municipal sectors could benefit significantly from the MVP pipeline as it would intersect with the Dominion Hope pipeline near the center of the county as shown in Figure 33. The MVP pipeline, if connected with these pipelines, could provide additional gas supply to Nicholas County consumers as native production declines.

⁹³ 2013 US Census Bureau 5 Year American Community Survey.

Figure 33 – Nicholas County Natural Gas Pipeline Map



For the manufacturing sector, the primary fuel source is electricity with some natural gas used for process heat and steam.

8. Summers

Economic Profile

Summers County is a 368 square-mile county located in south-east West Virginia with a population of 13,563 and has a household count of approximately 5,500. Its nominal GDP in 2014 was \$221 million or \$16,316 per person.⁹⁴ The real GDP shrunk by 1.9% from 2013 to 2014⁹⁵ compared to the U.S. GDP real growth of 2.4%⁹⁶ during the same time period. Additionally, the county unemployment rate was 7.4% in 2014, compared to 6.5% in West Virginia and 6.2% nationally.

Hinton is the county seat and largest city with a population of 2,676 and represents 20% of the county population.

Summers has been challenged with economic growth, starting in the 1950s when a combination of factors led to the decline of the local economy. These factors included technology changes in coal mining, the depletion of older mines, no viable local manufacture of coking coal, and the replacement of the coal-fired locomotives with diesel-fired locomotives.

Other economic challenges in Summers County include terrain and infrastructure. Summers County is a mountainous county. The flat areas, where manufacturers would want to locate, typically are along the rivers and are considered flood plains. For infrastructure, there is no interstate highway that runs through the county, which has limited the county's development. There is, though, the main rail line for CSX that runs from Chicago to Washington, D.C. It runs through Hinton and then Alderson.

The county counted 193 employers in 2013 with total employment of 2,091 or 10.8 employees per employer.⁹⁷ A large portion of the county employment is in the commercial and government sectors (93%). Approximately 1% of the County residents work in manufacturing as shown in Table 21.

Table 21 – Employment in Summers County by Sector⁹⁸

Sector	Employment	Percent of Total Employment
Commercial	1,174	56%
Government	779	37%
Construction	83	4%
Resources and Mining	32	2%
Manufacturing	23	1%
Total	2,091	100%

⁹⁴ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

⁹⁵ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

⁹⁶ <http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm>; file "gdp2q15_2nd.xls" Table 1 – Real Gross Domestic Product and Related Measures: Percent Change from Preceding Period.

⁹⁷ WorkForce WV: http://www.workforcewv.org/Imi/Earnings_N_Wages/EnW.html

⁹⁸ WorkForce WV: http://www.workforcewv.org/Imi/Earnings_N_Wages/EnW.html

Summers County has a small manufacturing sector. The annual average wages for the manufacturing sector is \$21,593 as shown in Table 22, which is lower than the average for the county.

Table 22– Annual Average Wages in Summers County by Sector⁹⁹

Sector	Average Annual Wage
Construction	\$39,293
Commercial	\$27,955
Government	\$27,695
Manufacturing	\$21,593
Resources and Mining	\$18,176
Weighted Average	\$28,089

The planned route of the MVP pipeline in the northeastern portion of the county is near Alderson, which is just outside the county on the border of Monroe and Greenbrier counties. Alderson is 5.5 miles from the planned route, and the intersection of the pipeline path and existing rail infrastructure could enable some manufacturing development in the northeastern part of the county.

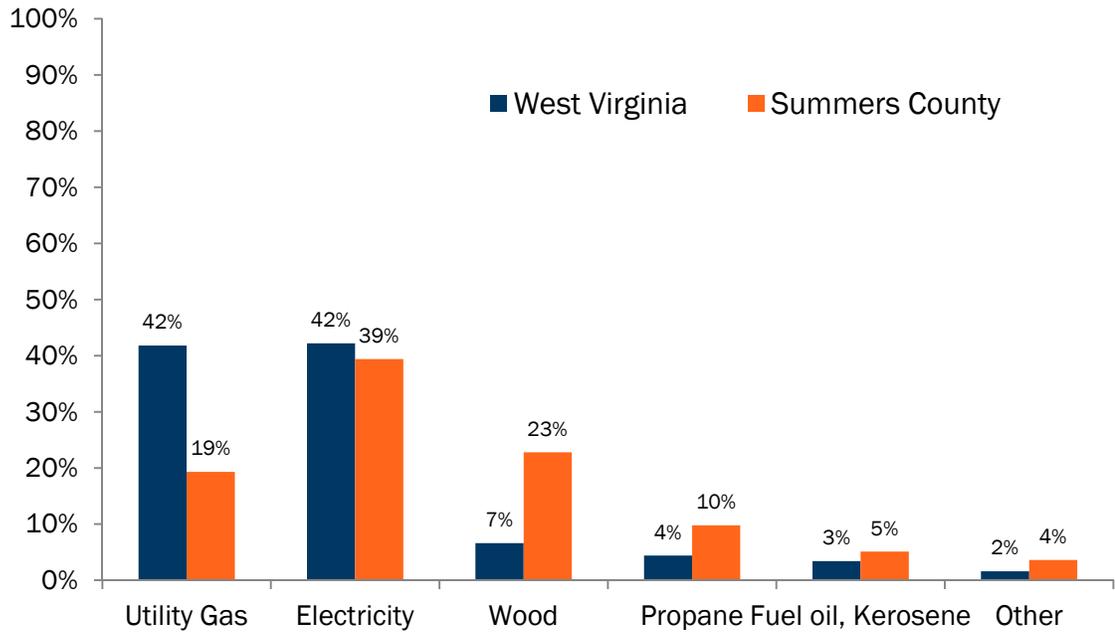
Energy Profile

Summers County has limited amounts of natural gas production and this production has been declining over the years.¹⁰⁰ Electricity is the primary residential home heating source for the county as shown in Figure 34. Mountaineer Gas serves the town of Hinton via the interstate Columbia Gas line, but other parts of the county do not have access to natural gas.

⁹⁹ WorkForce WP: http://www.workforcewv.org/lmi/Earnings_N_Wages/EnW.html; FTI analysis.

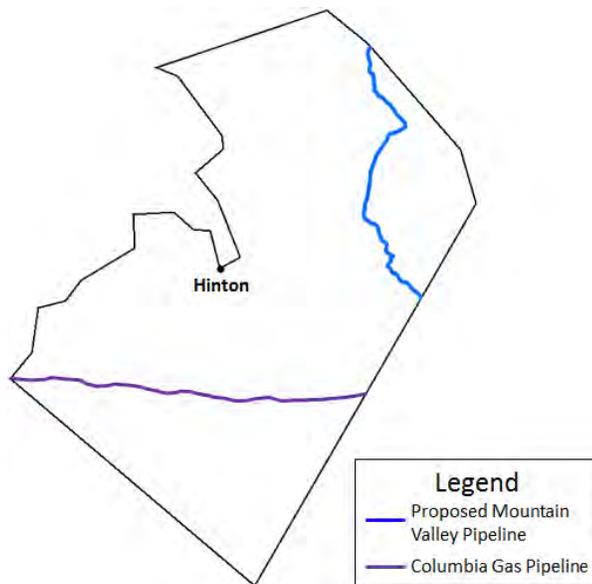
¹⁰⁰ <http://www.drillingedge.com/west-virginia/summers-county>

Figure 34 – Primary Space Heating Fuel Used in Summers County versus the State, Percentage of Housing Units¹⁰¹



All sectors could benefit from the MVP. The pipeline could give access to the developing portions of the northeastern part of the county near Alderson (Figure 35). Alderson sits outside the county and straddles Monroe and Greenbrier Counties. Alderson is provided gas via the Columbia Gas pipeline with which the MVP project would intersect in Monroe County.

Figure 35 – Summers County Natural Gas Pipeline Map



¹⁰¹ 2013 US Census Bureau 5 Year American Community Survey.

9. Webster

Economic Profile

Webster County is a 556 square-mile county located in the center of West Virginia. It has a population of approximately 8,900 and has a household count of approximately 5,200. The county has had an underperforming economy. Its nominal GDP in 2013 was \$297 million or \$33,000 per person.¹⁰² The real GDP increased by 2.8% from 2013 to 2014¹⁰³ compared to the U.S. GDP real growth of 2.4%¹⁰⁴ during the same time period. Additionally, the county unemployment rate has been high – 11.3% in 2014 compared to 6.5% in West Virginia and 6.2% nationally.

Webster Springs is the largest town with a population of 776 and is also the county seat. Cowen is the second largest town in the county with a population of 541. Together these towns represent approximately 15% of the county's population.

Overall, the economic development in the county has been scattered. There is no major interstate that runs through the county. As such, infrastructure is primarily available along the Route 20 corridor, which runs from Camden-on-Gauley in the southern part of the county through, Cowen, Webster Springs, nearby Diana, and Cleveland on the northern part of the county.

Webster County has also been limited in terms of usable land for large commercial or manufacturing development. The Monongahela National Forest occupies the southeastern part of the county and Holly River State Park is located in the north of the county. Together, these parks consume about one-third of the county's acreage. The majority of useable raw land is located in the southwestern part of the county where post-mining land sites present possible development opportunities.

The county counted 198 employers in 2013 with total employment of 1,919 or 10 employees per employer.¹⁰⁵ The commercial and government sectors represent 69% of the employment in the county. Tourism represents a large portion of the commercial sector. Another 19% of the employment within the county is in the resources and mining sector, which comprises mainly timber production and coal mining. About 9% of the County residents work in manufacturing (see Table 23).

¹⁰² National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

¹⁰³ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

¹⁰⁴ <http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm>; file "gdp2q15_2nd.xls" Table 1 – Real Gross Domestic Product and Related Measures: Percent Change from Preceding Period.

¹⁰⁵ WorkForce WV: http://www.workforcewv.org/lmi/Earnings_N_Wages/EnW.html

Table 23 – Employment in Webster County by Sector¹⁰⁶

Sector	Employment	Percent of Total Employment
Commercial	775	40%
Government	566	29%
Resources and Mining	373	19%
Manufacturing	181	9%
Construction	24	1%
Total	1,919	100%

Wood and lumber product manufacturing has a large presence in Webster. Allegheny Wood Products produces oriented strand board for the construction industry. Other companies include Northwest Hardwoods and the Jim C Hamer Company. Table 24 shows the average annual salary by sector.

Table 24 – Annual Average Wages in Webster County by Sector¹⁰⁷

Sector	Average Annual Wage
Resources and Mining	\$71,228
Government	\$35,894
Manufacturing	\$29,523
Construction	\$29,151
Commercial	\$23,815
Weighted Average	\$37,199

Cowen represents the best opportunity for Webster County to benefit from manufacturing and commercial development derived from the MVP project for the following reasons:

- The proposed MVP pipeline would be nearby (1.2 miles away)
- There are large tracts of usable land for commercial or manufacturing development
- The town has rail service

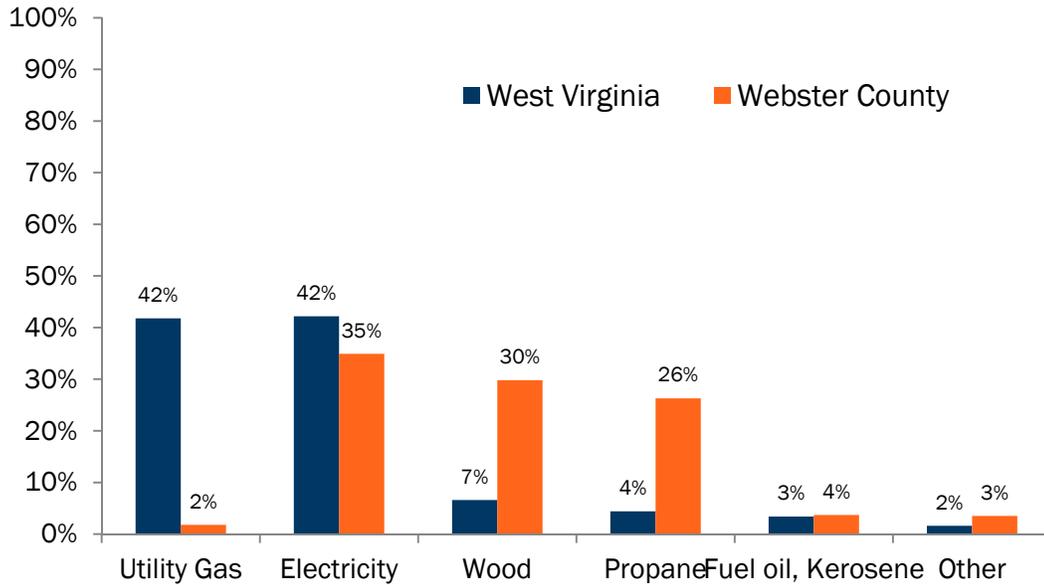
¹⁰⁶ WorkForce WV: http://www.workforcewv.org/lmi/Earnings_N_Wages/EnW.html

¹⁰⁷ WorkForce WV: http://www.workforcewv.org/lmi/Earnings_N_Wages/EnW.html; FTI analysis.

Energy Profile

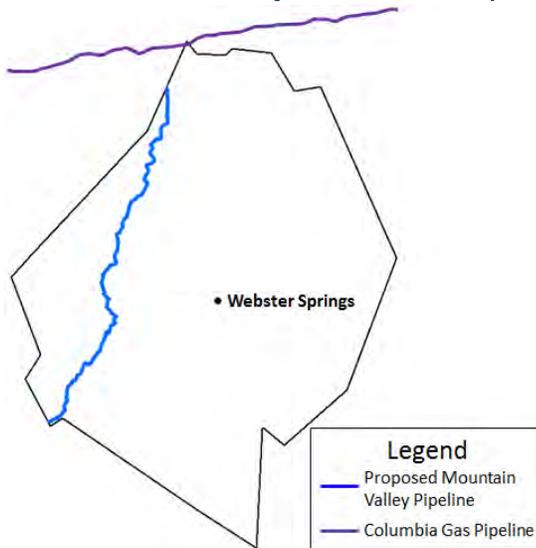
Currently there is no gas service in the county. Electricity, wood, and propane are the main residential home heating sources for the county as shown in Figure 36.

Figure 36 - Primary Space Heating Fuel Used in Webster County versus the State, Percentage of Housing Units¹⁰⁸



All sectors, particularly in Cowen and Camden-on-Gauly, could benefit from the MVP pipeline as it would run through the western part of the county (Figure 37).

Figure 37 - Webster County Natural Gas Pipeline Map



¹⁰⁸ 2013 US Census Bureau 5 Year American Community Survey.

10. Wetzel

Economic Profile

Wetzel County is a 361 square-mile county located in northern West Virginia. It has a population of approximately 16,200 with a household count of approximately 6,900. Its nominal GDP in 2013 was \$435 million or \$26,833 per person.¹⁰⁹ The real GDP declined by 1.4% from 2013 to 2014¹¹⁰ compared to the U.S. GDP real growth of 2.4%¹¹¹ during the same time period, although real GDP in Wetzel had grown by 10% the previous year. Additionally, the county unemployment rate has been high – 9.6% in 2014 compared to 6.5% in West Virginia and 6.2% nationally.

New Martinsville is the county seat with a population of 5,300. There is also Paden City with a population of more than 2,500, although the city is split between Wetzel County and Tyler County to the southwest. Together these cities represent approximately 40% of the county's population.

The economic development in the county is diverse. While no large industry is located within the county, many residents work at the nearby Bayer Corporation, PPG Industries (Natrium Plant near New Martinsville) or Ormet Aluminum Corporation. A commerce park is located in New Martinsville which serves as the hub of business activity for the region.

The county counted 419 employers in 2013 with total employment of 4,633 or 11 employees per employer.¹¹² A large portion of the county employment is in the commercial and government sectors (85%). The Wetzel County Board of Education employs more than 450 workers, and is the largest employer in the county. Only 3% of the County residents work in manufacturing (see Table 25).

Table 25 – Employment in Wetzel County by Sector¹¹³

Sector	Employment	Percent of Total Employment
Commercial	2,827	61%
Government	1,129	24%
Construction	424	9%
Manufacturing	130	3%
Resources and Mining	123	3%
Total	4,633	100%

¹⁰⁹ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

¹¹⁰ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>.

¹¹¹ <http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm>; file “gdp2q15_2nd.xls” Table 1 – Real Gross Domestic Product and Related Measures: Percent Change from Preceding Period.

¹¹² WorkForce WV: http://www.workforcewv.org/lmi/Earnings_N_Wages/EnW.html

¹¹³ WorkForce WP: http://www.workforcewv.org/lmi/Earnings_N_Wages/EnW.html

Natural gas is important to the county's economic growth. The resources and mining sector (primarily composed of oil and gas sub-sector) has an average annual wage of almost \$74,000 or 2.5 times more than the average county wage rate as shown in Table 26.

Table 26 – Annual Average Wages in Wetzel County by Sector¹¹⁴

Sector	Average Annual Wage
Resources and Mining	\$73,791
Construction	\$47,834
Government	\$34,831
Manufacturing	\$33,630
Commercial	\$23,223
Weighted Average	\$29,939

The drilling activity in Wetzel has led to a boom in government revenue with a large increase in tax revenue. Local property tax revenue has nearly tripled since 2005 with significant increases to severance tax revenue as well.¹¹⁵

Currently, most of the gas development jobs have gone to out-of-state workers where the industry is more developed and workers are more experienced. Wetzel County could benefit significantly by transitioning out-of-state workers to be re-located within the county. This would provide additional disposable income within the counties borders.

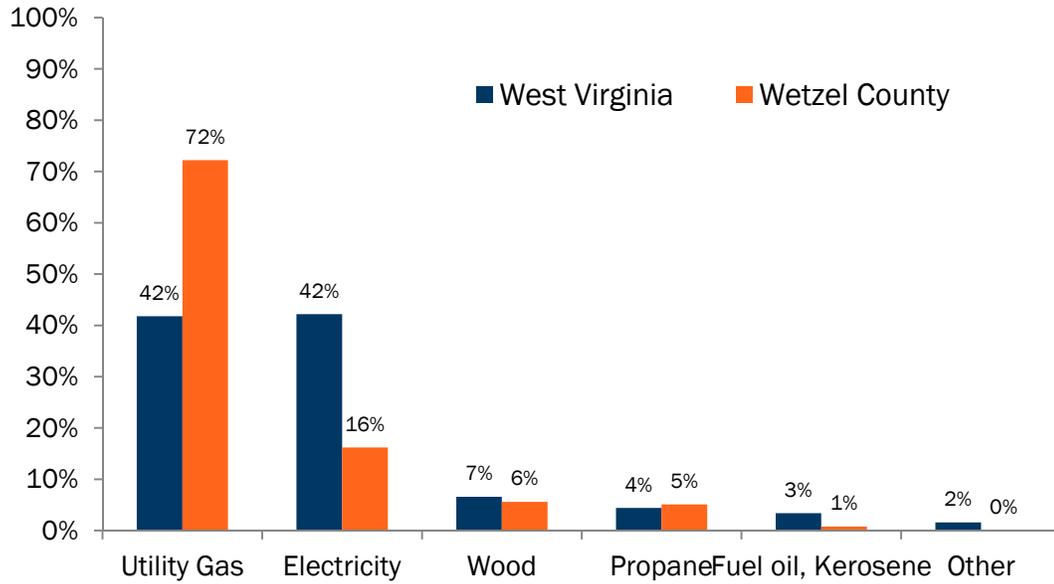
Energy Profile

Oil and gas exploration and development began with the drilling of the first gas well in Hundred in 1886. Oil and gas wells were also developed in Pine Grove, Smithfield, Folsom, and Proctor. Many of these wells continue to be active today. Due to native natural gas production, gas is the primary residential home heating source for the county as shown in Figure 38. Typically commercial and municipal buildings follow the same pattern since natural gas as a fuel choice often is driven by accessibility. Mountaineer Gas Company serves New Martinsville while Dominion Hope serves the rest of Wetzel County.

¹¹⁴ WorkForce WP: http://www.workforcewv.org/Imi/Earnings_N_Wages/EnW.html; FTI analysis.

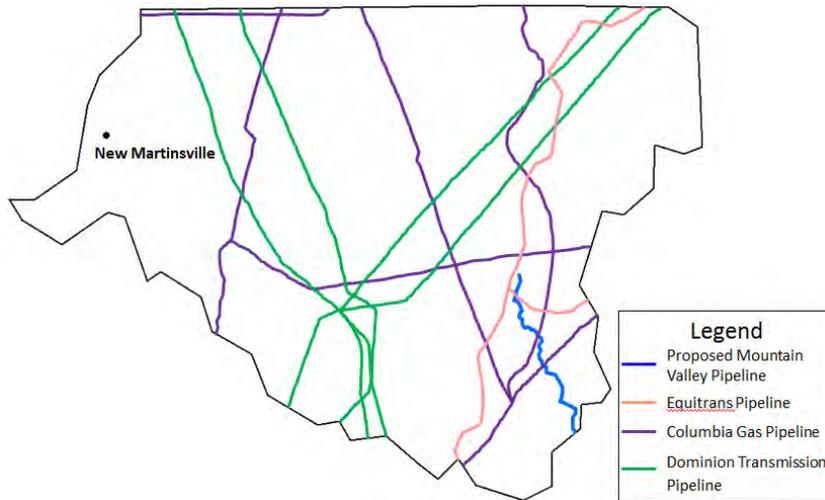
¹¹⁵ <http://www.wvpolicy.org/wp-content/uploads/2014/04/Impacts-of-Drilling-in-Wetzel-County.pdf>

Figure 38 – Primary Space Heating Fuel Used in Wetzel County versus the State, Percentage of Housing Units¹¹⁶



The residential, commercial, and municipal sectors could benefit significantly from the MVP pipeline as it would intersect the Columbia Gas and Equitrans pipelines in the southeastern part of the county, as shown in Figure 39. The MVP pipeline, if connected with these pipelines, could provide gas supply to additional Wetzel County consumers.

Figure 39 – Wetzel County Natural Gas Pipeline Map



It is worth noting that New Martinsville has its own electricity generating plant – the hydroelectric facility at Hannibal locks and dam – which produces 37 megawatts.¹¹⁷

¹¹⁶ 2013 US Census Bureau 5 Year American Community Survey.

11. Fayette

Economic Profile

Fayette County is a 668 square-mile county located in the center of West Virginia. It has a population of approximately 45,600 with a household count of approximately 17,000. Its nominal GDP in 2013 was \$1.3 billion or \$28,500 per person.¹¹⁸ The real GDP grew by 0.9% from 2013 to 2014¹¹⁹ compared to the U.S. GDP real growth of 2.4%¹²⁰ during the same time period. The county unemployment rate is higher than average – 7.7% in 2014 compared to 6.5% in West Virginia and 6.2% nationally.

Fayetteville is the county seat with a population of 2,900. Oak Hill is the largest city in the county, with a population of 7,700.

The economy of Fayette is diverse. It historically has been a coal mining area, and Kingston Mining is still one of its largest employers. The largest manufacturer is WVA Manufacturing in Alloy, a joint venture between Globe Specialty Metals and Dow Corning, which produces silicon metals. Fayette County also is home to the state's only maximum security prison, Mount Olive Correctional Complex.

The county counted 1,000 employers in 2013 with total employment of 11,525 or 11.5 employees per employer.¹²¹ A large portion of the county employment is in the commercial and government sectors (87%). The Fayette County Board of Education is the largest employer in the county. Only 4% of the County residents work in manufacturing (Table 27).

Table 27 – Employment in Fayette County by Sector¹²²

Sector	Employment	Percent of Total Employment
Commercial	6,806	59%
Government	3,233	28%
Resources and Mining	663	6%
Manufacturing	478	4%
Construction	345	3%
Total	11,525	100%

¹¹⁷ <http://www.wvencyclopedia.org/articles/1158>

¹¹⁸ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

¹¹⁹ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>.

¹²⁰ <http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm>; file “gdp2q15_2Nd.xlsx” Table 1 – Real Gross Domestic Product and Related Measures: Percent Change from Preceding Period.

¹²¹ WorkForce WV: http://www.workforcewv.org/lmi/Earnings_N_Wages/EnW.html

¹²² WorkForce WP: http://www.workforcewv.org/lmi/Earnings_N_Wages/EnW.html

While the manufacturing sector in Fayette County is relatively small, the average wages are high, As Table 28 shows, manufacturing wages are the second highest across all job sectors in the county (\$55,999 per year) and are 59% higher than the average wage in the County.

Table 28 – Annual Average Wages in Fayette County by Sector¹²³

Sector	Average Annual Wage
Resources and Mining	\$77,720
Manufacturing	\$55,999
Government	\$36,252
Construction	\$32,852
Commercial	\$29,285
Weighted Average	\$35,285

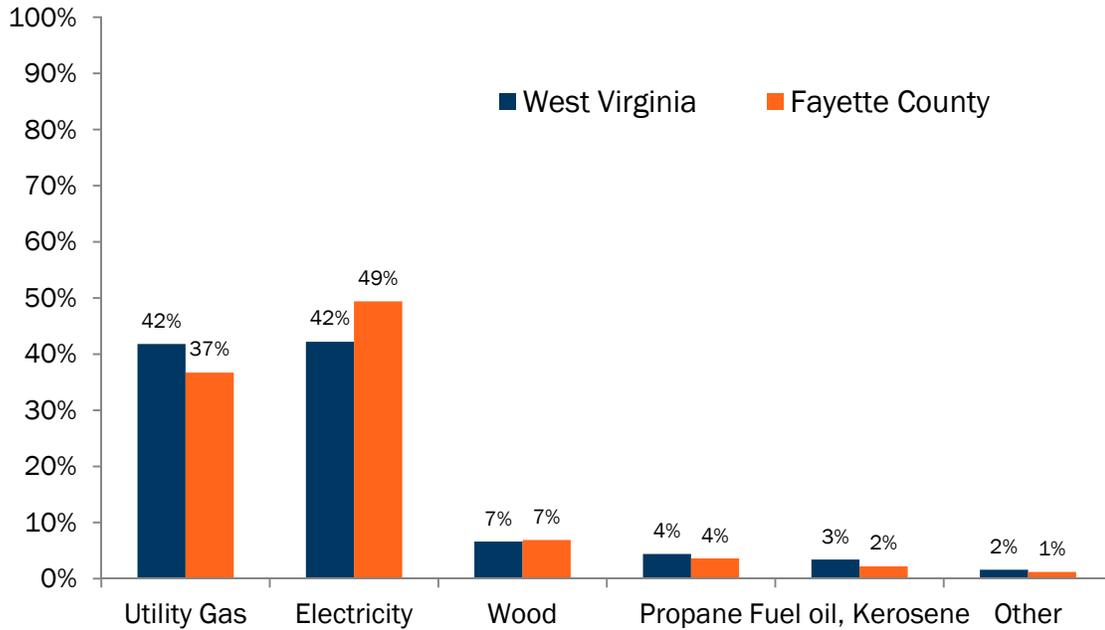
The Resources and Mining sector has the highest wages in the county, representing the historically strong coal mining industry in Fayette.

Energy Profile

There is a significant amount of gas accessibility in Fayette County. Natural gas and electricity are the main residential home heating sources for the county as shown in Figure 40. Typically, commercial and municipal buildings follow the same pattern since natural gas as a fuel choice often is driven by accessibility. Natural gas usage in Fayette County is just below the average for the entire state of West Virginia. Dominion Hope serves the county with natural gas.

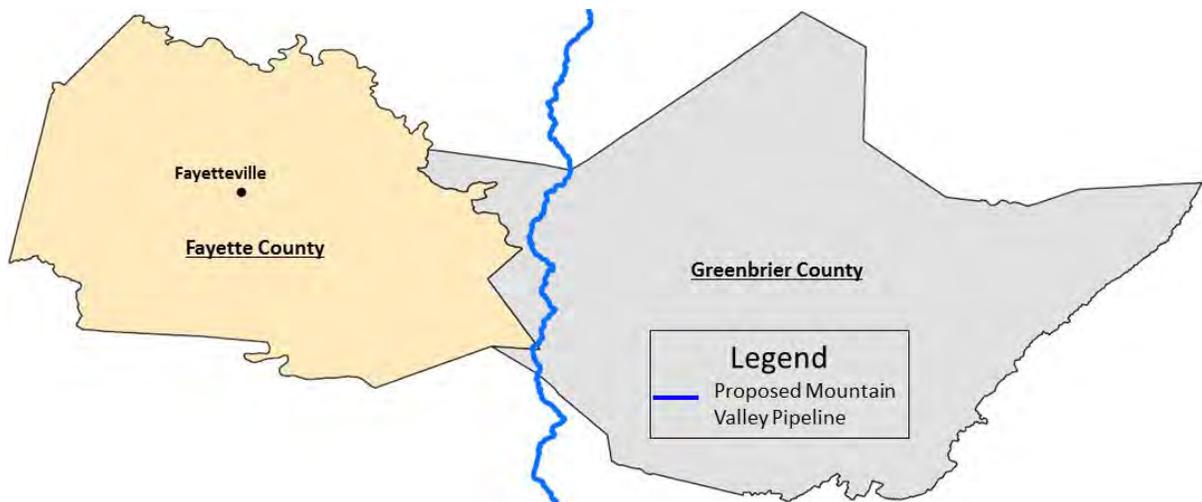
¹²³ WorkForce WP: http://www.workforcewv.org/Imi/Earnings_N_Wages/EnW.html; FTI analysis.

Figure 40 – Primary Space Heating Fuel Used in Fayette County versus the State, Percentage of Housing Units¹²⁴



The Mountain Valley pipeline is currently planned to traverse the eastern border of the county. Most the towns and businesses are in the central part of the county. The pipeline could expand natural gas supply to the eastern portion of the county, which could enable economic growth in that area (Error! Reference source not found.Figure 41).

Figure 41 – Fayette County Natural Gas Pipeline Map



¹²⁴ 2013 US Census Bureau 5 Year American Community Survey.



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ECONOMIC BENEFITS OF THE MOUNTAIN VALLEY PIPELINE PROJECT IN VIRGINIA

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Special thanks to the research and analytical contributions of Drew Ernest and Patricia Hogan

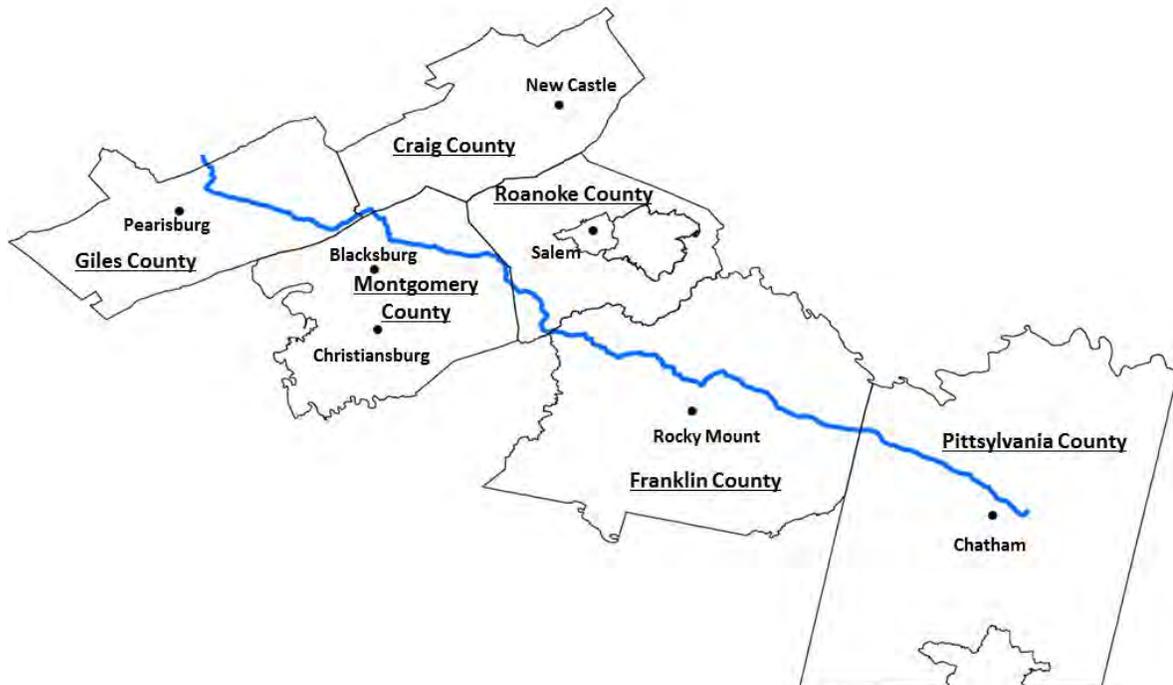
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Executive Summary

EQT Corporation retained FTI Consulting (“FTI”) to examine the potential economic benefits of the Mountain Valley Pipeline (“MVP”) project to the Commonwealth of Virginia and the six counties through which the project is proposed. The MVP is a natural gas pipeline that will traverse approximately 300 miles across West Virginia and Virginia, including the Virginia counties of Craig, Franklin, Giles, Montgomery, Pittsylvania, and Roanoke, as shown below in Figure 1.

Figure 1 – Proposed Mountain Valley Pipeline through Virginia



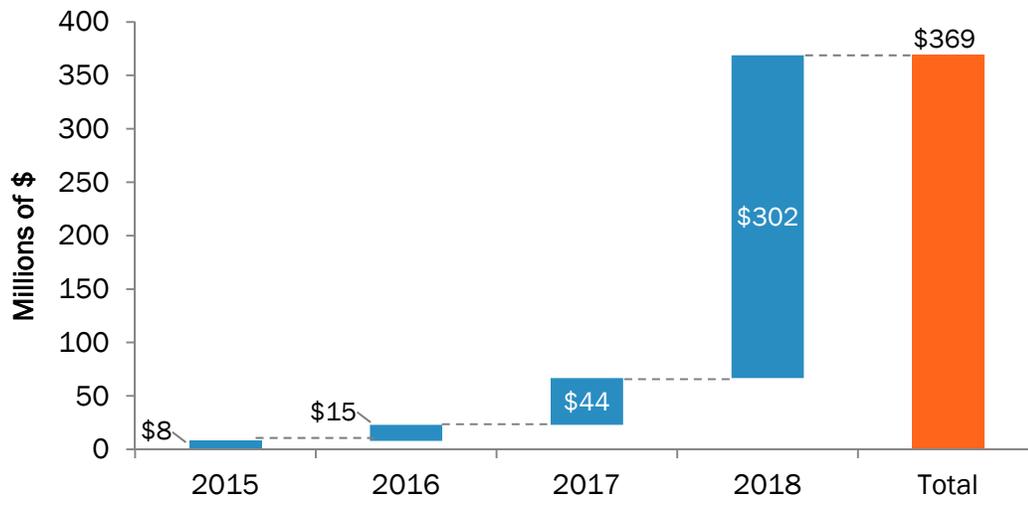
Three types of economic benefits would occur from the construction and operation of the MVP project. These benefits include:

- **Construction Spending Benefits:** Expenditures on goods and services in the Commonwealth would translate into job creation along with economic benefits to Virginia suppliers, their employees, and the overall economy.
- **Operational Benefits:** Once in service, the project would require a skilled workforce to operate and maintain the pipeline. Also, it would generate annual property tax revenues for the counties, providing an additional stream of funds.
- **Direct-Use Benefits:** The Commonwealth and counties would benefit from the potential direct use of gas from the MVP project. The project would enhance gas service already available, help enable new gas service, and expand opportunities for commercial and manufacturing activities.

Construction Spending Benefits

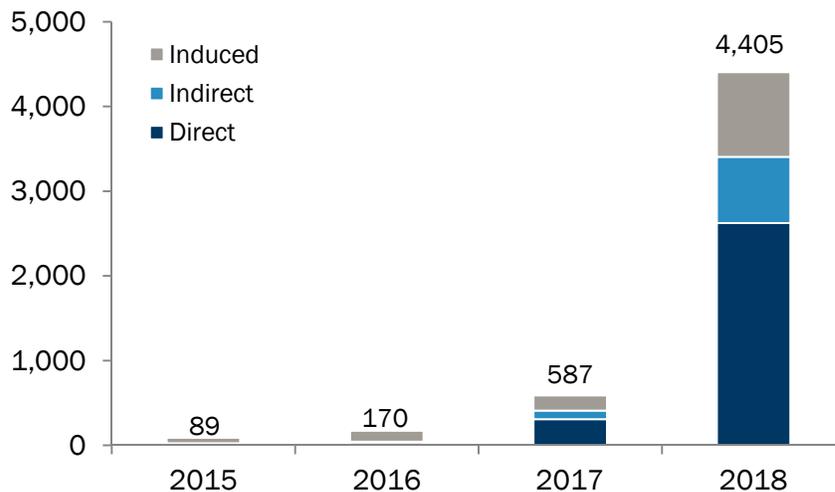
From 2015 to 2018, the MVP project owners plan to spend \$407 million directly on resources (equipment, materials, labor, and services) in Virginia. This direct spending would translate into \$369 million in cumulative Gross Regional Product over the four-year period, as summarized in Figure 2.

Figure 2 – MVP Additions to Virginia’s Gross Regional Product



The MVP project would create approximately 4,400 jobs at the peak of construction in 2018. More than 2,600 of these jobs would be directly associated with the project (labeled “direct” in Figure 3); 780 jobs would be created along the supply-chain (“indirect”); and, just under 1,000 jobs would be created in the general economy.

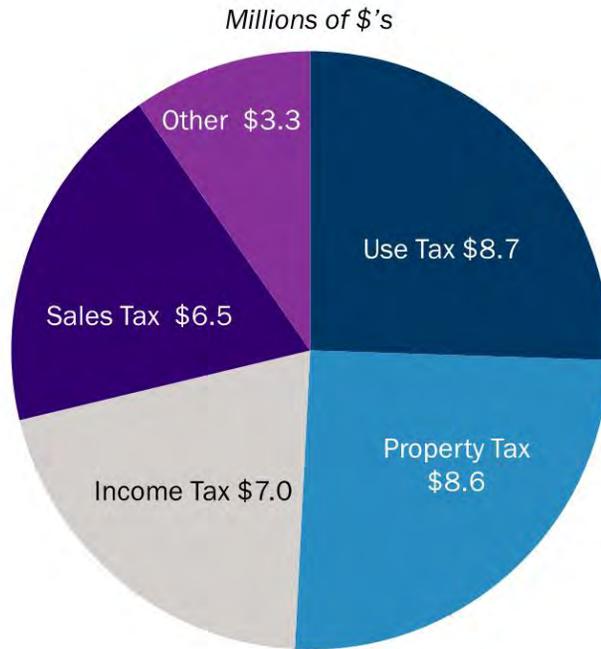
Figure 3 – MVP Jobs Created in Virginia by Year



Cumulatively, the MVP project would create approximately 5,250 job-years over the course of construction.¹

Another benefit of the MVP project is the increased state and local tax revenues that result from the economic ripple effect of construction expenditures. As shown in Figure 4, the project would generate nearly \$34 million in aggregate tax revenues from 2015 to 2018 during construction.

Figure 4 – Virginia State and Local Tax Revenues Generated during Construction, 2015–2018



Operational Benefits

Once in service, the MVP project would continue to benefit Virginia’s economy along three main areas. The first is in operational employment and spending. Ongoing operation and maintenance of the pipeline would support a total of 34 jobs across the state with average annual wages and benefits of almost \$67,000.

Annual tax revenues through ad valorem taxes (property taxes) represent the second area of operational benefits. Based on the estimated pipeline investments and county property tax rates, the MVP project owners would pay up to \$7.4 million in taxes annually.

Direct-use benefits of the pipeline’s natural gas represent the third area where the Commonwealth and counties potentially could benefit from the project and are discussed in further detail below.

¹ The MVP employment contributions are directly tied to the capital spending in each year and are best expressed in ‘job-years’. A job-year is the equivalent of one full-time job lasting a single year.

Direct-Use Benefits

In terms of direct gas-use benefits, the MVP project could provide \$3.6 million in annual savings from fuel switching (i.e., switching from propane, fuel oil, diesel, or electricity to natural gas) across the six counties, with a large portion of this savings occurring in Franklin County. A detailed demand analysis identified \$1.0 million of annual potential savings in the Rocky Mount area of the county (see Table 1) since the area is not served by natural gas. The MVP project represents a unique opportunity as it would run within four miles of Rocky Mount, which is the largest town in Franklin County and serves as the county's manufacturing hub. These benefits are based on current fuel prices and could increase significantly if fuel prices rise.²

Table 1 – Savings from Fuel Switching to Natural Gas in the Rocky Mount Area

Sector	Annual Savings (thousands of \$'s)
Residential & Commercial	\$562
Municipal	\$156
Manufacturing	\$297
Total Annual Savings	\$1,015

Beyond Franklin County, the other four counties currently have varying degrees of natural gas access. Table 2 provides estimates of the potential fuel-switching savings for the residential, commercial, and municipal sectors in these counties, totaling \$2.6 million annually.

Table 2 – Fuel-Switching Opportunities and Savings in Four Other Virginia Counties

County	Fuel-Switching Opportunities	Annual Savings (thousands of \$'s)
Pittsylvania	<ul style="list-style-type: none"> • The Town of Gretna • > 450 municipal and private fleet vehicles • 18 public schools 	\$763
Roanoke	<ul style="list-style-type: none"> • >500 municipal and private fleet vehicles 	\$669
Giles	<ul style="list-style-type: none"> • The Town of Pembroke • Part of the Town of Narrows • 100 municipal and private fleet vehicles • Eastern Elementary 	\$653
Montgomery	<ul style="list-style-type: none"> • >300 municipal and private fleet vehicles 	\$537
Total		\$2,623

² FTI's previous report on December XX, 2014, was based on 2013 average fuel costs.

In addition to the Table 2 savings, the MVP project could provide economic benefits to existing manufacturers. FTI's interviews with county leaders indicated that natural gas access can play a major role in business decisions to expand operations. For example, global technology and specialty materials company Celanese was considering re-locating its Giles County facility due to the impact of EPA regulations. Natural gas access enabled Celanese to retain its operations without moving, by replacing its coal boilers with natural gas boilers and having a 16-mile natural gas pipeline constructed, thereby keeping 600 high-paying jobs.

Access to natural gas also can draw new businesses, particularly energy-intensive and advanced technology manufacturing. These manufacturers can provide significant economic benefits to communities from an employment, wage, and tax revenue perspective. Celanese and industrial and mineral resources company LHoist in Giles County serve as examples. The average annual manufacturing wage in Giles County is \$61,400 or 61% more than the average annual wage of \$38,100 for all jobs in the county in 2013.

Altogether, the proposed MVP project would provide a number of economic and employment benefits to Virginia and the counties along the proposed route. During construction, these benefits would result from capital spent directly within Virginia and the jobs created. Once in service, MVP will employ people within the state to help operate and maintain the pipeline. Also, counties will collect property taxes from the pipeline. Finally, the pipeline would provide sizable opportunities for direct gas-use in areas with and without gas access. These opportunities include additional supply reliability, fuel-switching savings, and new energy-intensive and advanced technology businesses started in Virginia.

1. Introduction

1.1. Project Background

The proposed MVP project is a FERC-regulated natural gas pipeline system that would span approximately 300 miles from the northern part of West Virginia to the southwestern part of Virginia.³ It is expected to provide at least two billion cubic feet per day or approximately 3% of current U.S. gas demand to markets in the Mid- and South Atlantic regions. The pipeline as proposed would pass through six Virginia counties – Giles, Craig, Montgomery, Roanoke, Franklin, and Pittsylvania.

EQT Corporation has retained FTI Consulting (“FTI”) to examine the MVP project’s potential economic benefits along three areas – economic growth and employment resulting from construction expenditures, operational benefits in terms of jobs created and ad valorem taxes paid by the MVP project owners, and direct gas-use opportunities that would result within the counties.

1.2. Approach

Below we summarize the approaches taken for determining the economic benefits in the three areas.

1.2.1. Construction Economic Impacts and Job Creation Benefits

FTI applied the IMPLAN model to estimate the economic impact and jobs created from construction activities in Virginia. The IMPLAN model is a general input-output modeling software and data system that tracks the movement of money through an economy, looking at linkages between industries along the supply chain, to measure the cumulative effect of spending in terms of job creation, income, production, and taxes. The IMPLAN data sets represent all industries within the regional economy – rather than extrapolating from national averages – and are derived primarily from data collected by federal agencies.⁴

The economic impacts that IMPLAN calculates can be broken into direct impacts, indirect impacts, and induced impacts, defined as follows:

- **Direct impacts:** the economic activity resulting from the MVP capital costs spent on industries residing in Virginia. These are the industries that provide the ‘direct’ materials, construction labor, construction management, and technical services (e.g., engineering and design,

³ The MVP would be constructed and owned by Mountain Valley Pipeline, LLC, a joint venture of EQT Corporation (NYSE: EQT) and NextEra US Gas Assets, LLC, an indirect, wholly owned subsidiary of NextEra Energy, Inc (NYSE: NEE).

⁴ The 2012 IMPLAN Dataset includes data from the U.S. Bureau of Labor Statistics (BLS) Covered Employment and Wages (CEW) program; U.S. Bureau of Economic Analysis (BEA) Regional Economic Information System (REA) program; U.S. BEA Benchmark I/O Accounts of the U.S.; BEA Output estimates; BLS Consumer Expenditure Survey; U.S. Census Bureau County Business Patterns (CBP) Program; U.S. Census Bureau Decennial Census and Population Surveys; U.S. Census Bureau Censuses and Surveys; and U.S. Dept. of Agriculture Census.

surveying, and permitting) for the project. This is the first order impact of the MVP expenditures within the state.

- **Indirect impacts:** the economic activity resulting from the ‘direct’ industries spending a portion of their revenues on goods and services provided by their supply chain in Virginia. These supply chain industries represent the second order or ‘indirect’ impacts of the original MVP expenditures in Virginia.
- **Induced impacts:** the economic activity resulting from the spending of the income earned by employees within the ‘directly’ and ‘indirectly’ affected industries. The benefactors of induced impact are primarily consumer-related businesses such as retail stores, restaurants, and personal service industries. These ‘induced’ impacts represent the third order impact.

Through the direct, indirect, and induced impact calculations, IMPLAN provides the economic ripple effect, or multiplier, that tracks how each dollar of input, or direct spending, cycles through the economy to suppliers and ultimately to households.

The first step of the IMPLAN process was to collect the estimate for state-only spending for each of the major project cost categories. These categories included the following:

- Pipeline Materials
- Compressor materials
- Meters and regulator devices
- Technical services such as engineering design, survey, and permitting
- Construction and commissioning services
- Land and right of way acquisitions

Of the \$3.5 billion that the MVP project owners plan to spend, \$407 million is planned to be spent *directly* in Virginia, with the difference being spent in West Virginia and outside the two states.

FTI then assigned these cost categories to one of the 440 IMPLAN economic sectors as inputs to the model. The model was then run from 2015 to 2018 to provide the following direct, indirect, and induced economic impacts:

- **Gross Regional Product (GRP):** an industry’s value of production over the cost of its purchasing the goods and services required to make its products. GRP includes wages and benefits paid to wage and salary employees and profits earned by self-employed individuals (labor income), monies collected by industry that are not paid into operations (profits, capital consumption allowance, payments for rent, royalties and interest income), and all payments to government (excise taxes, sales taxes, customs duties) with the exception of payroll and income taxes.
- **Employment Contributions:** direct, indirect, and induced annual average jobs for full-time, part-time, and seasonal employees and self-employed workers.

- **State, Local, and Federal Taxes:** payments to government that represent employer collected and paid social security taxes on wages, excise taxes, sales taxes, customs duties, property taxes, severance taxes, personal income taxes, corporate profits taxes, and other taxes.
- **Labor Income:** the wages and benefits paid to wage and salary employees and profits earned by self-employed individuals. Labor income demonstrates a complete picture of the income paid to the entire labor force within the model.

Section 2.1 provides the results of the IMPLAN construction and employment benefits analysis.

1.2.2. Operational Job Creation and Ad Valorem Tax Benefits

The MVP project would create jobs within the state to operate and maintain the pipeline and would generate ad valorem tax (property tax) revenues for the counties along the proposed route. To estimate the job benefits of ongoing operations, FTI collected data from EQT on the annual direct employment required within the state to support the pipeline. We then applied the data within the IMPLAN framework described above to determine the total state-wide direct, indirect, and induced employment numbers and average wages.

Our ad valorem tax analysis was developed by using a capitalized income approach. This approach involved creating a pro-forma financial analysis of the entire project⁵, generating the necessary revenues to set the net present value of the project to zero, and then capitalizing the operating income stream. We then allocated the capitalized income between Virginia and West Virginia by each state's share of the gross cost-basis. Next, we took the Virginia capitalized income value and divided it among the counties based on the gross cost value of the project within each county. Finally, we multiplied the each county's allocated capitalized income by the county property tax rate. Section 2.2 provides the outcome of this analysis.

1.2.3. Direct-Use Benefits

Direct-use benefits represent the third area of economic benefits from the proposed project. These benefits include fuel switching savings (e.g., replacing electricity, propane or fuel oil with gas) and commercial and manufacturing expansions enabled by gas supply and access. As part of this assessment, FTI conducted reviewed press statements, conducted interviews with private and public entities in the counties and states, and interviewed local distribution companies and municipal agencies to gauge the fuel switching and manufacturing expansion potential in the counties.

Four of the six counties - Giles, Montgomery, Pittsylvania, and Roanoke – have natural gas access in many of the major cities, towns, and areas. There are portions of these counties, however, with

⁵ The pro-forma was developed using a set of proxy assumptions for operational and maintenance costs, selling, general, and administrative costs, cost of capital, debt/equity ratio, construction and long-term interest rates, and depreciation method and period.

limited or no access. The other two counties, Franklin and Craig, have no natural gas access. FTI conducted a bottom-up, quantitative natural gas fuel switching potential and savings analysis for the areas in Franklin County with limited or no natural gas access. To estimate the potential demand and its associated economics, FTI conducted the following steps:

1. Perform a bottom-up demand potential analysis
2. Determine the consumer savings from switching to natural gas
3. Estimate the switching infrastructure and equipment costs
4. Perform a discounted cash flow analysis

Bottom-up Demand Potential Analysis

FTI conducted an analysis of Franklin County’s bottom-up demand potential by estimating what could be a reasonable amount of existing and future potential. Existing potential is defined as gas consumption made available via switching from a current fuel source, such as No. 2 fuel oil or propane, and from grid electricity consumption. An example of gas switching potential is Ferrum College. The college recently switched approximately two-thirds of its thermal fuel source to biomass from No. 2 fuel oil.⁶ To be reasonable in our existing potential estimate, we assumed that the remaining one-third of No. 2 fuel oil is a candidate for natural gas switching.

For future potential, we examined both expansion opportunities at “existing” and “new” locations. “Existing” expansion opportunities represent prospective extensions of current capacity, while “new” opportunities represent businesses that decide to locate their operations in the county because of new or additional gas service. The “new” opportunities are explained in a more anecdotal, case-study fashion as opposed to being actual, pending opportunities. We do rely on them, however, in a quantitative manner to show how they might improve the economics of adding natural gas service. In some instances, “new” opportunities could be similar to obtaining an “anchor” store in a retail setting. Such a store would enhance the economics of smaller stores in the same setting and form the critical mass needed to make the economics of the entire system attractive.

Consumer Savings from Gas Switching

We define the consumer savings from gas switching to be the following:

Consumer Savings = (Current costs for fuel and grid electricity consumption) – (Costs for natural gas fuel and gas-fired electricity consumption)

The fixed costs of the infrastructure, such as the pipeline connection network and meters to the consumer, and equipment conversion/replacement, such as boilers, hot water heaters, and furnaces, are not included in the consumer savings calculation. Instead those costs are reflected in the next step.

FTI estimates the consumer savings to total \$6.5M for all sectors and conversion of fleet vehicles.

⁶ http://www.ferrum.edu/campus_life/news/Articles/ferrum_college_to_go_greener_with_new_biomass_boiler.html

Infrastructure and Equipment Costs

Infrastructure costs and equipment costs are fixed costs that do not vary with the amount of consumption. They are borne by the consumer at the tariff rate. This rate includes the regulated rate of return that an LDC or other regulated gas distribution entity can earn on its investment.

We assume the following items represent infrastructure costs:

- **Interconnection costs** – either a tee or “hot tap” of a pipeline
- **Metering station** – a pressure reducing valve, meter, valves and associated equipment for “letting” down the pressure from the interstate pipeline to the pressure on the gas distribution system and measuring the amount of gas consumption
- **Lateral** – the pipeline from the metering station to the distribution system or new consumer
- **Distribution system** – the pipeline distribution network that transports the gas to final consumers

In addition to the interconnection costs, there are the costs of new gas equipment. For example, a household, commercial entity, or manufacturing plant would need to upgrade or replace a water heater or boiler to accommodate gas as a fuel.

Discounted Cash Flow Analysis

The discounted cash flow (DCF) analysis shows whether the cost of switching to gas is economic. The DCF of the consumer savings must exceed the DCF of the infrastructure and equipment combined, as shown below:

$$\text{DCF (Consumer Savings)} > \text{DCF (Infrastructure Costs + Equipment Costs)}$$

Both the consumer savings and equipment are discounted at a rate commensurate with the sector or business type, while the infrastructure costs are discounted at the regulated rate of return.

The DCF analysis does not factor in items such as consumer apprehension to high initial equipment cost expenditures and the availability of infrastructure financing. High initial cost expenditures, for example, include a household paying upfront for the gas furnace and installation. Depending on a household’s economics, an upfront payment may not be an option. Utility financing of infrastructure includes the actual financing of infrastructure to meet the demand. If the demand is not fully subscribed, banks may be unwilling to finance a project.

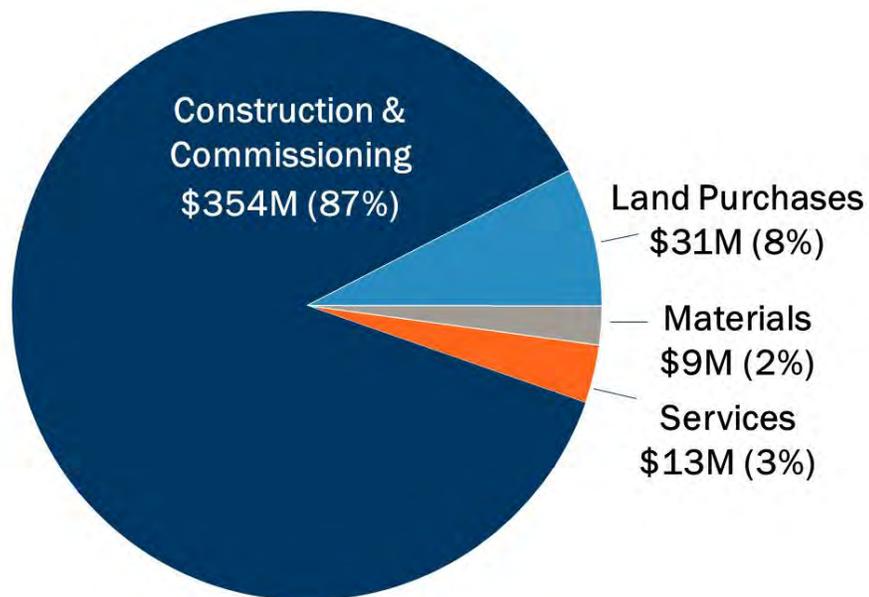
The analysis shows that the economics are favorable for fuel switching and business expansion when natural gas access is available.

2. Economic Benefits of the Mountain Valley Pipeline

2.1. Construction Benefits

The MVP project owners estimate construction expenditures within the state to be \$407 million from 2015 to 2019, and these expenditures would translate into job creation and economic growth for the Commonwealth and the counties. Figure 5 provides a breakdown of the cumulative MVP expenditures by major spending category in Virginia.

Figure 5 – MVP Capital Expenditures in Virginia by Major Spending Category



This spending would result in construction peak year value-added or Gross Regional Product (“GRP”) of \$302 million in Virginia. Over the course of the project construction, the project would generate \$369 million in cumulative GRP as shown in Figure 6.

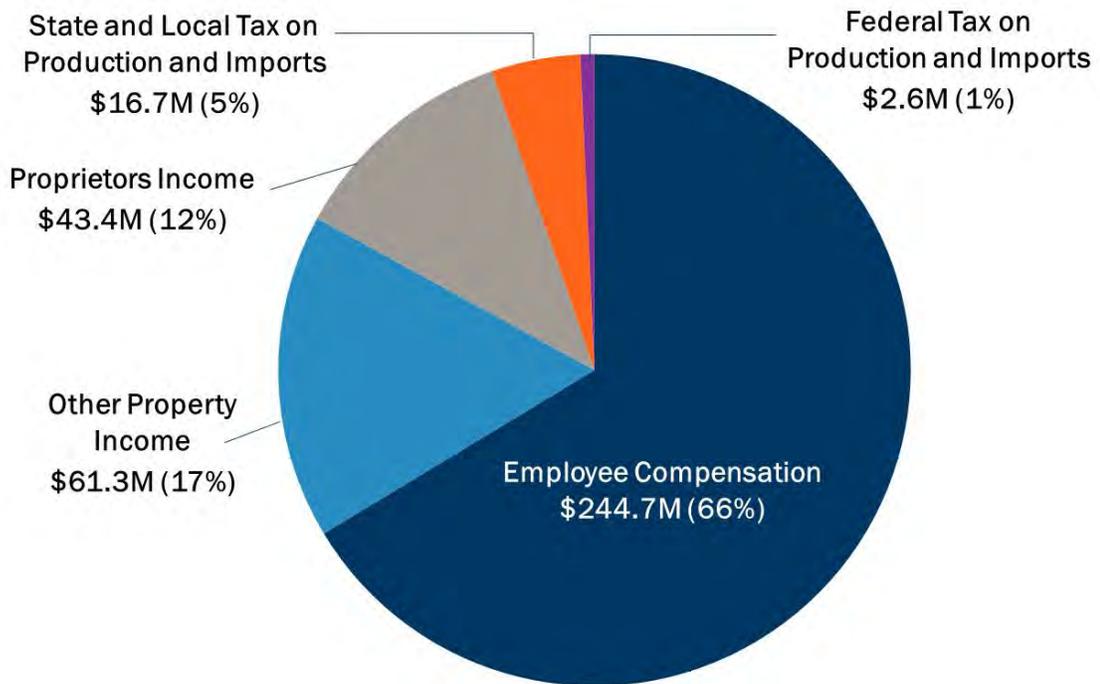
Figure 6 – MVP Contributions to Gross Regional Product



Figure 6 shows GDP segmented into direct, indirect, and induced GRP. As previously mentioned, ‘direct’ refers to the GRP occurring from the capital expenditures within the industry sectors immediately impacted. ‘Indirect’ represents the GRP impacts from suppliers to the directly impacted industries. ‘Induced’ GRP reflects the local spending of employee’s wages and salaries of directly and indirectly affected industries.

GRP is defined as the summation of employee compensation, proprietors’ income, other property income, and Federal, State, and local taxes on production and imports. Figure 7 shows that \$19 million in cumulative state and local taxes would be generated from the MVP project construction.

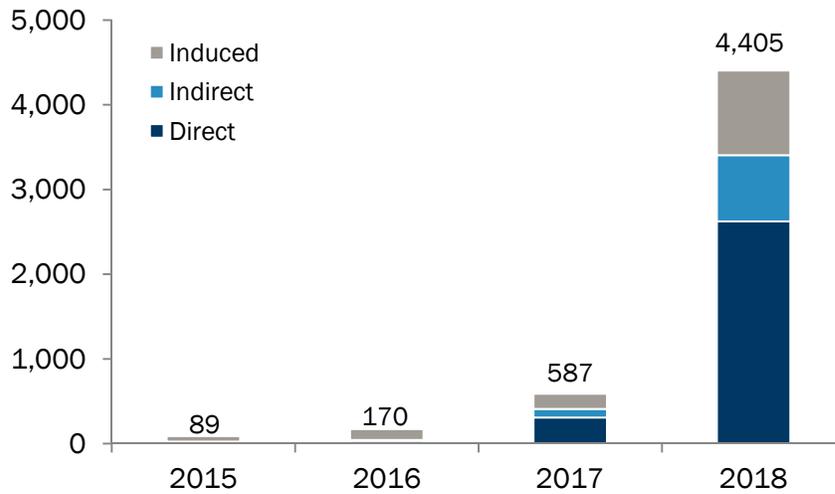
Figure 7 – Composition of MVP’s Cumulative Gross Regional Product Contributions



In addition to the GRP benefits, the project would spur approximately 4,400 jobs within the state in 2018 at peak construction activity. These jobs include construction jobs, indirect jobs (i.e., jobs created in the state by suppliers to the direct industries impacted), and induced jobs (i.e., jobs created in the state via the spending of construction workers and employees of businesses hired to construct the pipeline). Cumulatively, the MVP project would create approximately 5,250 job-years over the course of construction as shown in Figure 8.⁷

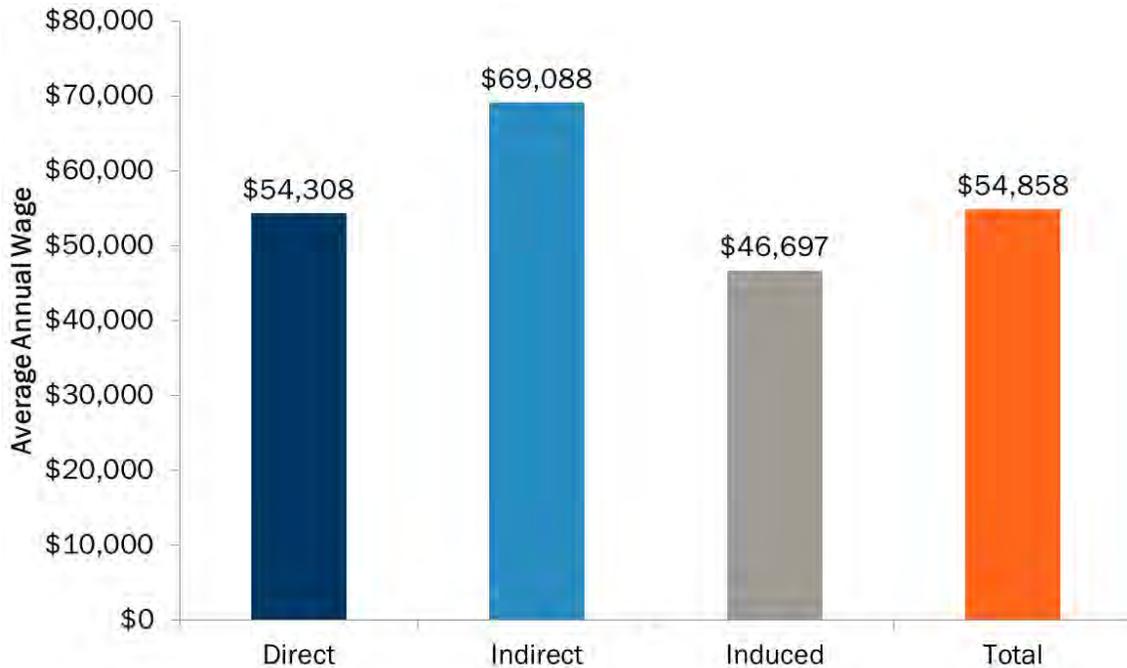
⁷ The MVP employment contributions are directly tied to the capital spending in each year and are best expressed in ‘job-years’. A job-year is the equivalent of one full-time job lasting a single year.

Figure 8 - MVP Employment Contribution



The MVP employment contribution also would have a positive impact on employee compensation relative to the median income in the state. Figure 9 shows the average employee compensation for direct, indirect, and induced jobs from the MVP project.

Figure 9 – MVP Average Employee Labor Income



2.2. Operational Benefits

The MVP project would contribute employment and generate county property or ad valorem taxes during construction and operation. Once in service, the MVP project would continue to benefit

Virginia's economy in three main areas. The first is in operational employment and spending. Ongoing operation and maintenance of the pipeline would support a total of 34 jobs across the state with average annual wages and benefits of almost \$67,000 per job contributed.

In terms of property taxes, Table 3 shows the estimated ad valorem taxes by county once the pipeline is in service and compares these taxes to the counties' general fund budget.

Table 3 – Estimated Annual MVP Ad Valorem Taxes during Operation⁸

County	General Fund Total Revenues	Annual MVP Ad Valorem Taxes	Percent of General Fund Total Revenues
Craig	\$6,675,000	\$103,000	1.5%
Franklin	79,778,000	2,159,000	2.7%
Giles	51,810,000	1,140,000	2.2%
Montgomery	43,767,000	1,780,000	4.1%
Pittsylvania	58,971,000	1,215,000	2.1%
Roanoke	198,174,000	957,000	0.5%
Total 5 Counties	\$439,176,000	\$7,354,000	1.7%

Source: County Websites; FTI and EQT Calculations

In total, the ad valorem taxes generated during operation could represent up to 1.7% of the general fund revenues among all six Virginia counties. Ad valorem tax revenues provide counties with a number of options on how to allocate their revenues to constituents

2.3. Direct-Use Benefits – Existing Opportunities

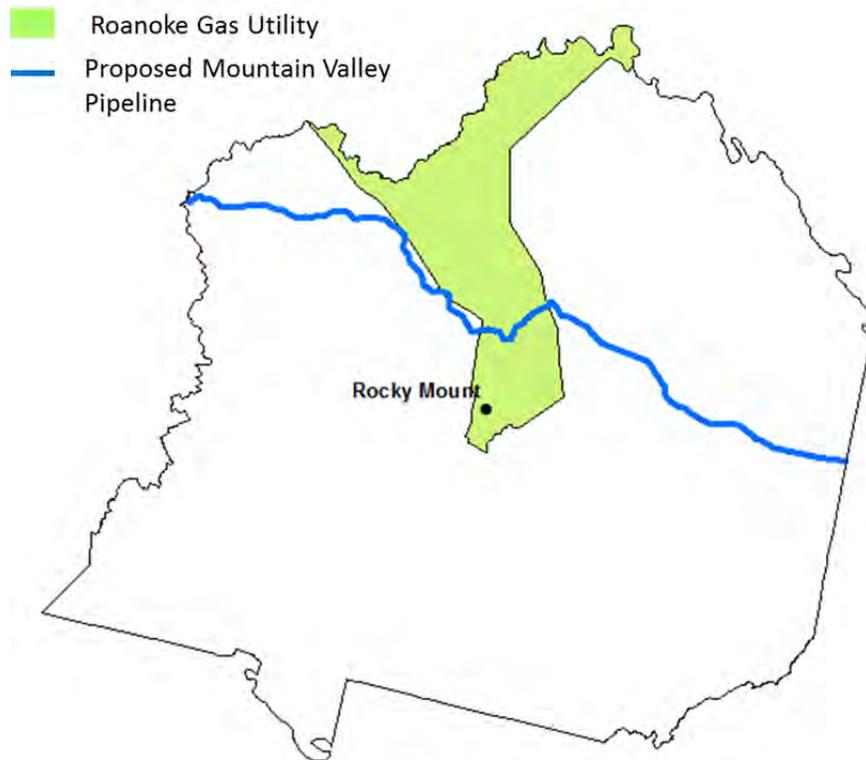
The following section reviews and discusses existing opportunities and savings in each county that could occur as a result of switching to natural gas from electricity, fuel oil, or electricity. These opportunities exist in each of the county's end-use energy consumption sectors – residential & commercial, municipal buildings, manufacturing, and transportation (fleet vehicles). The shale gas revolution has enabled these switching opportunities as it has increased the supply of natural gas, lowered its cost, and stabilized prices.

⁸ Dollars have been rounded to the nearest \$1,000. General Fund figures reflect the latest data available from county websites.

2.3.1. Franklin County

Franklin County, which has 56,000 residents, currently does not have natural gas service for its homes or businesses. The proposed Mountain Valley Pipeline (MVP) project could provide the county with a source of natural gas, particularly in the town of Rocky Mount, which is the county seat and serves as the county’s manufacturing hub. The pipeline is planned to cut across the middle of the county and to pass less than four miles north of Rocky Mount (see Figure 10).

Figure 10 – Roanoke Gas Company Franchise Territory in Franklin County



This route would lower the cost of pipeline access as compared to tapping into the closest access point in the Clearbrook area on the Roanoke Gas Company (Roanoke Gas) system. Clearbrook is more than 10 miles away from Rocky Mount.

The Franklin County situation represents the classic “chicken-or-the-egg” dilemma: Should infrastructure be constructed in anticipation of a major potential consumer arriving or should infrastructure development wait until a major consumer shows concrete interest in locating in the Rocky Mount area?

Bottom-up Demand Potential Analytical Approach

To answer the above question, FTI conducted a bottom-up demand potential analysis for the Rocky Mount and Ferrum areas by estimating what could be a reasonable amount of existing potential. Existing potential is defined as gas consumption made available via switching from a current fuel source, such as No. 2 fuel oil or propane, or electricity.

FTI performed the following steps for this analysis:

1. Perform a bottom-up demand potential analysis
2. Determine the consumer savings from switching to natural gas
3. Estimate the switching infrastructure and equipment costs
4. Perform a discounted cash flow analysis

These steps examine gas demand and economics from the perspective of the final consumer. The consumer savings calculated in Step 2 need to cover the infrastructure and equipment costs that would appear as fixed costs on a consumer's gas bill.

Findings

Residential

We conducted primary research, interviewed county officials, and interviewed gas LDCs in municipalities outside the counties to estimate residential switching potential. We estimate that the total residential natural gas switching opportunity for space heating and water heating in the Rocky Mount area of Franklin County is 82,000 MMBtu. Switching to gas would equate to 72 million standard cubic feet (MMSCF) in annual gas consumption and would produce an annual fuel savings of \$827,000, exclusive of supporting infrastructure and equipment installation costs. Factoring in the conversion costs, we have estimated that the residential sector could almost break even on the investment without being subsidized by commercial and manufacturing consumers.

Commercial

Most commercial entities use fuel oil or propane for their space heating and water heating needs. Older commercial entities, such as the main building for the Carilion Franklin Memorial Hospital and the remainder of Ferrum College that was not switched over to biomass-based heating⁹, tend to use fuel. Newer commercial entities tend to use propane.

⁹ http://www.ferrum.edu/campus_life/news/Articles/ferrum_college_to_go_greener_with_new_biomass_boiler.html

We estimate the natural gas switching potential for the commercial entities in Rocky Mount and Ferrum is 99 MMSCF annually, which would equate to \$1.5M in annual savings. These savings are based on fuel cost savings and does not account for the annualized cost of supporting gas infrastructure and installing or retrofitting equipment. Factoring in the annualized cost of the investments, we estimate the savings to be \$1.1M annually for the commercial sector.

Manufacturing

We estimate that the annual fuel demand for manufacturers in the Rocky Mount area is approximately 21,000 MMBtu, which, if converted to natural gas, would equate to 18.3 MMSCF. Switching to gas would result in \$346,000 in annual savings before equipment and labor. Factoring in the annualized cost of supporting gas infrastructure and installing or retrofitting equipment, the savings for manufacturers would total \$297,000 annually.

It is important to note the role of manufacturing in the Franklin County. Manufacturing jobs in the county average \$35,200 in weekly wages versus an average of \$31,500 across all industries.¹⁰ In Giles County where almost 23% of workers are employed in manufacturing, the average weekly wage is almost \$61,400. Giles has a high concentration of energy-intensive manufacturing, something that could be part of Franklin County's economic profile especially if the MVP project were to be built.

Municipal Buildings

We conservatively assumed that gas would be used only as a substitute fuel for space heating and water heating and not for on-site electricity generation due to the small load size per building. Municipal buildings consume approximately 36,505 MMBtu. Of this demand, we estimate the natural gas demand potential to be 32.1 MMSCF per year, which would equate to \$360,000 per year in savings, including the costs of conversion.

Fleet Vehicles

For transportation, we estimate there are more than 400 fleet vehicles – school buses, other school vehicles, county vehicles, and solid waste disposal trucks – located in Franklin County. These vehicles consume 587,500 gallons of gasoline and diesel fuel annually as shown in Table 4, which equates to \$2.2 million in annual costs. We estimate the natural gas switching potential to be 76.1 MMSCF per year if all vehicles were switched to natural gas. With current low fuel prices, the annual fuel savings would only partially offset the equipment conversion/ replacement and infrastructure costs. Savings would be significant if fuel prices were to increase.

¹⁰ Virginia Employment Commission Report, Franklin County Community Profile, page 26.

Table 4 – Estimated Municipal Fleet Vehicle Annual Energy Consumption

	Transportation Fuels (gallons)	Equivalent Natural Gas Consumption (MMSCF)
School Buses	250,000	33.7
Other School Vehicles	110,000	13.2
Solid Waste Trucks	115,000	15.6
County Vehicles	112,500	13.6
Total	587,500	76.1

Electricity Generation

Appalachian Power, a unit of American Electric Power, provides electricity to customers in Franklin County. The nearest utility-scale electricity generator is a hydroelectric and pumped storage facility at Smith Mountain Lake just outside of Franklin County. In 2012, this facility had a net generation of -73 gigawatt hours (GWh) out of a total gross generation of 321 gigawatt hours.¹¹ The pumped storage capabilities of the facility allowed Appalachian Power to produce electricity from the facility during peak hours while consuming electricity during off-peak hours as it refilled the reservoir, thus the negative generation from the facility.

Because of the net negative generation from the Smith Mountain Lake hydro facility, Appalachian Power must import electricity into the county to balance the demand. Franklin County could be a site for a new gas, baseload or peaking facility. The combination of the proposed MVP project route and the existing electric transmission infrastructure coming from the Smith Mountain Lake Hydro and Pumped Storage facility could make locating a gas power plant in Franklin County attractive. A commercial size gas peaking facility generally consumes 400 MMSCF annually whereas an average gas baseload facility consumes 12,000 MMSCF annually.¹²

Summary

Converting existing households, businesses and municipal buildings to natural gas would generate gas demand of 221 million standard cubic feet (MMSCF) annually. The county also counts more than 400 fleet vehicles, which over time could be candidates for compressed natural gas vehicle

¹¹ Energy Information Administration form EAI-923

¹² Assumes 100 MW for a gas peak facility operating at a 5% capacity factor and 500 MW for a gas baseload facility operating at a 40% capacity factor.

replacement. If completely converted, these vehicles would generate another 76.1 MMSCF in annual demand. These totals by sector are shown in Table 5.

Table 5 – Natural Gas Demand Potential in Rocky Mount and Ferrum Areas

Sector	MMSCF
Residential	71.9
Commercial	98.8
Manufacturing	18.3
Municipal Buildings	32.1
Total (without fleet vehicles)	221
Fleet Vehicles	76.1
Total (with fleet vehicles)	297.2

Potential fuel savings from switching totals \$4.2 million annually, before equipment and labor costs. Factoring in conversion costs, the savings is \$1.0 million annually with the biggest savings coming from commercial entities and the conversion as shown in Table 6.

Table 6 – Annualized Savings from Fuel Switching in the Rocky Mount Area

	Total (thousands of \$'s)
Fuel Savings	\$4,222
<ul style="list-style-type: none"> • Residential • Commercial • Manufacturing • Municipal Buildings • Transportation 	<ul style="list-style-type: none"> \$827 \$1,469 \$346 \$439 \$1,140
<i>Less Equipment and Labor (Amortized)</i>	\$3,207
Total Annual Savings	\$1,015

Generally, the minimum demand level for an economic interconnection is approximately one billion cubic feet (1,000 MMSCF) annually¹³. While Franklin County existing demand potential is about one-third of this amount, the benefits shown in Table 6 may justify the investment. If the generally accepted minimum threshold must be met, Franklin County would need to find demand anchors of

¹³ Based on industry interviews. This is an approximation as each situation depends on locational circumstances, such as the terrain for the pipeline extension and the profile of gas consumption throughout the year.

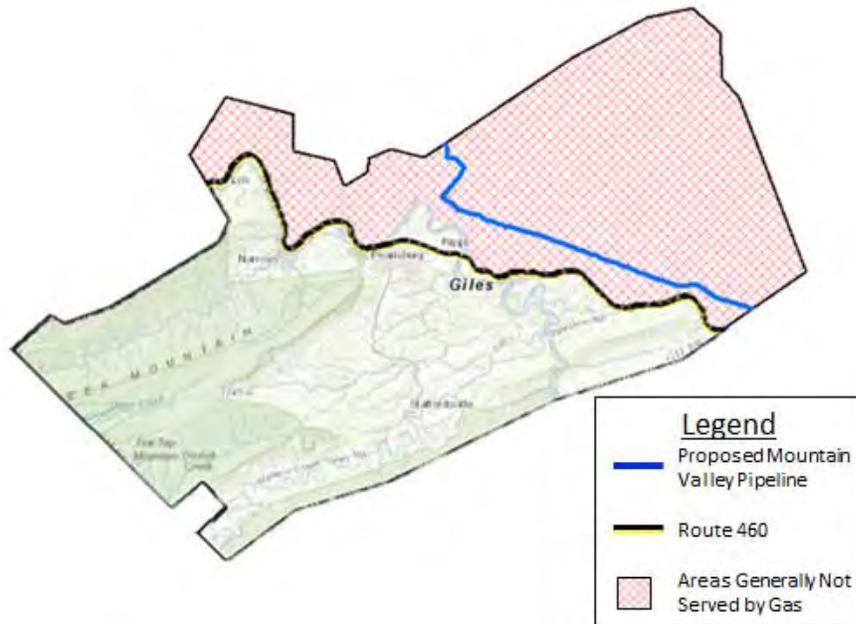
approximately 700 MMSCF in annual consumption to justify gaining access. Potential anchors that would satisfy the remaining demand requirement might include:

- **New Power Generation:** a 150 MW gas peaking power plant¹⁴
- **Combined Heat and Power (CHP):** a 10 MW CHP plant located at a manufacturing site or near commercial or municipal buildings to serve electricity demand and heating loads.¹⁵
- **A major manufacturer:** a manufacturer similar in size to Nestlé Purina PetCare in King William County, which recently was extended gas service via a 12 mile gas pipeline.
- **A number of small to medium manufacturers:** a doubling of the current manufacturing capacity in the Rocky Mount area would almost meet the general economic threshold level for interconnection.

2.3.2. Giles County

The type of fuel used in Giles County for residential and commercial heating is mainly bifurcated between natural gas and electricity. Most of the consumers in Pearisburg and Narrows use gas. However, these towns represent only 27% of the county households and commercial entities. Outside of these towns where the population density declines, residential and commercial consumers typically use electricity. While Columbia Gas has franchise rights to the county, it cannot service the remaining parts of the county economically due to distance from the gas system and sparse population density. We understand from interviews that the eastern portion of Giles County (east of the New River & Rt. 460) has no gas access as shown in Figure 11.

Figure 11 – Portion of Giles County without Gas Access



¹⁴ Assumes 9.2 MMBtu/MWh heat rate and 5% capacity factor

¹⁵ Assumes 7 MMBtu/MWh heat rate and an 85% capacity factor

In order to develop a fuel switching benefits analysis, FTI conducted extensive research that included review of news articles, conversations with private and public entities in the county, and interviews with local distribution companies and municipal agencies inside and outside the county. This research enabled us to profile the county's potential unmet natural gas demand. Potential unmet demand includes switching from current forms of energy to natural gas and the possibility of locating new, tangible opportunities, such as manufacturing and power generation in the county.

Our analysis found that the switching potential in the residential and commercial sectors are minimal due to existing gas service in the two largest towns – Pearisburg and Narrows. We did, however, find substantial opportunities for switching and expansion in the manufacturing and power generation sectors, which could have significant economic benefit impacts on Giles County. As such our analysis focuses mainly on these opportunities.

Approach for Assessing Natural Gas Potential

FTI examined new demand opportunities across all end-use sectors. These included opportunities for switching to gas in the residential, commercial, and municipal sectors and fuel switching, self-generation of power, and manufacturing expansion in the manufacturing and electric sectors. We collected data through primary research and interviews with county officials, LDCs, commercial entities, and manufacturers. These data allowed us to estimate potential demand, which we translated into direct economic benefits.

Natural Gas Potential and Economic Benefits by Sector

Manufacturing and Power Generation

The manufacturing and power generation sectors represent an important part of Giles County's economy. The sectors employ approximately 1,025 people, which equates to 23% of the total eligible workers and 36% of the total wage income in the county.¹⁶ As such, Giles County stands to benefit significantly from the MVP project. Table 7 provides a summary of the major manufacturers and power generation operators in Giles County.

¹⁶ Virginia Employment Commission Report, Giles County Community Profile, page 22.

Table 7 – Major Manufacturers in Giles County

Company	Products	Employees	Primary Fuels Used	Miles from MVP Pipeline
Celanese	Acetate	600	Coal, Electricity	4
Jennmar	Mining supports	~200	Electricity	7
LHoist	Chemical lime	120	Coking Coal, Electricity	1
UFP Mid-Atlantic	Wood products	~75	Natural Gas, Electricity	4
AEP Glen Lyn	Electricity	~75	Coal	9
GE Fairchild	Mining vehicles	50	Propane, Electricity	9

Manufacturers in Giles County use a mix of fuel types. The primary reliance on coal for some manufacturers has been due to the economics associated with pipeline access, available capacity, and reliability. As shown in Table 7, the proposed MVP project would run close to major manufacturing and power generation facilities in Giles County. MVP could provide greater accessibility and reliability to those already using gas and enable switching to coal for those currently without gas access.

The Celanese Acetate plant in Giles County exemplifies the economic benefits of providing gas access. Celanese was faced with upgrading its coal-fired boilers to comply with EPA's Boiler Maximum Achievable Control Technology Rule that will take effect in 2016. One option for Celanese was to re-locate if the upgrade costs became prohibitively expensive. Another option was to replace the coal-fired boilers with gas-fired boilers; however, this option was not certain because Celanese was 16 miles from The Columbia Gas Transmission Corporation (TCO) interstate pipeline. Celanese worked with TCO and Columbia Gas of Virginia to access the TCO interstate pipeline network, allowing Celanese to remain in Giles County and retain 600 employees. Additionally, Celanese's construction of the gas boilers created 200 temporary construction jobs and added twenty-two new permanent jobs at the site.

To estimate the opportunity and potential savings resulting from increased natural gas supply and access in the county, we conducted interviews and primary research to evaluate the demand potential for fuel switching and capacity expansion. Table 8 below shows the potential demand for these opportunities. We have aggregated these opportunities to protect company confidential information.

Table 8 – Manufacturing Potential Demand by Opportunity

Opportunity	Annual Potential Demand (MMSCF)
Fuel Switching	7,500
Capacity Expansion	1,000
Total	8,500

In terms of economic benefits, we have translated these potential demand opportunities into increases in direct jobs and wages in the county. We estimate an increase of 51 manufacturing and power sector jobs and \$3.1 million in additional direct wages. There are also indirect and induced economic impacts that would result from these opportunities, which we have not quantified here.¹⁷

Transportation

For transportation fuels, county end-use sectors consume primarily refined oil products – diesel and gasoline – along with insignificant volumes of natural gas and biofuels. Our interviews and research indicate approximately 100 fleet vehicles could be switched from gasoline and diesel to natural gas. In total, there is an annual fuel switching potential of 18 MMSCF, equating to \$118,000 in annual cost savings, inclusive of the cost of infrastructure development and vehicle retrofitting/replacement. If pursued, this switching process likely would occur over a number of years as vehicles are retired and replaced with compressed natural gas (CNG) vehicles.

Residential & Commercial

For the residential and commercial sectors, we examined the switching potential for those areas without natural gas access. Based on our interviews with county officials, approximately one-half of Narrows and all of Pembroke do not have natural gas service. Assuming the residents and commercial entities in these areas use primarily electricity, we estimate a total switching potential of 35.6 MMSCF, equating to \$342,000 in annual savings. This savings amount is inclusive of distribution investment and equipment replacement.

¹⁷ Indirect impacts include increases in GDP, jobs, wages, and tax revenues that are created by manufacturers procuring goods and services from other county employers. Induced impacts include the multiplier benefits to the county's economy from increasing the amount of disposable income to spend on goods and services (e.g., increased residential and commercial spending on food would, in turn, create more grocery and retail stores and employment). This is also known as the multiplier effect.

2.3.3. Montgomery County

Montgomery County is home to 96,207 residents in Virginia. The county encompasses the towns of Blacksburg and Christiansburg, which are the most populated towns in the county containing a majority of the manufacturing and commercial employers. Nearly half of the residents live in Blacksburg, home to Virginia Polytechnical Institute and State University (Virginia Tech). Atmos and Roanoke Gas both service Montgomery County, with Atmos servicing the western part of the state and Roanoke Gas servicing the eastern part. One area not serviced by either company is Riner, VA.

Montgomery County has a total employment of 40,633. The majority (52%) are workers in the commercial sector, followed by government (33%) and manufacturing (12%). Many manufacturers use natural gas and electricity to fuel their businesses.

Manufacturing jobs are among the highest paying jobs in Montgomery County. The average annual wage is \$53,700 versus a weighted average of \$40,300 for all sectors in the county. Energy intensive manufacturers can have even higher wages.

Some of the largest manufacturers in Montgomery County include the following:

- Moog, Inc.
- Federal Mogul Corp
- Lexington Rowe Furniture
- Corning Glass Works
- United Pet Group
- New River Energetics

Natural Gas Potential and Economic Benefits in the County

Natural gas access is common in much of Montgomery County. Two-thirds of county residents use natural gas as their primary fuel source for home heating.¹⁸ As such, there is only a handful of existing, fuel switching opportunities available. Switching the rest of the Virginia Tech Central Steam Plant over to gas and transitioning the municipal and private fleet vehicles to gas are the two main opportunities based on our research.

Currently, the Virginia Tech Central Steam Plant uses 78% coal, 20% natural gas, and 2% fuel oil to run the facility. Switching the coal to natural gas likely would be an economic cost to Virginia Tech because coal is less expensive than natural gas on an energy-equivalent basis. Switching to gas, however, would help in reducing air emissions from the facility.

For fleet vehicles, we estimate that there are more than 300 vehicles that could be switched from gasoline and diesel to natural gas. In total, there is an annual fuel switching potential of 66 MMSCF, equating to \$537,000 in annual cost savings, inclusive of the cost of infrastructure development and

¹⁸ 2013 US Census Bureau 5 Year American Community Survey.

vehicle retrofitting/replacement. If pursued, this switching process likely would occur over a number of years as vehicles are retired and replaced with compressed natural gas (CNG) vehicles.

2.3.4. Pittsylvania

Pittsylvania County is home to 63,500 residents in Virginia. The towns of Chatham, Hurt, and Gretna are the most populated towns in the county, containing a majority of the manufacturing and commercial employers. The City of Danville, located along the southern border of the county, is not within the county.

The Williams Transco Pipeline cuts across the county and provides natural gas access to Chatham. Columbia Gas serves Hurt, which is a small town in the northern part of the county. Some areas bordering Danville, such as Ringgold, are served by the City of Danville. Most other towns, including Gretna, do not have natural gas service. The proposed Mountain Valley Pipeline (MVP) project has the potential to provide the unserved areas of the county with natural gas service and would be an additional source of natural gas to improve access and reliability throughout the county to support anticipated growth.

Manufacturing jobs are among the highest paying jobs in Pittsylvania County. The average annual wage is \$43,700 versus a weighted average of \$31,400 for all sectors in the county. Energy intensive manufacturers can have even higher wages.

Natural Gas Potential and Economic Benefits in the County

Municipal Buildings

Pittsylvania has 20 schools across the county, with 9,000 students. Only 2 of these schools are served by natural gas. Chatham High School is served by Columbia Gas, and Twin Springs Elementary, just north of Danville, is served by the City of Danville. The two small administrative buildings in Chatham also are served by natural gas.

Fuel oil is the primary heating fuel in the other 18 schools. The annual fuel oil usage by type of school is as follows:

- High School: 20,000 gallons
- Middle School: 15,000 gallons
- Elementary School: 10,000 gallons

We estimate the natural gas switching potential for the schools is 29.3 MMSCF annually, which would equate to \$487,000 in annual cost savings, inclusive of installing or retrofitting gas equipment.

Fleet Vehicles

For transportation, we estimate there are more than 450 fleet vehicles located in Pittsylvania County. These vehicles consume approximately 684,000 gallons of gasoline and diesel fuel annually as shown in Table 9. We estimate the natural gas switching potential to be 89.6 MMSCF per year if all vehicles were switched to natural gas, which would equate to just covering equipment conversion/replacement and infrastructure costs under the current environment of low energy prices, but could provide significant cost savings if fuel prices were to rise.

Table 9 - Estimated Fleet Vehicle Annual Energy Consumption

	Transportation Fuels (gallons)	Equivalent Natural Gas Consumption (MMSCF)
School Buses	362,000	48.8
Solid Waste Trucks	128,000	17.3
Other School Vehicles	123,000	14.8
County Vehicles	71,000	8.6
Total	684,000	89.6

Residential

The town of Chatham has natural gas service, but most other towns, such as Gretna, a town of 1,250 people north of Chatham, are not served by natural gas. Switching Gretna to natural gas would equate to 21 MMSCF in annual gas consumption. Costs for conversion would slightly outweigh benefits unless an existing manufacturer such as Amthor International or a new manufacturing were to be included on the distribution system.

Manufacturing

The manufacturing sector accounts for 17% of the jobs in the county and is a sector that could benefit significantly from having more reliable natural gas service. Natural gas is an influencing factor in retaining existing manufacturers and attracting new ones to the county. With annual wages that are 40% higher than the average wages in the county, the manufacturing sector is crucial to the local economy and would only be bolstered by the MVP project.

As seen in cases throughout Virginia recently, access to natural gas is a major factor when businesses decide to invest in facilities, expand and modernize operations, and locate or relocate plants. Access to natural gas can draw new businesses to areas and ensure current businesses remain committed to the long-term success of their operations within the community.

2.3.5. Roanoke

Roanoke County is home to 93,524 residents. Parts of western Salem stretch into Roanoke County and form the Glenvar and Dixie Caverns areas, where there is significant commercial and manufacturing activity. The county does not include the cities of Roanoke and Salem located within the county.

Roanoke Gas currently serves businesses and residences throughout the county. The proposed Mountain Valley Pipeline (MVP) project has the potential to provide the county with an additional source of natural gas to improve access and reliability throughout the county and support anticipated growth. This is especially the case in the southwestern portion of the county along the proposed pipeline's route.

Roanoke County has a total employment of more than 34,000. The majority (73%) are workers in the commercial sector, followed by government (15%) and manufacturing (8%). The majority of manufacturers use gas and electricity,

Manufacturing jobs are among the highest paying jobs in Roanoke County. The average annual manufacturing wage is \$46,020 versus a weighted average of \$39,234 for all sectors in the county. Energy intensive manufacturers can have even higher wages. The largest manufacturers in Roanoke County include:

- Americold
- Blue Ridge Beverage
- Industrial Battery and Charger
- New Millenium
- Novozymes
- RR Donnelly
- Synchrony
- Tectron

Our analysis found that the switching potential in the residential and commercial sectors are minimal due to existing gas service to the county. We did, however, find opportunities for expansion in the manufacturing sector, which could have significant economic benefit impacts on Roanoke County. As such, our analysis focuses mainly on these opportunities.

The primary benefit of the pipeline to the manufacturing sector in Roanoke County would be the increased supply to the existing network, attracting more manufacturers to locate new sites within Roanoke County. Additionally, the increased supply would help support network expansion in the western and other developing areas of the county.

Natural gas is important to retaining existing manufacturers and attracting new manufacturers to the county. Our interviews and analysis identified that manufacturers value abundant and reliable gas service and that access to natural gas is a primary criterion for determining where to locate new manufacturing facilities.

2.4. Direct-Use Benefits – Future Opportunities

Natural gas is important to retaining existing manufacturers and attracting new manufacturers to the county. Our interviews with county representatives, regional partnership leaders, and manufacturers inside and outside the county identified that businesses value abundant and reliable gas service, and that access to natural gas is a primary criterion for determining where to locate new manufacturing facilities. Below we examine four case studies where natural gas service has provided significant economic benefits to communities in Virginia.

2.4.1. Celanese Conversion from Coal to Gas Boilers

Celanese is a global technology and specialty materials company that engineers and manufactures a wide variety of products. Celanese first established operations in Giles County, VA in 1939 and is one of the world's largest producers of cellulose acetate tow. Today, Celanese Acetate is the biggest employer in Giles County, with approximately 600 employees.

Celanese invested \$150M in its Giles County operation to replace its coal-fired boilers with natural gas-fired boilers.¹⁹ This investment allows the company to reduce its greenhouse gas emissions, improve its energy efficiency, and meet new EPA emissions standards moving forward. Virginia competed against and beat out global options for this investment. The project, combined with other efforts at the site, enabled the creation of at least 22 full-time Celanese positions and requires approximately 200 construction workers. It also affirms the commitment of Celanese towards their Giles County operations.

2.4.2. Pipeline Project to Serve Nestlé Purina PetCare Company

Nestlé Purina PetCare Company is part of the Swiss-based nutrition, health and wellness company. Nestlé Purina's opened the King William, VA facility in 1998 and today it employs 160 people at the Fontainebleau Industrial Park Plant.

In April 2010, the Virginia governor announced a 12-mile natural gas pipeline project in King William County.²⁰ Area businesses including Nestlé Purina joined with the Commonwealth to provide the \$6.5M investment for the project to expand the Virginia Natural Gas network, extending it to the King William, VA facility. Nestlé Purina provided this investment as an ongoing commitment to operational environmental efficiency and a move towards cleaner energy. Nestlé Purina also made significant investments in equipment upgrades at the plant to reduce emissions and improve the plant's operating efficiency.

¹⁹ http://www.roanoke.com/business/news/giles_county/celanese-plant-in-giles-county-completes-conversion-to-boilers-fueled/article_94b6215e-f50b-54d9-88dc-28d8a442f3d3.html

²⁰ <http://www.yesvirginia.org/AboutUs/NewsItem/1050>

In addition to Nestlé Purina PetCare, officials expect the pipeline to support business development along the U.S. 360 corridor, especially at the industrial parks located along the route.

2.4.3. Gas Service Expansion in Caroline County

In 2012, the Virginia General Assembly enacted the Natural Gas Infrastructure Expansion for Economic Development (NEED) legislation, which allows natural gas utilities to expand infrastructure as necessary to provide natural gas to economic development projects to unserved areas. Caroline County became the first community to assist a business through this program with the construction of a new 6 mile pipeline to Hoover Treated Woods Products. The natural gas pipeline connection would begin at the Caroline Public Utilities Department. From there it would run northeast behind the high school and middle school and then turning east until it reaches Hoover Wood Products in the Milford industrial park. Both schools are expected to utilize the pipeline, which measures six inches in diameter.

Hoover Treated Woods Products provides lumber and plywood products for fire retardant and preservative applications. Hoover operates five treatment facilities and has been operating in Caroline since 1979. “We are very excited about having natural gas service for our Caroline County facility,” said Tim Borris, vice president, Hoover Treated Wood Products. “Natural gas improves our operation by reducing our energy costs and improving our cost position making us more competitive.”²¹

2.4.4. Mohawk Industries in Carroll County

Mohawk Industries is a Fortune 400 flooring company headquartered in Calhoun, Georgia. Mohawk is a leading producer of residential and commercial carpet, ceramic tile, hard wood flooring, laminate flooring and bath and area rugs. In 2005 Mohawk acquired a manufacturing facility in Carroll County, VA, from Wayne-Tex Industries. The facility employs 150 people. For years Mohawk tried to gain access to the Patriot natural gas pipeline that runs through the county to upgrade its operations, but Atmos, which held the certificate to provide natural gas service in the county, had failed to build an interconnect and the lateral. As a result, Mohawk began considering moving the operation to Georgia.

“We have lost business prospects because we did not have natural gas,” said the chairman of the county’s Industrial Development Authority (IDA). “Carroll County was at a competitive disadvantage to other communities.”

The IDA worked with Mohawk to develop a plan to deliver gas to the plant. IDA awarded the certificate to operate in the county to Roanoke Gas. The IDA also contributed funds to construct the line to the plant. As a result 150 jobs were retained in Carroll County.

²¹ <https://www.columbiagasva.com/about-us/news-archive/2014/09/17/caroline-county-company-is-the-first-beneficiary-of-legislation-to-promote-natural-gas-service-expansion-to-unserved-areas-of-virginia>

3. Summary

The proposed MVP pipeline would provide several benefits to the six counties in Virginia through which the pipeline would run. Four of the six counties along the proposed MVP route have natural gas access in the major towns and areas. The pipeline would benefit existing customers as it would help ensure future access to a reliable supply of natural gas. These customers include manufacturing firms, which pay higher wages and make up a substantial portion of these counties' economies.

The shale gas revolution has helped lower natural gas prices, making natural gas an economically attractive alternative to existing fuel sources. FTI estimated the potential demand for switching to natural gas and the associated savings, which can be millions of dollars a year. Franklin County, which does not have gas service, could benefit due to the proximity of the proposed MVP pipeline to Rocky Mount, the county's manufacturing hub. The transportation sector in many of the counties could also benefit by switching county vehicles (school buses, solid waste trucks, and other vehicles) to using natural gas.

The MVP pipeline could also help retain or attract manufacturers. Interviews with county representatives, regional partnership leaders, and manufacturers identified that businesses value abundant and reliable gas service. In Giles County, the Celanese Acetate, which employs 600 people, invested \$150M to replace its coal-fired boilers with gas-fired boilers.

These types of investments can provide large economic benefits to communities from an employment, wage, and tax revenue perspective. Input-output modeling software such as IMPLAN can help to estimate the magnitude of these impacts. In addition to the initial economic impact of the investment, businesses along the supply chain benefit through ripple, or multiplier, effects, as do households in the form of higher wages and disposable income.

Appendix I: County Economic and Energy Profiles

1. Franklin

Economic Profile

Franklin County, VA is a 683 square-mile county located in Southwest Virginia with a population of 56,012. It is 8 miles south of Roanoke, 173 miles southwest of Richmond, and 70 miles north of Greensboro, NC. Rocky Mount is the largest town in the county with approximately 5,000 residents and many of the county's employers. Ferrum has a population of approximately 2,000 and is home to Ferrum College, a small liberal arts institution. Much of the recent growth in the county has occurred in the Smith Mountain Lake area. Significant portions of the county's workforce are in health care and manufacturing.

The county had 1,312 employers in 2013 with total employment of 13,528 or 10.3 employees per employer. Table 10 provides the employment by sector.²²

Table 10 – Employment in Franklin County by Sector

Sector	Employment	Percent of Total Employment
Commercial	7,083	52.4%
Manufacturing	2,662	19.7%
Government	2,416	17.9%
Construction	1,015	7.5%
Other	352	2.6%
Total	13,528	100.0%

Franklin County's commercial entities employ 7,083 people. The commercial sector represents 52.4% of the total employment in Franklin County. The two largest commercial employers are Carilion Franklin Memorial Hospital, which employs 290 people, and Ferrum College, employing approximately 300 people.

²² Virginia Employment Commission, Franklin County Community Profile, page 20.

Approximately 20% of the County residents work in manufacturing with M.W. Manufacturers being the largest overall employer with ~800 employees.²³ The major energy-intensive manufacturers in Franklin County are all located in or around Rocky Mount and include the following:

- **McAirlaids:** A private company that makes paper products used in food packaging, hygiene, medical products, industrial filtration, and table decoration. The facility is about 5 miles outside of the town of Rocky Mount. It runs primarily on electricity but also uses propane for industrial space heaters.
- **M.W. Manufacturers:** The largest employer in the county is a manufacturer of window and door products for the residential construction industry that is owned by Ply Gem Industries (NYSE: PGEM). The facility rests on 38.7 acres occupied by a 578,000 square foot building and employees 600-1,000 workers.
- **Newbold Corporation:** A privately-held company with a manufacturing facility that produces solutions for positive patient identification, plastic cards, dog tag embossing, and retail technology/implementation for point of sale (POS) services. The facility is 100,000 square feet and employs approximately 90 people. The facility operates primarily on electricity with propane used for heating and backup electricity.
- **Ronile:** An employee-owned company that supplies custom dyed accent yarns, space-dyed nylon, polyester, acrylic, and other fibers to the carpet, rug, home furnishing, craft, and automotive markets. Ronile employs 100-300 workers in Rocky Mount. It uses a combination of electricity and biomass for operations.
- **Solution Matrix:** A manufacturer of cold therapy wraps. The facility is about 5 miles outside of the town of Rocky Mount, in the same industrial park as McAirlaids. The plant is 48,000 square feet and runs on electricity and propane.
- **Trinity Packaging Corporation:** A privately-owned business that manufactures plastics products (retail store bags, mailing envelopes, food service bags, lawn and garden bags, etc.). The facility has 300-600 employees. Trinity is investing \$9.5 million in an expansion project that will create 25 new jobs.²⁴
- **The Uttermost Company:** An upscale furniture manufacturer that operates a 600,000 square foot facility in Rocky Mount.

²³ Virginia Employment Commission Report, Franklin County Community Profile, page 22.

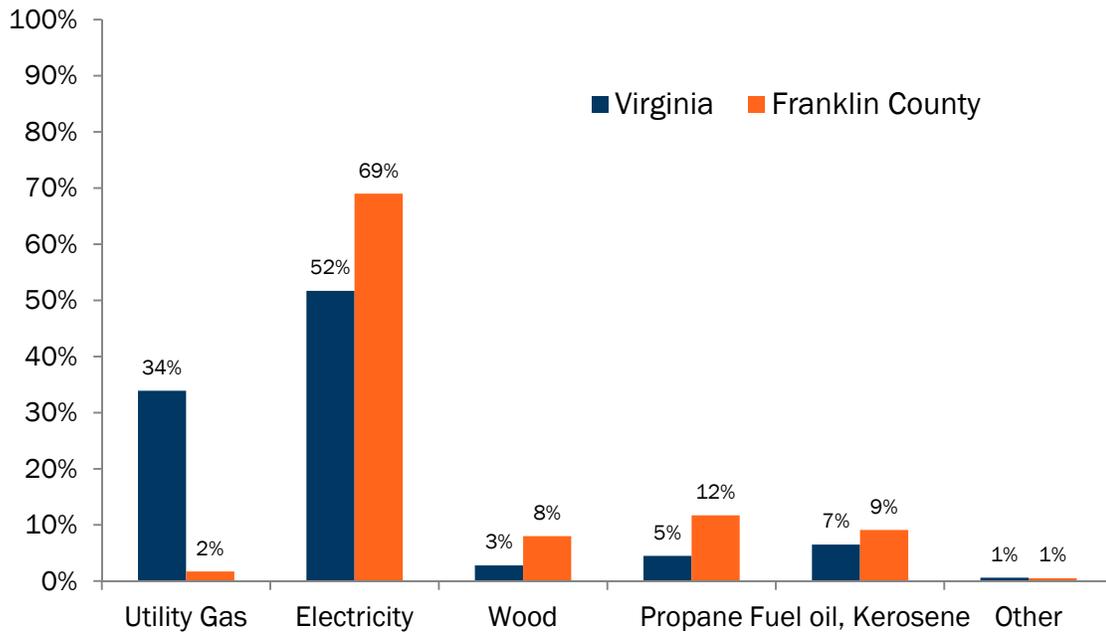
²⁴ www.thefranklinnewspost.com/article.cfm?ID=27728

Energy Profile

Residential and Commercial

There are approximately 23,500 housing units in Franklin County, of which approximately 1,900 units are located in Rocky Mount. Almost seventy percent of Franklin County households use electricity as their source for space heating as shown in Figure 12.

Figure 12 – Primary Space Heating Fuel Used in Franklin County versus the Commonwealth, Percentage of Housing Units²⁵



Typically natural gas consumption by commercial entities follows a similar pattern as residential since the decision to use natural gas is driven often by accessibility.

Municipal

The Franklin County municipal buildings principally include administration and schools. These buildings use electricity, fuel oil and/or propane for space heating and water heating. Most of the boilers in the Franklin County schools are equipped already to burn natural gas, especially in the northern part of the county.

²⁵ 2013 US Census Bureau 5 Year American Community Survey

Most commercial entities use electricity and/or propane for their space heating and water heating needs. Older buildings tend to use electricity and fuel oil, such as the main building for the Carilion Franklin Memorial Hospital.

Manufacturing

Since the manufacturers in Franklin County established their facilities in an area without natural gas, they rely primarily on electricity with propane where necessary. One manufacturer, Ronile, converted to biomass (wet sawdust) eight years ago for steam generation.

2. Giles

Economic Profile

Giles County is a 683 square-mile county located in Southwest Virginia with a population of 16,923. The county has a relatively strong economy. Its nominal GDP in 2014 was \$706 million or \$41,595 per person. The real GDP grew by 3.0% from 2013 to 2014²⁶ compared to the U.S. GDP growth of 2.4% during the same time period.²⁷ While its 2014 unemployment rate of 6.0% is above the Virginia average of 5.2%, it is just below the national average of 6.2%.

The county had 349 employers in 2013 with total employment of 4,530 or 13.0 employees per employer.²⁸ Almost one-quarter of the County residents works in manufacturing as shown in Table 11, with Celanese being the largest overall employer with ~600 employees.

Table 11 – Employment in Giles County by Sector

Sector	Employment	Percent of Total Employment
Commercial	2,053	45.3%
Manufacturing	1,025	22.6%
Government	868	19.2%
Construction	497	11.0%
Other	87	1.9%
Total	4,530	100%

²⁶ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

²⁷ <http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm>; file “gdp2q15_2nd.xlsx” Table 1 – Real Gross Domestic Product and Related Measures: Percent Change from Preceding Period.

²⁸ Virginia Employment Commission Report, Giles County Community Profile, page 20.

The average annual Giles County wage across all sectors in 2013 was \$38,100 as shown in Table 12. This wage rate was driven mainly by the high-paying 1,025 manufacturing jobs in the County, which averaged \$61,400 annually. Table 12 indicates that Giles County manufacturers paid, on average, 64% more than the next two highest-paying sectors (Government and Construction) in the county.

Table 12 – Annual Average Wages in Giles County by Sector²⁹

Sector	Average Annual Wage
Manufacturing	\$61,400
Government	\$37,300
Construction	\$36,900
Commercial	\$28,700
Arts, Entertainment, and Recreation	\$10,100
Weighted Average	\$38,100

The presence of manufacturing in Giles County also has a large influence on total wages paid. Table 13 shows that manufacturing represents over 36% of total wage income in Giles County while representing only 23% of employment. This is evidence of the extraordinary impact that manufacturing has on average county wage income.

Natural gas access could provide a significant boost in total wage income for Giles County. Combining the average wage rate for manufacturing with the 73 direct jobs potential from the previous section, we estimate that having additional gas capacity and access could increase total direct county-wide wages by almost \$4.5 million.

²⁹ Virginia Employment Commission Report, Giles County Community Profile, page 26.

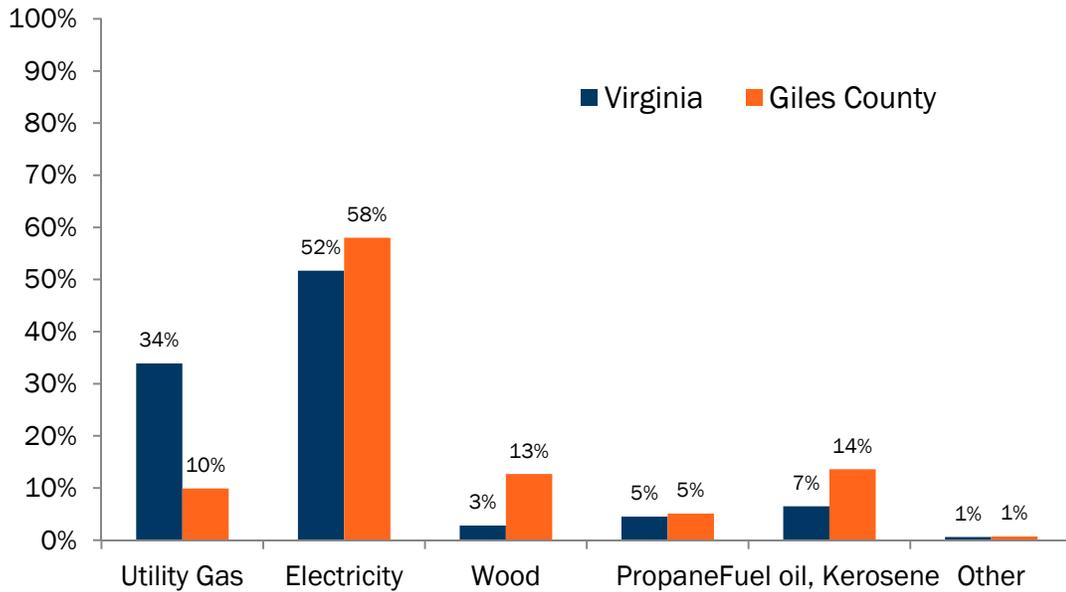
Table 13 – Giles County Total Wages by Sector – 2013 vs. Additional Jobs from MVP

Sector	2013 Total Wages	Share of Total Wages
Manufacturing	\$62,900,000	36.4%
Government	\$32,400,000	18.8%
Construction	\$18,300,000	10.6%
Commercial	\$58,900,000	34.1%
Arts, Entertainment, and Recreation	\$100,000	0.1%
Total	\$172,700,000	100%

Energy Profile

In the residential sector, approximately 58% of the 7,126 housing units in Giles County use electricity for home heating as shown in Figure 13, and 10% use natural gas. The remaining households use an almost equal mix of wood and fuel oil/kerosene.

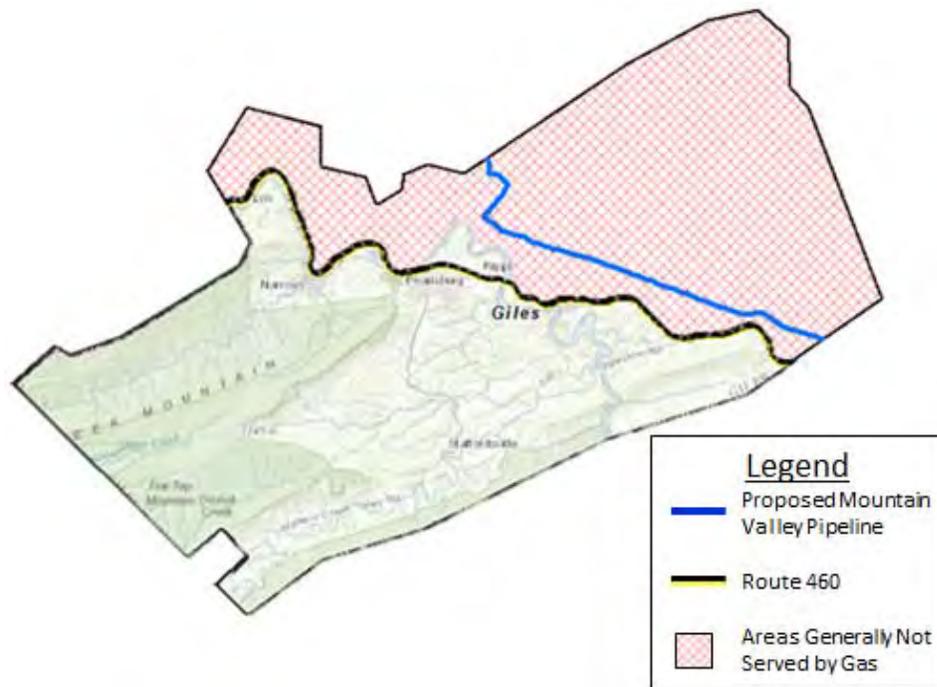
Figure 13 – Primary Space Heating Fuel Used in Giles County versus the Commonwealth, Percentage of Housing Units³⁰



Most of the consumers in Pearisburg and Narrows use gas and are serviced by Columbia Gas. However, these towns represent only 27% of the county households and commercial entities. Outside of these towns where the population density declines, residential and commercial consumers typically use electricity. Columbia Gas is the local distribution county (LDC) in Giles County with franchise rights. . We understand from interviews that the eastern portion of Giles County (east of the New River & Rt. 460) has no gas access as shown in Figure 14.

³⁰ 2013 US Census Bureau 5 Year American Community Survey.

Figure 14 – Portion of Giles County without Gas Access



In the manufacturing and electric sectors, there is a mix of fuel types used as shown in Table 14. The primary reliance on coal for some of its fuel has been due to economics associated with pipeline access, available capacity, and reliability.

Table 14 – Primary Fuel Consumed by Major Manufacturers in Giles County

Manufacturer	Fuel
Celanese	Coal, but switching to gas
LHoist	Coking Coal
Glen Lyn Power Plant	Coal, slated to be closed
Jennmar	Electricity
UFP Mid-Atlantic	Gas
GE Fairchild	Propane

For transportation fuels, county end-use sectors consume primarily refined oil products – diesel and gasoline – along with insignificant volumes of natural gas and biofuels.

3. Montgomery

Economic Profile

Montgomery County, VA is a 389 square-mile county located in Southwest Virginia with a population of 96,207. The county has a relatively strong economy. Its nominal GDP in 2013 was \$6.0 billion or \$62,366 per person.³¹ The real GDP grew by 1.4% from 2013 to 2014³² compared to the U.S. GDP real growth of 2.4%³³ during the same time period. Its 2014 unemployment rate of 5.2% is at the Virginia average and just the national average of 6.2%.

The county counted 2,105 employers in 2013 with total employment of 40,633 or 19 employees per employer.³⁴ Approximately 12% of the County residents work in manufacturing as shown in Table 15.

Blacksburg is the largest town with a population of 42,620 and is home to Virginia Polytechnic Institute and State University, better known as Virginia Tech. Virginia Tech is one of the nation's leading educational institutions and research universities. Blacksburg is also home to the Virginia Tech Corporate Research Center which is a research/business park that supports the region's high tech industries with over 140 high tech companies and research centers employing more than 2,000 people.³⁵

Table 15 – Employment in Montgomery County by Sector³⁶

Sector	Employment	Percent of Total Employment
Commercial	21,158	52.1%
Government	13,255	32.6%
Manufacturing	4,742	11.7%
Construction	1,077	2.7%
Other	401	1.0%
Total	40,633	100%

Manufacturing employs over 4,700 workers, representing 12% of the jobs in the county. Below are some of the largest manufacturers:

³¹ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

³² National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

³³ <http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm>; file "gdp2q15_2nd.xlsx.xls" Table 1 – Real Gross Domestic Product and Related Measures: Percent Change from Preceding Period.

³⁴ Virginia Economic Development Partnership Report, Montgomery County Community Profile, page 4.

³⁵ Virginia Economic Development Partnership Report, Montgomery County Community Profile, page 3.

³⁶ Virginia Economic Development Partnership Report, Montgomery County Community Profile, page 22; FTI analysis.

- **Corning Glass Works:** A public company, located in Blacksburg, VA, that produces specialty glass, ceramics, and other materials used in the consumer electronics, telecommunications, transportation, and life sciences industries. The Blacksburg facility manufactures automotive ceramic substrates.
- **Federal Mogul Corp:** A publicly-traded company that creates products used in automotive, light commercial, heavy-duty and off-highway vehicles, as well as in power generation, aerospace, marine, rail and industrial. Located in Blacksburg, VA, it employs over 400 people.
- **Lexington Rowe Furniture Inc.:** An upscale furniture manufacturer located in Elliston, VA.
- **Moog, Inc.:** A public designer, manufacturer, and integrator of precision motion control products and systems, located in Blacksburg, VA. The Blacksburg location is specifically a design and manufacturing facility for motors, resolvers and fiber optic devices for military and aerospace markets and they also manufacture large slip rings for medical applications. Moog has 400,000 square feet in Montgomery County and relies primarily on electricity for processes.
- **New River Energetics:** Operated by Alliant Techsystems, and located in Radford, VA. This is a business involved in loading, assembling, and packing medium-caliber ammunition, as well as developing and producing commercial propellants. The company has 10 employees and \$1,000,000 in annual sales.
- **United Pet Group Inc.:** The aquatics division of United Pet Group is located in Blacksburg, VA. The company is a marketer and manufacturer of consumer and commercial aquatics products for the pet supplies industry.

Manufacturing jobs represent the highest wages among all job sectors in Montgomery County. As Table 16 shows, with an average of \$53,700 per year, manufacturing jobs are 33% higher than the average wage in the County.

Table 16 – Annual Average Wages in Montgomery County by Sector³⁷

Sector	Average Annual Wage
Manufacturing	\$53,700
Government	\$50,200
Construction	\$40,000
Commercial	\$31,500
Arts, Entertainment, and Recreation	\$11,900
Weighted Average	\$40,300

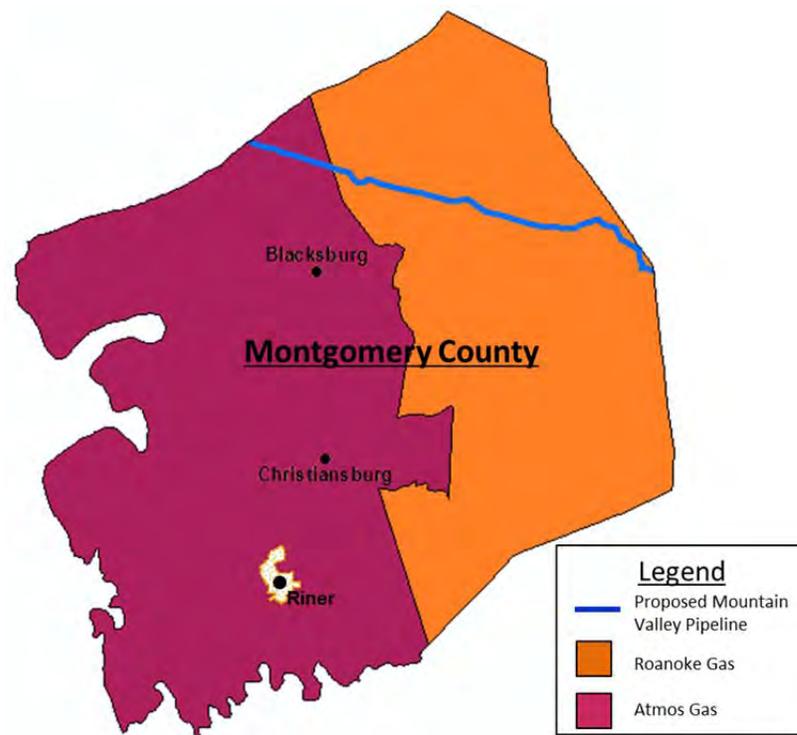
³⁷ Virginia Employment Commission Report, Montgomery County Community Profile, page 26; FTI analysis.

Furthermore, our analysis determined that energy-intensive manufacturers generally pay more than other manufacturing jobs. For example, in Giles County, where energy-intensive companies such as Celanese and LHoist are the top employers in the sector, average wages are more than \$60,000, which is 58% higher than the average wage in Montgomery County.

Energy Profile

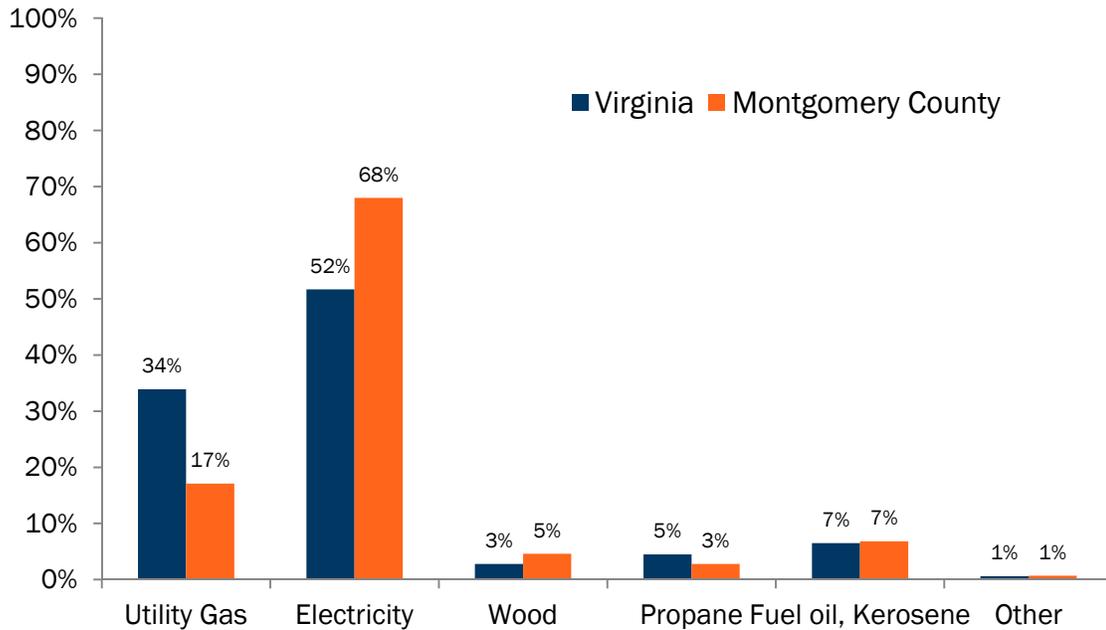
There is natural gas access in most of Montgomery County through Atmos in the western portion of the county and Roanoke Gas in the east as shown in Figure 15. One small area that is not served by natural gas is Riner, VA, which is south of Christiansburg.

Figure 15 – Natural Gas Service Territories in Montgomery County



A large portion of households (68%) use electricity as their primary fuel source for home heating as shown in Figure 16, and 17% use natural gas. Typically, commercial and municipal buildings follow the same pattern since natural gas as a fuel choice often is driven by accessibility.

Figure 16 – Primary Space Heating Fuel Used in Montgomery County versus the Commonwealth, Percentage of Housing Units³⁸



For the manufacturing sector, the primary fuel sources are natural gas and electricity.

4. Pittsylvania

Economic Profile

Pittsylvania County, VA is a 978 square-mile county located in the Piedmont region of Virginia with a population of 62,246. Its nominal GDP in 2014 was \$4.0 billion or \$64,000 per person. The real GDP declined by 2.3% from 2013 to 2014³⁹ compared to the U.S. GDP real growth of 2.4% during the same time period.⁴⁰ Its 2014 unemployment rate of 7.5% is above both the Virginia average of 5.2% and the national average of 6.2%.

The city of Danville, which is outside of the county, is located along the southern border of Pittsylvania. This economically diverse county has a substantial manufacturing and commercial base due to access to highway and rail transportation systems. Chatham is the largest town in Pittsylvania.

³⁸ 2013 US Census Bureau 5 Year American Community Survey.

³⁹ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

⁴⁰ <http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm>; file "gdp2q15_2Nd.xlsx" Table 1 – Real Gross Domestic Product and Related Measures: Percent Change from Preceding Period.

Pittsylvania County has a total employment of 11,824. The majority (47%) are workers in the commercial sector, followed by government (25%) and manufacturing (17%) as shown in Table 17. The county counted 1,223 employers in 2013 with an average employment of 9 employees per employer.⁴¹

Table 17 – Employment in Pittsylvania County by Sector

Sector	Employment	Percent of Total Employment
Commercial	5,510	46.6%
Government	2,979	25.2%
Manufacturing	2,020	17.1%
Construction	941	8.0%
Other	374	3.2%
Total	11,824	100%

Manufacturers in Pittsylvania County employ more than 2,000 people, which represent 17.1% of the total employment in the county. Manufacturers are primarily located around the Danville perimeter and in the Chatham area, and most have access to natural gas.

- **Amthor International:** A private company that manufactures tanks for fuel, propane, water and tank trucks. The company employees over 100 people in an 86,000 square foot facility located in Gretna, Virginia.
- **Elkay Wood Products Company:** Manufacturer of wood kitchen cabinets and countertops, which employs 500 employees at the Ringgold, Virginia location.
- **Owens Brockway Glass:** Creates glass contains for food, beer, wine, spirits and non-alcoholic beverage industries. Owens has locations in North American, Latin America, Europe, Asia and Australia. It also has a facility in Ringgold, Virginia.
- **Swedwood Danville LLC:** A furniture manufacturer which is a Swedish based subsidiary of IKEA. Production facility and local head office are located in Ringgold, Virginia, occupying one million square feet and employing 400 workers.

⁴¹ Virginia Employment Commission Report, Pittsylvania County Community Profile, page 22.

- **Times Fiber Communication:** A global manufacturer of high quality cables, fiber optic management equipment, and interconnect products for cable television, satellite, data, and powering applications for broadband communications networks. There is a facility located in Chatham, Virginia.
- **Unique Industries:** A wholesale supplier of party goods, located in Blairs, Virginia. Unique Industries employs over 350 associates in a 750,000 square foot facility. Facility uses natural gas.

Natural gas is important to retaining existing manufacturers and attracting new manufacturers to the county. Our interviews and analysis identified that manufacturers value abundant and reliable gas service and that access to natural gas is a primary criterion for determining where to locate new manufacturing facilities.

Manufacturing jobs represent the highest wages among all job sectors in Pittsylvania County. As Table 18 shows, with an average of \$43,700 per year, manufacturing jobs are 40% higher than the average wage in the County.

Table 18 – Annual Average Wages in Pittsylvania County by Sector⁴²

Sector	Average Annual Wage
Manufacturing	\$43,700
Government	\$35,600
Construction	\$29,600
Commercial	\$24,400
Arts, Entertainment, and Recreation	\$21,000
Weighted Average	\$31,400

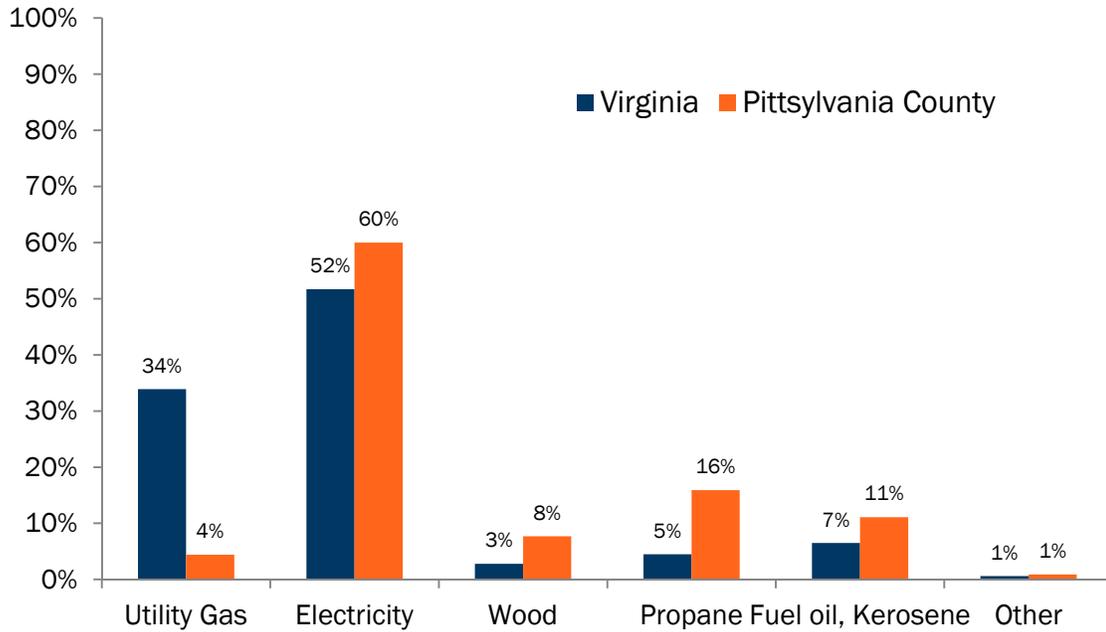
Energy Profile

The Williams Transco Pipeline cuts across the state and provides natural gas access to Chatham. Columbia Gas serves Hurt, which is a small town in the northern part of the county. Some areas bordering Danville, such as Ringgold, are served by the City of Danville. Most other towns, including Gretna, do not have natural gas service. As a result, large portion of households (60%) use

⁴² Virginia Employment Commission Report, Pittsylvania County Community Profile, page 26.

electricity as their primary fuel source for home heating as shown in Figure 16, and only 4% use natural gas.

Figure 17 – Primary Space Heating Fuel Used in Pittsylvania County versus the Commonwealth, Percentage of Housing Units⁴³



The majority of manufacturers use gas and electricity.

⁴³ 2013 US Census Bureau 5 Year American Community Survey.

5. Roanoke

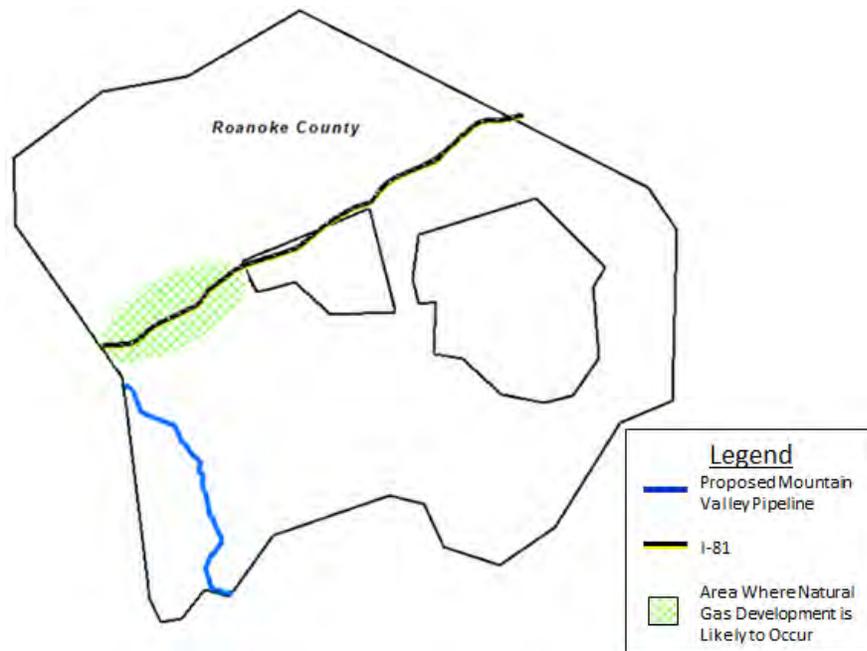
Economic Profile

Roanoke County, VA is a 251 square-mile county located in Southwest Virginia with a population of 93,524. It is the largest urban county in Virginia west of Richmond and the suburban hub of the Roanoke Valley. With I-81 running through Roanoke, the county has easy access to major markets along the east coast and is close to a number of major universities.

The county has a relatively strong economy. While its nominal GDP in 2014 was \$7.0 billion or \$75,000 per person, real GDP growth was only 0.8% from 2013 to 2014⁴⁴ compared to the U.S. real GDP growth of 2.4%.⁴⁵ The unemployment rate in Roanoke County is 5.0%, which is just below the Virginia average of 5.2% and below the national average of 6.2%.

There are two independent cities within the Roanoke County boundaries that are not part of the county – Roanoke and Salem. Parts of western Salem stretch into Roanoke County and form the Glenvar and Dixie Caverns areas, where there is significant commercial and manufacturing activity. According to the Roanoke County Department of Economic Development, much of the county’s industrial development likely will occur along I-81 in the Dixie Caverns and Glenvar areas as shown in Figure 18. This area is in need of additional gas infrastructure.

Figure 18 – Areas Where Natural Gas Development is Likely to Occur



⁴⁴ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

⁴⁵ <http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm>; file “gdp2q15_2Nd.xlsx” Table 1 – Real Gross Domestic Product and Related Measures: Percent Change from Preceding Period.

The county counted 2,269 employers in 2013 with total employment of 34,301 or 15.1 employees per employer.⁴⁶ Approximately 8.4% of County residents work in manufacturing as shown in Table 19. The Roanoke County School Board is the largest employer in the county.

Table 19 - Employment in Roanoke County by Sector⁴⁷

Sector	Employment	Percent of Total Employment
Commercial	24,764	72.2%
Government	4,997	14.6%
Manufacturing	2,892	8.4%
Construction	978	2.9%
Entertainment	447	1.3%
Other	223	0.7%
Total	34,301	100%

Manufacturers in Roanoke County employ approximately 2,900 people and represent 8% of the total employment in the county. Most of these manufacturers already have access to natural gas through Roanoke Gas. Below are some of the largest manufacturers in the county:

- **Americold:** Located in Glenvar. Americold provides temperature controlled warehousing and logistics with the largest network in the US.
- **Blue Ridge Beverage:** Located in Glenvar – one of five locations throughout Virginia. Blue Ridge Beverage is a wholesale beverage distributor. The Glenvar facility is 78,000 square feet.
- **Industrial Battery and Charger:** Located in Glenvar. Largest independent and family owned distributor of industrial batteries and chargers in the US. Operates 12 branch locations covering AL, FL, GA, KY, NC, SC, TN, VA, and DC.
- **New Millenium:** Located in Glenvar. Provides structural steel building solutions. 6 locations across the US including a manufacturing facility. Salem plant manufactures steel joists and metal decking.
- **Novozymes:** Located near Dixie Caverns in the Center for Research and Technology. Novozymes is a leader in innovation, provide biological solutions used in the production of

⁴⁶ Virginia Employment Commission Report, Roanoke County Community Profile, page 20.

⁴⁷ Virginia Employment Commission Report, Roanoke County Community Profile, page 22.

numerous products such as biofuel, detergents, feed, and crops. The Salem facility is one of 10 in the U.S. and 33 worldwide.

- **RR Donnelley:** Located in Glenvar. RR Donnelley provides printing services to clients around the world. The company employs over 57,000 worldwide and has \$10.5B in sales. This plant is currently a large electricity consumer.
- **Synchrony:** Headquartered in Glenvar. Manufactures many products including active magnetic bearings, high speed motors and generators, and power electronics for clean, efficient, and reliable rotating machinery. The Salem manufacturing facilities span 57,800 square feet.
- **Tecton:** Located near Dixie Caverns in the Center for Research and Technology. Tecton designs and manufactures fiberglass products for the construction industry. The Salem facility is 73,500 square feet on a 20 acre site.

Manufacturing jobs represent among the highest wages among all job sectors in Roanoke County. As Table 20 shows, with an average of \$46,020 per year, manufacturing jobs are 17% higher than the average wage in the county.

Table 20 - Annual Average Wages in Roanoke County by Sector⁴⁸

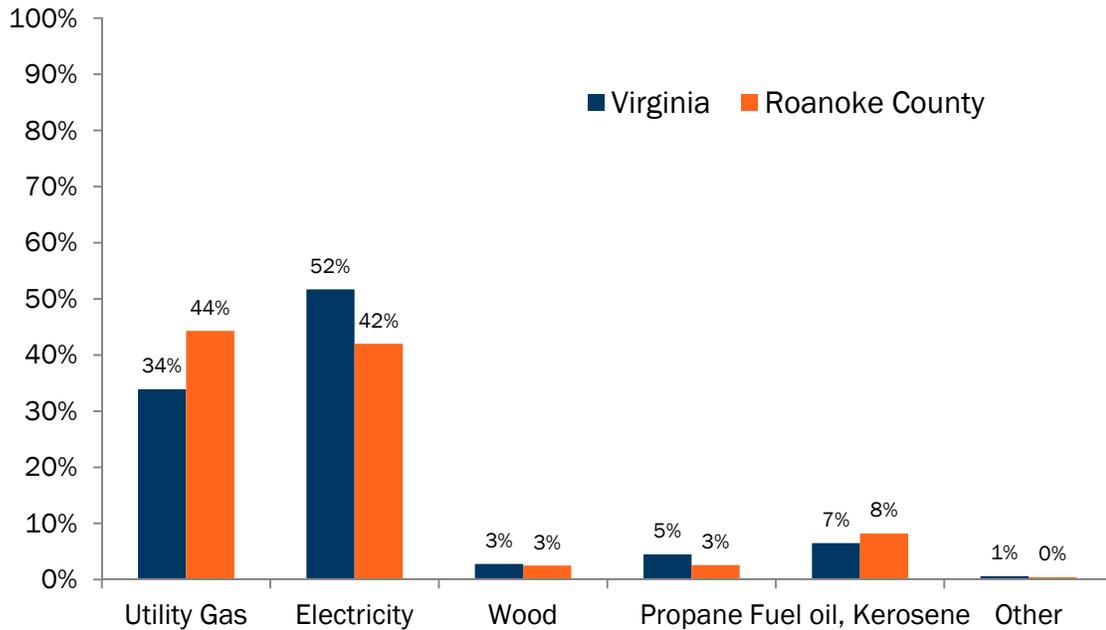
Sector	Average Annual Wage
Government	\$51,480
Manufacturing	\$46,020
Commercial	\$36,111
Construction	\$33,592
Entertainment	\$12,792
Weighted Average	\$39,234

Energy Profile

The residential, commercial, and municipal sectors in Roanoke County mainly use gas and electricity as their home heating fuel choice. As Figure 19 shows, the majority of households use natural gas as their primary fuel source for home heating. Typically, commercial and municipal buildings follow the same pattern since natural gas as a fuel choice often is driven by accessibility.

⁴⁸ Virginia Employment Commission Report, Roanoke County Community Profile, page 26.

Figure 19 – Primary Space Heating Fuel Used in Roanoke County versus the Commonwealth, Percentage of Housing Units⁴⁹



Based on our interviews, we found that the majority of manufacturers use gas and electricity to drive their processes. This preference for gas over other fuels typically is due to accessibility of gas relative to where manufacturers are located in the county along with the cost of gas. It is worth noting that a significant amount of manufacturing electricity consumption could be transferred to on-site, distributed generation if the economics and load profile of the consumption are amenable.

For transportation fuels, we found that traditional oil-refined fuels – gasoline and diesel – represent the vast majority of fuel consumption. Alternative transportation fuels, such as compressed natural gas, could be a substitute, especially for fleet vehicles.

6. Craig

Craig County is a 331 square-mile county located in Southwest Virginia with a population of 5,210. This sparsely-populated county had a nominal GDP in 2014 of \$85.5 million or \$16,411 per person. The real GDP declined slightly by 0.3% from 2013 to 2014⁵⁰ compared to the U.S. GDP growth of

⁴⁹ 2013 US Census Bureau 5 Year American Community Survey.

⁵⁰ National Association of Counties. <http://www.uscounties.org/countyTracker/index.html>

2.4% during the same time period.⁵¹ Its 2014 unemployment rate of 6.3% is above the Virginia average of 5.2%, and only slightly above the national average of 6.2%.

Craig is a rural county, with Jefferson National Forest and Niday State Park covering nearly two-thirds of the county. The county has not stop lights and is criss-crossed by Virginia Scenic Byways.⁵² New Castle, the county seat, is the only town in the county. It has a population of only 153.

As shown in Table 11, Craig County had 674 employees in 2013 and no manufacturing sector.⁵³ A large portion of the county employment is in the commercial and government sectors (82%). The Craig County Public School system is the largest employer. Many of Craig's residents commute into nearby Roanoke.

Table 21 – Employment in Craig County by Sector

Sector	Employment	Percent of Total Employment
Commercial	294	44%
Government	258	38%
Construction	16	2%
Manufacturing	0	0%
Other	106	16%
Total	674	100%

The average annual Craig County wage across all sectors in 2013 was \$30,024 as shown in Table 12. Government is the only sector that earns wages above the county average.

⁵¹ <http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm>; file "gdp2q15_2nd.xlsx" Table 1 – Real Gross Domestic Product and Related Measures: Percent Change from Preceding Period.

⁵² <http://craigcountyva.gov/about/>

⁵³ Virginia Employment Commission Report, Craig County Community Profile, page 20.

Table 22 – Annual Average Wages in Craig County by Sector⁵⁴

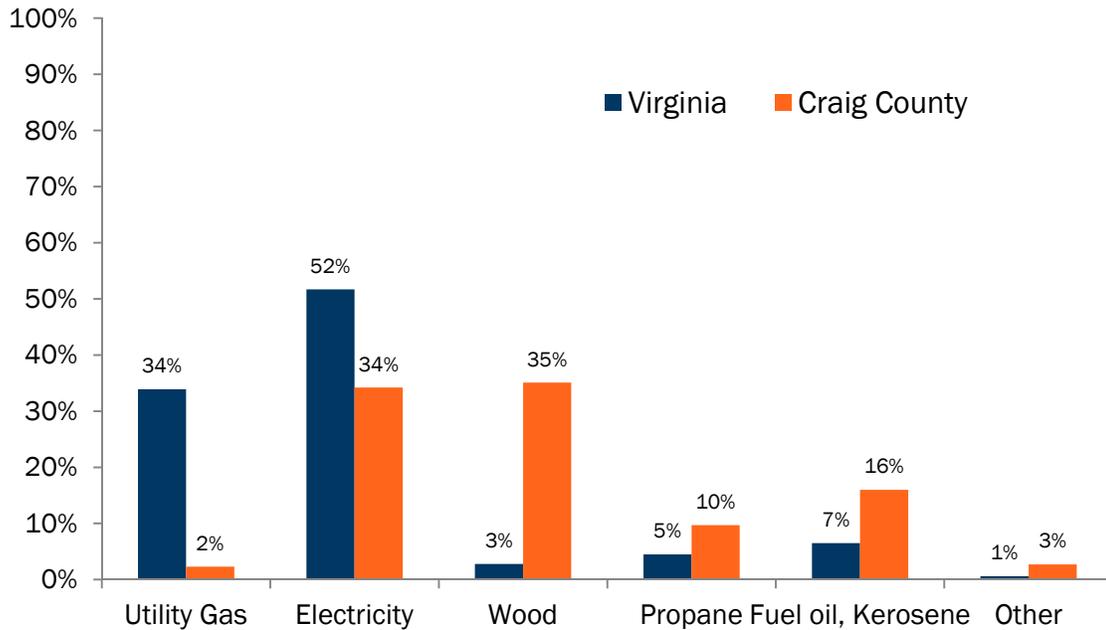
Sector	Average Annual Wage
Government	\$39,156
Commercial	\$27,079
Construction	\$20,384
Other	\$17,420
Weighted Average	\$30,024

Energy Profile

Craig County generally has no natural gas access. As Figure 13 shows, the majority of the county's households use wood (35%), electricity (34%), and delivered petroleum-based fuels (26%) for home heating. The commercial and municipal sectors consume mainly electricity and petroleum-based fuels for space heating purposes.

⁵⁴ Virginia Employment Commission Report, Craig County Community Profile, page 26.

Figure 20 – Primary Space Heating Fuel Used in Craig County versus the Commonwealth, Percentage of Housing Units⁵⁵



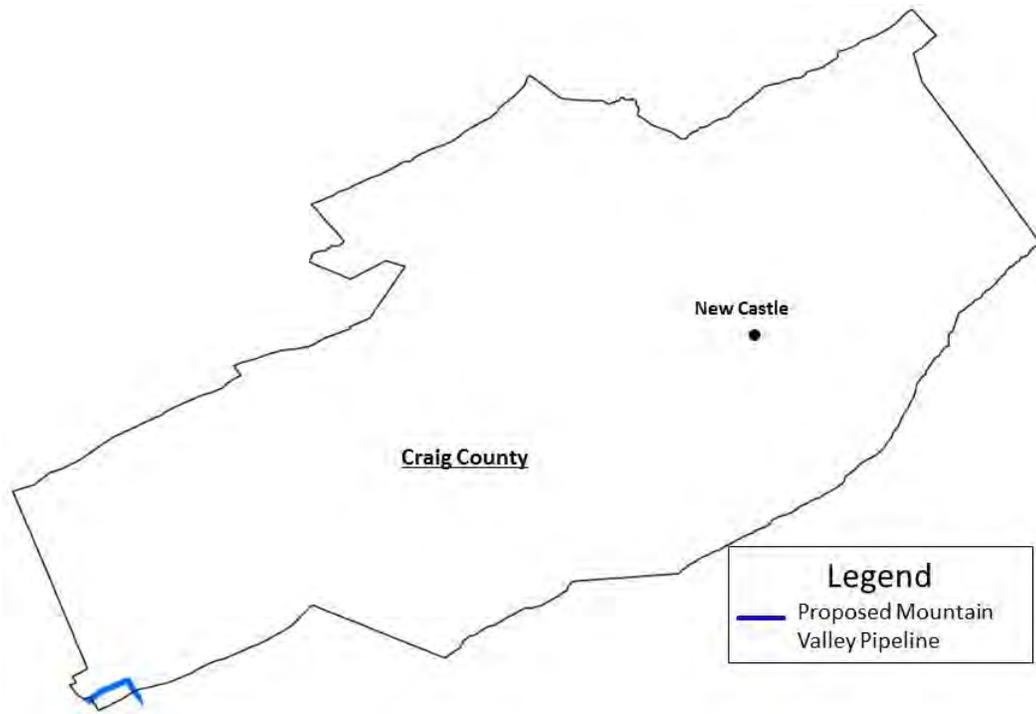
The MVP project would clip the southwestern corner of the Craig County with a 1.8 mile segment (Figure 21). The Town of New Castle, which would be 9 to 14 miles from the planned route, is not served by natural gas. The MVP project could create a savings opportunity for consumers if they were to switch to natural gas. Delivered natural gas prices in 2014 in Virginia were 65% less than the cost of average residential electricity prices in Craig County.

While there currently is no manufacturing activity in Craig County, the MVP project could help attract new manufacturers to the county as it would provide access to a supply of affordable fuel. The benefits of manufacturing to an economy are clear. In neighboring Giles County, the manufacturing sector employs over 1,000 people, accounting for \$63 million in annual wages or \$63,000 in average annual wages per employee.

Fuel switching in municipal and private vehicle fleets presents a possible savings opportunity, but only if a refueling station was shared with Roanoke County along I-81. There are about 15 potential county vehicles, which if converted from gasoline and diesel, would yield about \$60,000 in annual county savings.

Figure 21 – Proposed Route of MVP Pipeline in Craig County

⁵⁵ 2013 US Census Bureau 5 Year American Community Survey.





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AT THE CRITICAL TIME™**

About FTI Consulting

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Attachment K

VARIANCE REQUEST FORM
Mountain Valley Pipeline Project

CIC USE ONLY

Variance Request Number:
VA-MVP-001

Date received by CIC:
March 13, 2018

Section A – Owner/Contractor to Complete

Descriptive Title: White Pine off ROW Requested Start Work Date: Upon approval

Purpose and Need Statement:

The USFS has requested that MVP walk off ROW to cut and retrieve a tree top that fell off ROW.

Description of Request:

A 10" DBH white pine tree fell off ROW during hand felling activities at station 11593+85. Approximately 30-feet of the top is off ROW on USFS property beyond the approved project limits of disturbance. The USFS inspector, Bill Bryant, requested that the top be cut into manageable lengths and returned to the approved ROW by hand.

Alternatives Considered:

Typically, this tree would be picked up with mechanized equipment and moved back to the ROW. However, due to potential damage that could occur to other trees, the USFS has requested that this be resolved by hand.

NEPA/Resource Analysis:

NEPA

The Affected Area is Analyzed within the EIS: Yes No Document Citation: _____

Forest Plan Consistency Review: Consistent Conflict

Notes:

N/A

Activity is Within Previously Surveyed Areas: Yes No

Impact to Eligible Site: Yes No

Brief Summary:

N/A

Proposed Mitigation:

N/A

Biological Resources

Activity is Within Previously Surveyed Areas: Yes No

Noxious Weeds Present: Yes No

Impact to Sensitive Resource: Yes No

Brief Summary:

N/A

Proposed Mitigation:

N/A

Wetlands/Streams

Impact to Sensitive Resource: Yes No

Brief Summary:

N/A

Proposed Mitigation:

N/A

Other Resources (Potential Impacts to Other Sensitive Resources Visual/Recreation/Hydrology/Soils/Other)

Brief Summary:

N/A

Proposed Mitigation:

N/A

Disturbance Assessment:

Does the Request Result in Additional Disturbance Not Addressed in the POD/EIS: Yes No N/A

Does the variance require tree clearing: Yes No N/A

Does the variance affect a steep slope area: Yes No N/A

Disturbance Not Accounted for in POD:

Activity	Additional Temporary Disturbance (acres)	Additional Permanent Disturbance (acres)
Removal of felled tree off ROW	0	0
Total (acres):	0	0

Disturbance Notes:

N/A

Support Materials:

Provide a map (required), supporting graphic, information, and resource reports that support or explain the proposed activity, as needed.

Map/Drawing Engineering Drawing Photos Additional Resource Reports

Owner Authorization or Variance:

EQT confirms that this variance has been reviewed and is needed to complete the Mountain Valley Pipeline Project

VARIANCE REQUEST FORM
Mountain Valley Pipeline Project

CIC USE ONLY

Variance Request Number:

VA-MVP-001

Date Received by CIC:

March 13, 2018

Section B – Compliance Inspection Contractor / Agency Review

Variance Level Determination

- Level 1** (Minor field adjustment within the approved ROW grant that conforms to the POD) – Forest Supervisor or Authorized Officer
- Level 2** (Consistent with the EIS, but may require additional resource survey and concurrence with resource specialists) – Forest Supervisor or Authorized Officer
- Level 3** (Action that requires additional NEPA) – Regional Manager

Specialist Review (Assigned by Project Manager)

Wildlife	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Botany	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Aquatic	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Hydrology	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Soils	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Geology	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Cultural	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Recreation	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Engineering	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Visual	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Other:	_____	Date: _____	N/A: <input checked="" type="checkbox"/>

BLM Authorized Officer:	<u><i>Mitchell Leverette</i></u> <small>Mitchell Leverette (Mar 15, 2018)</small>	Date: <u>Mar 15, 2018</u>	Decision: <u>Approve</u>
U.S. Forest Service Regional Manager (Level III):	_____	Date: _____	Decision: _____
U.S. Forest Service Supervisor/Authorized Officer (Level I, II):	<u><i>Joby P. Timm</i></u> <small>Joby P. Timm (Mar 15, 2018)</small>	Date: <u>Mar 15, 2018</u>	Decision: <u>Approve</u>
FERC Project Manager (Level I, II, III):	<u><i>At the direction of Paul Friedman - Lavinia M. DiSanto</i></u> <small>At the direction of Paul Friedman - Lavinia M. DiSanto (Mar 22, 2018)</small>	Date: <u>Mar 22, 2018</u>	Decision: <u>Approve</u>
EQT Project Manager/ Authorized Officer (Level I, II, III):	<u><i>Megan E. Neylon</i></u> <small>Megan E. Neylon (Mar 15, 2018)</small>	Date: <u>Mar 15, 2018</u>	Decision: <u>Approve</u>

Stipulations (additional comments need to be added below the respective stipulation)

Stipulations:

Please notify Transcon when the work will take place.

Stipulations (additional comments need to be added below the respective stipulation)

Stipulation:

VARIANCE REQUEST FORM
Mountain Valley Pipeline Project

CIC USE ONLY

Variance Request Number:

VA-MVP-002

Date received by CIC:

04/05/2018

Section A – Owner/Contractor to Complete

Extend tree cutting window to
between March 31 and May 31,
Descriptive title: 2018 Requested start work date: April 7, 2018

Land jurisdiction: George Washington/Jefferson National Forest Other: _____

Purpose and need statement

Despite the exercise of due diligence and due to circumstance by third parties beyond their control, Mountain Valley requests a variance to cut trees within the pipeline right of way in an area at the top of Peters Mountain where individuals have been occupying trees since February 26, 2018. In addition, some additional trees adjacent to the Pocahontas and Mystery Ridge Access roads may need to be removed to conduct needed road improvements to safely remove trees cut within the pipeline right of way. No more than 130 trees are expected to be removed between March 31 and May 31, 2018.

Description of request

See attached request from Mathew Eggerding, Mountain Valley Pipeline, LLC, dated March 30, 2018.

Geographic location/milepost

An area within the approved right of way at the top of Peters Mountain where individuals are occupying trees. Several other identified areas within the Pocahontas and Mystery Ridge access roads, where additional trees have been identified need to be removed to accommodate needed road improvements for the tree removal stage within the pipeline right of way.

Alternatives considered

Adhere to the March 31 date for tree cutting to comply with the Migratory Bird Treaty Act. This has been determined to not be a viable alternative due to the significant impacts to MVP project scheduling when compared to the potentially minor impacts of the remaining small areas where tree felling needs to occur.

NEPA/resource analysis

NEPA

The affected area is analyzed within the EIS: Yes No Document citation: FERC/FEIS -- 0272F June 2017

Forest Plan Consistency Review:

Consistent Conflict

Notes:



Cultural resources

Activity is within previously surveyed areas: Yes No Impact to Eligible site: Yes No

Brief summary:

Proposed mitigation:

Biological resources

Activity is within previously surveyed areas: Yes No Noxious weeds present: Yes No

Impact to sensitive resource: Yes No

Brief summary:

Potential impact to nesting birds within the area of no more than 130 trees to be felled between March 31 and May 31, 2018.

Proposed mitigation:

Mountain Valley has stated in attached letter dated March 30, 2018 that they would conduct surveys for "nesting project-specific migratory bird species in remaining tree clearing areas prior to vegetation clearing" (see attached letter dated March 30, 2018). In addition, recent Opinion from the Office of the Solicitor for the Department of Interior states that the Migratory Bird Treaty Act does not prohibit incidental take, which includes tree felling activities, where the purpose of the activity is not to "take or kill" migratory birds (see attached letter dated Dec 22 2017).

Wetlands/streams

Impact to sensitive resource: Yes No

Brief summary:

Proposed mitigation:

Other resources (potential impacts to other sensitive resources visual/recreation/geological features/soils/other)

Brief summary:



Proposed mitigation:

Disturbance Assessment:

Does the request result in additional disturbance not addressed in the POD/EIS:

Yes No N/A

Does the variance require tree clearing: Yes No N/A

Does the variance affect a steep slope area: Yes No N/A

Disturbance not accounted for in POD:

Activity	Additional Temporary Disturbance (acres)	Additional Permanent Disturbance (acres)
Total (acres):		

Disturbance notes:

Support materials

Provide a map (required), supporting graphic, information, and resource reports that support or explain the proposed activity, as needed.

Map/drawing Engineering drawing Photos Additional resource reports

Owner authorization or variance

EQT confirms that this variance has been reviewed and is needed to complete the Mountain Valley Pipeline Project

VARIANCE REQUEST FORM
Mountain Valley Pipeline Project

CIC USE ONLY

Variance Request Number:

Date Received by CIC:

Section B – Compliance Inspection Contractor / Agency Review

Variance Level Determination

- Level 1** (Minor field adjustment within the approved ROW grant that conforms to the POD) – Forest Supervisor or Authorized Officer
- Level 2** (Consistent with the EIS, but may require additional resource survey and concurrence with resource specialists) – Forest Supervisor or Authorized Officer
- Level 3** (Action that requires additional NEPA) – Regional Manager

Specialist Review (Assigned by Project Manager)

Wildlife	<u><i>Gary Morris</i></u>	Date: <u>4/6/18</u>	N/A: <input type="checkbox"/>
Botany	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Aquatic	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Hydrology	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Soils	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Geology	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Cultural	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Recreation	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Visual	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Engineering	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Other:	_____	Date: _____	N/A: <input checked="" type="checkbox"/>

BLM Authorized
Officer:

Mitchell Leverette

Date: 4/23/18

Decision: Approved

U.S. Forest Service
Regional Manager
(Level III):

Date: _____

Decision: _____

U.S. Forest Service
Supervisor/Authorized
Officer (Level I, II):

[Signature]

Date: 4/6/18

Decision: APPROVED

FERC Project Manager
(Level I, II, III):

Date: _____

Decision: _____

EQT Project
Manager/Authorized
Officer (Level I, II, III):

See letter from Mathew
Eggerding

Date: March
30, 2018

Decision: _____

Stipulations (additional comments need to be added below the respective stipulation)

Stipulation:

VARIANCE REQUEST FORM
Mountain Valley Pipeline Project

CIC USE ONLY

Variance Request Number: VA-MVP-003
Date received by CIC: 4/12/2018

Section A – Owner/Contractor to Complete

Descriptive Title: Trees off ROW Requested Start Work Date: Upon approval of mechanized tree removal

Purpose and Need Statement:

To retrieve trees that have fallen off the right-of-way.

Description of Request:

MVP is requesting to retrieve trees that have fallen off the right-of-way. MVP will utilize mechanical equipment from the right-of-way to pick up each tree and carry it back onto the right-of-way. If it is determined due to potential damage to a resource that the tree cannot be brought back onto the right-of-way by mechanical equipment within the LOD, MVP personnel will walk off right-of-way and cut the tree into movable lengths and carry the sections back onto the right-of-way.

A total of 11 trees and/or tops have fallen outside of the right-of-way during timber felling operations and will need to be retrieved.

Locations are listed below:

MVP ROW
10395+37 N 37° 24' 01.40" W -80° 41' 45.02"
11559+97 N 37° 19' 21.40" W -80° 24' 53.10"

Pocahontas Road
237+90 N 37° 23' 13.88" W -80° 41' 45.02"
238+35 N 37° 23' 14.14" W -80° 41' 44.33"
274+18 N 37° 23' 31.21" W -80° 41' 28.76"
276+00 N 37° 23' 32.50" W -80° 41' 27.33"
281+00 N 37° 23' 30.63" W -80° 41' 23.73"
298+95 N 37° 23' 27.65" W -80° 41' 08.19"

Mystery Ridge Road (gate to deer camp)
310+75 N 37° 23' 21.50" W -80° 41' 03.33"
311+50 N 37° 23' 22.49" W -80° 41' 02.45"
325+11 N 37° 23' 17.91" W -80° 40' 59.45"

Northern Clearing will utilize forwarders, dozers, track hoes, and laborers with chain saws to remove the tree trunks and tops.

In some of these locations, multiple stems and/or treetops that fell across the road were pushed together when opening the road up for vehicular traffic. In these areas, all stems and/or treetops that are off right-of-way, will be picked up with mechanical equipment within the LOD and moved back onto the right-of-way at the same time. VA-MVP-003 includes up to 0.5 acres of additional impact for activities that occur along the edge of the limits of disturbance (LOD).

It's expected that these impacts would occur within the culturally surveyed area (approximately 30 feet from the LOD). It is not anticipated that tracked equipment will need to travel beyond the LOD. If MVP personnel cannot walk off right-of-way, cut the tree into movable lengths and carry the sections back onto the right-of-way and it does become necessary for a piece of equipment to move off of the right-of-way, MVP will work with the USFS to ensure that there is no impact to a sensitive resource and that the area is stabilized and mulched appropriately.

Alternatives Considered:

If this variance is not approved, the alternative solution is to cut the tree at the edge of the right-of way. The remaining portion outside of the right-of-way could remain. It could be determined that due to potential safety concerns or damage to resources that the tree should remain in place.

NEPA/Resource Analysis:

NEPA

The Affected Area is Analyzed within the EIS: Yes No Document Citation: _____

Forest Plan Consistency Review: Consistent Conflict

Notes:

N/A

Cultural Resources

Activity is Within Previously Surveyed Areas: Yes No Impact to Eligible Site: Yes No

Brief Summary:

N/A

Proposed Mitigation:

N/A

Biological Resources

Activity is Within Previously Surveyed Areas: Yes No Noxious Weeds Present: Yes No

Impact to Sensitive Resource: Yes No

Brief Summary:

N/A

Proposed Mitigation:

N/A

Wetlands/Streams

Impact to Sensitive Resource: Yes No

Brief Summary:

N/A

Proposed Mitigation:

N/A

Other Resources (Potential Impacts to Other Sensitive Resources Visual/Recreation/Hydrology/Soils/Other)

Brief Summary:

N/A

Proposed Mitigation:

N/A

Disturbance Assessment:

Does the Request Result in Additional Disturbance Not Addressed in the POD/EIS: Yes No N/A

Does the variance require tree clearing: Yes No N/A

Does the variance affect a steep slope area: Yes No N/A

Disturbance Not Accounted for in POD:

Activity	Additional Temporary Disturbance (acres)	Additional Permanent Disturbance (acres)
Removal of felled trees off ROW	0	0
Total (acres):	0	0

Disturbance Notes:

N/A

Support Materials:

Provide a map (required), supporting graphic, information, and resource reports that support or explain the proposed activity, as needed.

- Map/Drawing Engineering Drawing Photos Additional Resource Reports

Owner Authorization or Variance:



EQT confirms that this variance has been reviewed and is needed to complete the Mountain Valley Pipeline Project

VARIANCE REQUEST FORM
Mountain Valley Pipeline Project

CIC USE ONLY

Variance Request Number: VA-MVP-003
Date Received by CIC: 4/12/2018

Section B – Compliance Inspection Contractor / Agency Review

Variance Level Determination

- Level 1** (Minor field adjustment within the approved ROW grant that conforms to the POD) – Forest Supervisor or Authorized Officer
- Level 2** (Consistent with the EIS, but may require additional resource survey and concurrence with resource specialists) – Forest Supervisor or Authorized Officer
- Level 3** (Action that requires additional NEPA) – Regional Manager

Specialist Review (Assigned by Project Manager)

Wildlife	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Botany	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Aquatic	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Hydrology	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Soils	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Geology	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Cultural	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Recreation	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Engineering	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Visual	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Other:	_____	Date: _____	N/A: <input checked="" type="checkbox"/>

BLM Authorized
Officer:

Mitchell Leverette Date: 5/10/18 Decision: Approve

U.S. Forest Service
Regional Manager
(Level III):

____ Date: _____ Decision: _____

U.S. Forest Service
Supervisor/Authorized
Officer (Level I, II):

A.P.L. Date: 5/8/18 Decision: APPROVE

FERC Project Manager
(Level I, II, III):

____ Date: _____ Decision: _____

EQT Project
Manager/Authorized
Officer (Level I, II, III):

Megan Neylon
Megan Neylon (May 8, 2018) Date: May 8, 2018 Decision: Approve

Stipulations (additional comments need to be added below the respective stipulation)

Stipulation:

Please ensure that an EI is present for the work to limit the disturbance outside of the LOD.

Please notify the FS Compliance Monitor when the work will take place.

If additional trees are felled or discovered outside of the LOD, MVP will send an email to the FS and Transcon including the location(s), and method of removal. These new trees will require written FS approval. The methods outlined in this variance may only be used without a further variance. If trees are located near a sensitive area (e.g. biological, cultural, undulating edge, wilderness, IRA), it will need to be brought to the attention of the FS for additional review.

If tracked equipment is used outside of the LOD, all ruts or other ground disturbance will be raked to return the ground to its original condition.

If tracked equipment is used outside of the LOD, MVP is to map and calculate the areas of additional disturbance and send to the FS.

**United States Department of the Interior
BUREAU OF LAND MANAGEMENT**

**Environmental Impact Statement FERC/FEIS-0272F (CP16-10-000 and CP16-13-000)
Case File Numbers: VAES-058143 and WVES-058142**

DECISION

**Mountain Valley Pipeline Project
Decision to Amend Right-of-Way and Temporary Use Permit**

Mystery Ridge Road Widening Variance

U.S. Department of the Interior

Bureau of Land Management
Eastern States Office, Washington, D.C. and
Southeastern States District Office, Flowood, Mississippi

With the Concurrence of:

U.S. Department of Agriculture, George Washington-Jefferson National Forests

Eastern States Office
20 M Street SE Suite 950
Washington, DC 20003
202-912-7700

May 29, 2018

ATTACHMENTS

Attachment 1: Legal Description of Variance on Forest System Lands

Attachment 2: Map of Proposed Variance

Attachment 3: Amended Temporary Use Permit

Attachment 4: Determination of National Environmental Policy Act Adequacy

Attachment 5: Interdisciplinary Team Checklist

Attachment 6: Concurrence Letter, Forest Service Southern Region

ACRONYMS AND ABBREVIATIONS

ACOE	U.S. Army Corps of Engineers
AO	Authorized Officer
BLM	U.S. Department of the Interior, Bureau of Land Management
BO	Biological Opinion
Certificate	Certificate of Public Convenience and Necessity
DNA	Determination of National Environmental Policy Act Adequacy
DOI	U.S. Department of Interior
EPAct	Energy Policy Act
FEIS	Final Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
FS	U.S. Department of Agriculture, Forest Service
LRMP	Land and Resource Management Plan
MLA	Mineral Leasing Act
MOA	Memorandum of Agreement
MVP	Mountain Valley Pipeline, LLC
NEPA	National Environmental Policy Act
NGA	Natural Gas Act
NGPA	Natural Gas Policy Act
POD	Plan of Development
Project	Mountain Valley Pipeline Project
ROD	Record of Decision
ROW	Right-of-Way
SHPO	State Historic Preservation Office
TUP	Temporary Use Permit
USFWS	U.S. Department of Interior, Fish and Wildlife Service

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Introduction

The Federal Energy Regulatory Commission (FERC) is responsible for authorizing construction and operation of interstate natural gas pipelines. FERC issues Certificates of Public Convenience and Necessity (Certificate) for natural gas pipelines under Section 7 of the Natural Gas Act (NGA) of 1938, as amended, and authorizes construction and siting of facilities for the import or export of natural gas under Section 3 of the NGA. FERC also authorizes construction and operation of natural gas pipelines per the Natural Gas Policy Act (NGPA) of 1978 (15 U.S.C. 3341-3348). Accordingly, FERC served as the Lead Agency for Mountain Valley Pipeline, LLC's (MVP) application for the Mountain Valley Pipeline Project (Project). FERC used the Final Environmental Impact Statement (FEIS) it prepared according to the National Environmental Policy Act (NEPA) to issue its Certificate for the Project on October 13, 2017 (Attachment A in the Bureau of Land Management [BLM] Record of Decision [ROD], dated December 28, 2017). The Certificate authorizes MVP to construct approximately 303.5 miles of 42-inch-diameter mainline natural gas pipeline and related roads and aboveground facilities.

The approved Project route crosses approximately 3.5 miles of the Jefferson National Forest in Monroe County, West Virginia and Giles and Montgomery Counties in Virginia. The route also crosses a section of the Appalachian Trail, administered by the US Department of Agriculture Forest Service (FS), along with the Weston and Gauley Bridge Turnpike Trail administered by the U.S. Army Corps of Engineers (USACE).

While no BLM-administered lands are associated with the Project, the BLM is responsible for considering a Right-of-Way Grant (ROW) and Temporary Use Permit (TUP) application when lands administered by two or more Federal land management agencies are involved, per the Mineral Leasing Act (MLA). FERC issued an Order approving a Certificate of Public Convenience and Necessity on October 13, 2017. On December 28, 2017, BLM issued a Record of Decision (ROD) and associated ROW/TUP for the Project on Federal lands under the jurisdiction of the FS and USACE in Virginia and West Virginia. The ROD was prepared in accordance with NEPA, MLA, and other applicable federal laws and regulations. FS issued a ROD documenting approval of a five-part, project-specific Forest Plan amendment to the Jefferson National Forest's Revised Land and Resource Management Plan (LRMP, USDA Forest Service 2004), on December 1, 2017. BLM's and FS's respective RODs were based on the FERC FEIS issued in June of 2017 as well as MVP's Plan of Development (POD). The BLM, FS, and USACE served as cooperating agencies pursuant to Section 204 of NEPA and each have adopted the FEIS per Title 40 CFR Part 1506.3, and the BLM's ROD was prepared based on information contained in the FEIS for project-related actions affecting federal (FS and USACE) lands.

On May 25, 2018 MVP filed a proposal to amend the ROW Grant, Serial Nos. VAES-058143 and WVES-058142. This variation is termed the Mystery Ridge Road Widening Variance VA-MVP-004.

Mystery Ridge Road Widening Variance VA-MVP-004

This Decision addresses a minor amendment to the pipeline ROW/TUP. On May 25, 2018, MVP submitted an amendment to its Standard Form SF-299 and requested an amendment to its

ROW/TUP. The existing temporary use permit allows Mountain Valley to widen Mystery Ridge Road to 50-feet at some turns. To safely allow long truck trailers to travel through the hair-pin turn on Mystery Ridge Road in Giles, County, Virginia, Mountain Valley is requesting to use an additional polygon area of approximately 17 by 30 feet on the inside of the turn. The variance will allow MVP to widen the width of hairpin turn (from the outside to the inside of the turn) to an approximate width of 90 feet and allow MVP to hand-fell approximately 12 trees. The area of this proposed activity will total approximately 500 square feet or 0.011 acres and is within the resource survey boundary. The trees are currently marked in the field with yellow paint. During the road widening, equipment will be used to remove and store topsoil. The area will be graded to a flat surface using a bulldozer and will be rocked with gravel transported to the site on a dump truck. A backhoe will also be utilized for activities such as ditch work. After construction of the pipeline, Mountain Valley will restore the road, which will include removal of gravel, reducing the road to its original width, replacement of topsoil, and seeding and mulching pursuant to the requirements in the Mountain Valley POD.

The time of year restriction for tree felling activities was previously extended to May 31st as stated in Variance VA-MVP-002 and approved by the FS, BLM, and FERC.

Legal Descriptions of the variance and a map of the proposed change are detailed in Attachments 1 and 2, respectively.

Decision

In accordance with 30 U.S.C. 185(e), BLM has determined that an amendment to the ROW/TUP is necessary in connection with construction of the pipeline because the bore equipment and pipe truck required for construction will not be able to proceed past a hairpin turn without further work and there is no other route to safely allow the movement of construction vehicles to the right-of-way. After consideration of agency comments, and application of pertinent federal laws and policies, and in accordance with Title 43 CFR Part 2880, it is the decision of the BLM with concurrence of the U.S. Forest Service, to amend ROW/TUP VAES-058143/WVES-058142 to allow for the construction, use, maintenance, and reclamation of the widened area of Mystery Ridge Road in Giles County, Virginia.

Specifically, the ROW/TUP amendment for the Mystery Ridge Road Widening Variance will include a 90-foot road widening amounting to approximately 500 square feet or 0.011 acre of additional ground disturbance on federal lands.

The amendment to the ROW/TUP (Attachment 3) shall expire on December 31 of the 3rd full year from its effective date (December 31, 2021), unless, prior thereto, it is relinquished, abandoned, or terminated pursuant to the terms and conditions of this instrument or of any applicable Federal law or regulation. This amendment is issued under authority of the MLA, as amended and supplemented (30 USC 185 et seq.).

This decision only addresses the Mystery Ridge Road Widening Variance. Unless specifically modified by this Decision, all other elements of the December 28, 2017 ROD are incorporated

by reference and remain in full force and effect, including all stipulations, monitoring, and mitigation measures.

Rationale and Determination of NEPA Adequacy

The BLM concludes that granting this amendment to the ROW/TUP is necessary to the safe and timely completion of the construction work authorized by the ROW/TUP, for the reasons set forth above.

Furthermore, as explained in the attached DNA and ID Team Checklist (Attachments 4 and 5), BLM concludes that the existing NEPA documentation for the Mountain Valley Pipeline project, contained in the MVP FEIS, adequately analyzes the effects of the proposed action and constitutes BLM's compliance with the requirements of NEPA. Although the additional road widening authorized by this amendment to the ROW/TUP is not specifically described in the MVP FEIS, the FEIS analyzes construction and maintenance of access roads (see FEIS pages ES-11, 1-14, 2-22, 2-28, 2-41, 2-52 and Appendix E-1) and construction and design features aimed at addressing potential impacts from road construction and use (see FEIS pages 4-68 to 4-68, 4-74, 4-120, 4-135 & 136, 4-186, 4-220, 4-229, Table 4.8.1, Pages 4-258, 4-261, 4-264, 4-297 through 4-305, 4-361 and 4-362). The FEIS assumes that MVP will restore all roads to their preconstruction condition, except where the landowner has requested that the improvements be left in place.

The FEIS also recognizes a variance process for making minor changes in alignment and workspace needs. Notably, the FEIS states the following on page 2-52:

The pipeline alignment and work areas identified in this EIS should be sufficient for construction and operation (including maintenance) of the projects. However, minor route realignments and other workspace refinements sometimes continue past the project planning phase and into the construction phase. These changes could involve minor route realignments, shifting or adding new extra workspaces or staging areas, adding additional access roads, or modifications to construction methods. We have developed a procedure for assessing impacts on those areas that have not been evaluated in this final EIS and for approving or denying their use following any Certificate issuance. In general, environmental surveys were conducted using a corridor (300-foot-wide) larger than that necessary to construct the facilities. In areas where access was previously denied, environmental surveys would be conducted, pending an approval by the Commission. The results of those environmental surveys would be filed with the FERC post-Order.

The procedure for assessing impacts referenced above is detailed in the POD Construction Compliance Plan and includes discussion of levels of variance and the process for approving them. (See Exhibit B, Attachment N of the original ROD). That procedure has been followed in preparing this proposed variance. The requested variance is within the 300-foot survey corridor referenced in the FEIS, and review of the surveys revealed that no sensitive resources are located within the area of the variance (See Attachments 4 and 5). Therefore, the analysis in the FEIS is adequate to determine the potential effect from the expansion of the road.

Given that access roads are features of all alternatives analyzed in the Project FEIS with the exception of the No Action Alternative, there is no need to analyze any additional alternatives to

this Variance. Additionally, as documented in the DNA (Attachment 4), further analysis of alternatives to the proposed Variance is unnecessary because the proposed Variance would not create any unresolved conflicts over any affected resources and would not result in any direct, indirect, or cumulative effects that are not similar to those analyzed in the FEIS.

BLM has conducted an interdisciplinary review to determine the adequacy of the analysis in the MVP FEIS for the current proposed action. The results of the review are documented in Attachments 4 and 5 with supporting maps in Attachment 2. There have been no substantial changes in resources and conditions since publication of the FEIS. Based on this and the small footprint of the proposed action, which would be approximately 0.01 acres of new disturbance, any increment in direct, indirect, or cumulative impacts to lands, and resources would be negligible.

Resource conditions addressed in the Project FEIS have not changed substantially since publication of the FEIS in 2017 (see Attachment 4). The only change in baseline conditions for the current proposed action is that some trees have been felled and removed in preparation of construction, as anticipated in the FEIS's action alternatives.

Terms, Conditions, and Stipulations

The terms, conditions, and stipulations from the ROW/TUP are incorporated by reference into this decision as terms, conditions, and stipulations of the amendment.

Appeal of this Decision

Section 313(b) of the Energy Policy Act (EPA) of 2005, which amended the NGA, grants the U.S. Court of Appeals original and exclusive jurisdiction to review Federal decisions to issue, condition, or deny a Federal authorization for any facility that will be constructed or operated subject to 15 U.S.C. § 717b or 15 U.S.C. 717f:

The U.S. Court of Appeals for the circuit in which a facility subject to section 717b of this title or section 717f of this title is proposed to be constructed, expanded, or operated shall have original and exclusive jurisdiction over any civil action for the review of an order or action of a Federal agency (other than the Commission) or State administrative agency acting pursuant to Federal law to issue, condition, or deny any permit, license, concurrence, or approval (hereinafter collectively referred to as "permit") required under Federal law, other than the Coastal Zone Management Act of 1972.

This Decision is an order or action of a Federal agency issuing a permit, as that term is used in EPA, 15 U.S.C. § 717r (d)(1), because it is an agency decision to issue and condition an amendment to a BLM ROW/TUP for the use of Federal lands involved in the MVP Project, which is a facility that will be constructed and operated pursuant to 15 U.S.C. § 717f. Accordingly, this Decision is appealable directly to an appropriate U.S. Court of Appeals in accordance with 15 U.S.C. § 717r and the Federal Rules of Appellate Procedure (FRAP).

The NGA requires that any party aggrieved by a FERC order on rehearing file a notice of appeal with the appropriate U.S. Court of Appeals within sixty (60) days, 15 U.S.C. § 717r (b). The 2005 EAct amendments to the NGA and the legislative history of that legislation indicate that Congress intended to streamline the NGA approval and review process for other Federal authorizations needed for NGA projects. Any notice of appeal of this Decision must be filed in an appropriate U.S. Court of Appeals within sixty (60) days of the date of this Decision.

Notification of this Decision

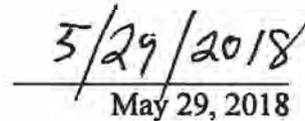
The following steps have been taken to notify the public of this decision:

1. Distributed a news release about the changes to the ROD to local and regional media;
2. Published the changes to the ROD on BLM and USFS web sites;
3. Provided a copy of the changes to the ROD to all who request it. Requests can be made to Vicki Craft, BLM Realty Specialist at vcraft@blm.gov.

Approval Signatures



Mitchell Leverette
Authorized Officer and
Acting Eastern States Director
Bureau of Land Management



5/29/2018
May 29, 2018

Contact Person:
Vicki Craft
Realty Specialist
Bureau of Land Management
Southeastern States District Office
273 Market Street
Flowood, MS 39232
601-919-4655
601-919-4700

**United States Department of the Interior
Bureau of Land Management**

**Environmental Impact Statement: FERC/FEIS-0272F (CP16-10-000 and CP16-13-000)
Case File Numbers: VAES-058143 and WVES-058142**

May 2018

**Documentation of LUP Conformance and
Determination of NEPA Adequacy
Mountain Valley Pipeline Project Mystery
Ridge Road Widening Variance**

Location: Bureau of Land Management Eastern States Office, Washington, D.C. and
Southeastern States District Office, Flowood, Mississippi

Applicant/Address: Mountain Valley Pipeline, LLC
625 Liberty Avenue, Suite 1700
Pittsburgh, PA 15222

Eastern States Office
20 M Street SE Suite 950
Washington, DC 20003
202-912-7700



Worksheet

**Documentation of Land Use Plan Conformance
and
Determination of National Environmental Policy Act (NEPA) Adequacy**

U.S. Department of the Interior
Eastern States Bureau of Land Management

The signed CONCLUSION at the end of this worksheet is part of an interim step in the Bureau of Land Management (BLM)'s internal analysis process and does not constitute an appealable decision; however, it constitutes an administrative record to be provided as evidence in protest, appeals and legal procedures.

OFFICE: Eastern States Office

TRACKING NUMBER: ES-020-2018-19

CASEFILE/PROJECT NUMBER: VAES-058143 and WVES-058142 and FERC/EIS-0272F

PROPOSED ACTION TITLE/TYPE: Amendment to the Right-of-Way (ROW)/Temporary Use Permit (TUP)

APPLICANT: Mountain Valley Pipeline, LLC

LOCATION/LEGAL DESCRIPTION: United States Forest Service Tract No. 968 in Giles County, Virginia

A. Description of the Proposed Action and Any Applicable Mitigation Measures

The Mountain Valley Pipeline (MVP) Project consists of a 303.5 mile-long 42-inch diameter pipeline. The approved route crosses approximately 3.5 miles of the Jefferson National Forest in Monroe County, West Virginia and Giles and Montgomery Counties in Virginia. The route also crosses a section of the Appalachian National Scenic Trail, administered by the US Department of Agriculture Forest Service (FS), along with the Weston and Gauley Bridge Turnpike Trail administered by the U.S. Army Corps of Engineers (USACE). The Federal Energy Regulatory Commission (FERC) was the lead agency in the preparation of the Environmental Impact Statement (EIS).

The MVP Project will cross FS and USACE lands. While no BLM-administered lands are associated with the Project, the BLM is responsible for considering a Right of Way (ROW) and Temporary Use Permit (TUP) application where the surface of the lands is administered by two or more federal agencies, per the Mineral Leasing Act (MLA). FERC issued an Order approving a Certificate of Public Convenience and Necessity on October 13, 2017. On December 28, 2017, BLM issued a Record of Decision (ROD) and associated ROW and TUP for the Project on Federal

lands under the jurisdiction of the FS and USACE in Virginia and West Virginia. FS issued a ROD documenting approval of a five-part, project-specific Forest Plan amendment to the Jefferson National Forest's Revised Land and Resource Management Plan (LRMP, USDA Forest Service 2004), on December 1, 2017. BLM and FS adopted the FERC Final EIS (FEIS) issued in June of 2017 and imposed requirements in MVP's Plan of Development.

This Determination of NEPA Adequacy (DNA) addresses a minor amendment to the pipeline ROW/TUP. On May 25, 2018, MVP submitted an amendment to its Standard Form SF-299 and requested an amendment to its ROW/TUP. The existing temporary use permit allows Mountain Valley to widen Mystery Ridge Road to 50-feet at some turns. To safely allow long truck trailers to travel through the hair-pin turn on Mystery Ridge Road in Giles, County, Virginia, Mountain Valley is requesting to use an additional polygon area of approximately 17 by 30 feet on the inside of the turn. The variance will allow MVP to widen the width of hairpin turn (from the outside to the inside of the turn) to an approximate width of 90 feet and allow MVP to hand-fell approximately 12 trees. The area of this proposed activity will total approximately 500 square feet or 0.011 acres and is within the resource survey boundary. The trees are currently marked in the field with yellow paint. During the road widening, equipment will be used to remove and store topsoil. The area will be graded to a flat surface using a bulldozer and will be rocked with gravel transported to the site on a dump truck. A backhoe will also be utilized for activities such as ditch work. After construction of the pipeline, Mountain Valley will restore the road, which will include removal of gravel, reducing the road to its original width, replacement of topsoil, and seeding and mulching pursuant to the requirements in the Mountain Valley POD.

A map of the proposed change as well as the associated Form SF-299 is attached to this document (Exhibit A).

The time of year restriction for tree felling activities was previously extended to May 31st as stated in Variance VA-MVP-002 and approved by the FS, BLM, and FERC.

B. Land Use Plan (LUP) Conformance

The Land Use Plan that provides direction for this area is the 2004 Jefferson National Forest's LRMP. The proposed action is in conformance with this LRMP, which was amended in December of 2017 (Exhibit B) to accommodate the construction and operation of the MVP project, including the construction, use, and reclamation of existing forest roads. The decision to amend the LRMP recognized that construction of the MVP would be conducted in accordance with the updated Plan of Development. The Plan of Development, in turn, addresses in detail the need for road widening, and outlines a procedure for variances to the ROW/TUP (See Exhibit B, Attachment N of the original ROD). That procedure was followed in preparing this proposed variance. Therefore, the minor additional road widening authorized by this variance is consistent with the LRMP amendment authorizing the construction of the MVP project.

C. Identify the applicable NEPA documents and other related documents that cover the proposed action.

Mountain Valley Project and Equitrans Expansion Project Final Environmental Impact Statement (June 2017)

BLM Record of Decision Mountain Valley Pipeline Project Decision to Grant Rights of Way and Temporary Use Permits (December 2017) and associated BLM ROW/TUP Serial Number VA-ES-058143 and WV-ES-058142 (December 2017)

Mountain Valley Project Land and Resource Management Plan Amendment for the Jefferson National Forest (December 2017)

Mountain Valley Pipeline Plan of Development (November 2017)

Mountain Valley Pipeline Variance VA-MVP-002 (April 2017)

D. NEPA Adequacy Criteria

1. Is the new proposed action a feature of, or essentially similar to, an alternative analyzed in the existing NEPA document(s)? Is the project within the same analysis area, or if the project location is different, are the geographic and resource conditions sufficiently similar to those analyzed in the existing NEPA document(s)? If there are differences, can you explain why they are not substantial?

Yes
 No

The attached ID Team Checklist (Exhibit C), documents that the existing NEPA documentation for the Mountain Valley Pipeline project, contained in the MVP FEIS, adequately analyzes the effects of the proposed action and constitutes BLM's compliance with the requirements of NEPA. Although the additional road widening authorized by this amendment to the ROW/TUP is not specifically described in the MVP FEIS, the FEIS analyzes construction and maintenance of access roads (see FEIS pages ES-11, 1-14, 2-22, 2-28, 2-41, 2-52 and Appendix E-1) and construction and design features aimed at addressing potential impacts from road construction and use (see FEIS pages 4-68 to 4-68, 4-74, 4-120, 4-135 & 136, 4-186, 4-220, 4-229, Table 4.8.1, Pages 4-258, 4-261, 4-264, 4-297 through 4-305, 4-361 and 4-362). The FEIS assumes that MVP will restore all roads to their preconstruction condition, except where the landowner has requested that the improvements be left in place.

The FEIS also recognizes a variance process for making minor changes in alignment and workspace needs. Notably, the FEIS states the following on page 2-52:

The pipeline alignment and work areas identified in this EIS should be sufficient for construction and operation (including maintenance) of the projects. However, minor route realignments and other workspace refinements sometimes continue past the project planning phase and into the construction phase. These changes could involve minor route realignments, shifting or adding new extra workspaces or staging areas, adding additional access roads, or modifications to construction methods. We have developed a procedure for assessing impacts on those areas that have not been evaluated in this final EIS and for approving or denying their use following any Certificate issuance. In general, environmental surveys were conducted using a corridor (300-foot-wide) larger than that necessary to construct the facilities. In areas where access was previously denied,

environmental surveys would be conducted, pending an approval by the Commission. The results of those environmental surveys would be filed with the FERC post-Order.

The procedure for assessing impacts referenced above is detailed in the POD Construction Compliance Plan and includes discussion of levels of variance and the process for approving them. (See Exhibit B, Attachment N of the original ROD). That procedure has been followed in preparing this proposed variance. The requested variance is within the 300-foot survey corridor referenced in the FEIS, and review of the surveys revealed that no sensitive resources are located within the area of the variance (See Exhibit C). Therefore, the analysis in the FEIS is adequate to determine the potential effect from the expansion of the road.

Given that access roads are features of all alternatives analyzed in the Project FEIS with the exception of the No Action Alternative, there is no need to analyze any additional alternatives to this Variance. Further analysis of alternatives to the proposed Variance is unnecessary because the proposed Variance would not create any unresolved conflicts over any affected resources and would not result in any direct, indirect, or cumulative effects that are not similar to those analyzed in the FEIS.

BLM has conducted an interdisciplinary review to determine the adequacy of the analysis in the MVP FEIS for the current proposed action. The results of the review are documented in Exhibit C with supporting maps in Exhibit A. There have been no substantial changes in resources and conditions since publication of the FEIS. Based on this and the small footprint of the proposed action, which would be approximately 0.01 acres of new disturbance, any increment in direct, indirect, or cumulative impacts to lands, and resources would be negligible.

Resource conditions addressed in the Project FEIS have not changed substantially since publication of the FEIS in 2017. The only change in baseline conditions for the current proposed action is that some trees have been felled and removed in preparation of construction, as anticipated in the FEIS's action alternatives.

2. Is the range of alternatives analyzed in the existing NEPA document(s) appropriate with respect to the new proposed action (or existing proposed action), given current environmental concerns, interests, and resource values?

Yes
 No

The road expansion at the hair-pin turn is an extension of the analysis in the FEIS and does not necessitate a change in the range of alternatives since the request simply widens a small portion of a road already identified in the proposed action.

3. Is existing analysis adequate in light of any new information or circumstances (such as, rangeland health standards assessment; recent endangered species listings, updated list of BLM sensitive species)? Can you reasonably conclude that new information and new circumstances would not substantially change the analysis of the new proposed action?

Yes
 No

MVP's request for this variance is based on concerns regarding safe access of large construction equipment at the hairpin turn in the depicted area of Mystery Ridge Road on the Jefferson National Forest, first identified during the course of construction work, but this new information does not substantially change the analysis of the proposed action. BLM has not identified any other new information or circumstances that convey a seriously different picture of the affected environment and environmental impacts identified in the FEIS.

4. Are the direct, indirect, and cumulative effects that would result from implementation of the new proposed action similar (both quantitatively and qualitatively) to those analyzed in the existing NEPA document?

Yes

No

As stated above, the FEIS acknowledges the potential for expansion of the ROW/TUP and associated roads. While there would be additional trees felled as a result of this variance, the FEIS does not quantify the exact number of trees that would be felled on Forest System lands. The FS has worked with MVP to update the timber sale contract based on this variance.

5. Are the public involvement and interagency review associated with existing NEPA document(s) adequate for the current proposed action?

Yes

No

The Project's FEIS was distributed to all interested members of the public, affected Native American Tribes, and governmental agencies for review. The FEIS adequately addresses potential impacts from this road extension. BLM will post this DNA on the public e-Planning site.

E. Persons/Agencies/BLM Staff Consulted:

See attached Interdisciplinary Team Checklist. Also, refer to the FEIS for a complete list of the team members participating in the preparation of the original environmental analysis or planning documents.

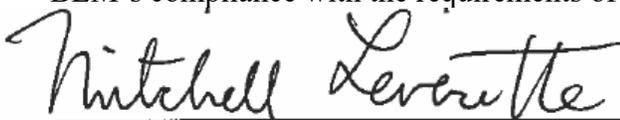
CONCLUSION

Plan Conformance:

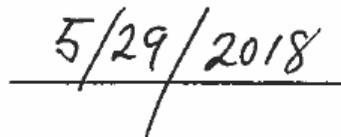
This proposal conforms to the applicable land use plan.

Determination of NEPA Adequacy

Based on the review documented above, I conclude that this proposal conforms to the applicable land use plan and that the NEPA documentation fully covers the proposed action and constitutes BLM's compliance with the requirements of the NEPA.



Mitchell Leverette,
Acting State Director
Bureau of Land Management, Eastern States



May 29, 2018

Note: The signed Conclusion on this Worksheet is part of an interim step in the BLM's internal decision process and does not constitute an appealable decision. However, the lease, permit, or other authorization based on this DNA is subject to protest or appeal under 43 CFR Part 4 and the program-specific regulations.

ATTACHMENTS:

Exhibit A: MVP's SF-299

Exhibit B: Record of Decision, Mountain Valley Project Land and Resource Management Plan Amendment for the Jefferson National Forest

Exhibit C: Interdisciplinary Team Checklist

VARIANCE REQUEST FORM
Mountain Valley Pipeline Project

CIC USE ONLY

Variance Request Number:

VA-MVP-005

Date received by CIC:

June 7, 2018

Section A – Owner/Contractor to Complete

Descriptive Title: Allow tree clearing in a limited area on Peters Mountain Requested Start Work Date: June 8, 2018

Purpose and Need Statement:

Despite the exercise of due diligence and due to circumstances by third parties beyond their control, Mountain Valley requests a variance to cut trees within the pipeline right-of-way in an area at the top of Peters Mountain where an individual has been occupying a tree. Mountain Valley has conducted bat surveys (emergence counts) on trees within the specified areas that are equal to or greater than 5 inches DBH. The U.S. Fish and Wildlife Service has determined that additional emergence surveys are not necessary in this area. In addition, Mountain Valley will continue to conduct surveys for nesting project-specific migratory bird species in the remaining tree clearing area prior to vegetation clearing.

Description of Request:

See attached email request from Megan Stahl (MVP) to U.S. Fish and Wildlife Service on May 30, 2018 and attached letter from the U.S. Fish and Wildlife Service to FERC on June 6, 2018.

Alternatives Considered:

Adhere to the previously approved May 31, 2018 deadline for tree cutting. This has been determined to not be a viable alternative due to the significant impacts to MVP project scheduling when compared to the potentially minor impacts of the remaining small areas where tree felling needs to occur. Additionally, the U.S. Fish and Wildlife Service has determined that this alternative is unnecessary.

NEPA/Resource Analysis:

NEPA

The Affected Area is Analyzed within the EIS: Yes No Document Citation: _____

Forest Plan Consistency Review: Consistent Conflict

Notes:

N/A

Cultural Resources

Activity is Within Previously Surveyed Areas: Yes No Impact to Eligible Site: Yes No

Brief Summary:

N/A

Proposed Mitigation:

N/A

Biological Resources

Activity is Within Previously Surveyed Areas: Yes No

Noxious Weeds Present: Yes No

Impact to Sensitive Resource: Yes No

Brief Summary:

Potential impact to bats and nesting birds.

Proposed Mitigation:

Mountain Valley has conducted bat surveys (emergence counts) on trees within the specified area that are equal to or greater than 5 inches DBH. In addition, Mountain Valley will continue to conduct surveys for nesting project-specific migratory bird species in the remaining tree clearing area prior to vegetation clearing.

Wetlands/Streams

Impact to Sensitive Resource: Yes No

Brief Summary:

N/A

Proposed Mitigation:

N/A

Other Resources (Potential Impacts to Other Sensitive Resources Visual/Recreation/Hydrology/Soils/Other)

Brief Summary:

N/A

Proposed Mitigation:

N/A

Disturbance Assessment:

Does the Request Result in Additional Disturbance Not Addressed in the POD/EIS: Yes No N/A

Does the variance require tree clearing: Yes No N/A

Does the variance affect a steep slope area: Yes No N/A

Disturbance Not Accounted for in POD:

Activity	Additional Temporary Disturbance (acres)	Additional Permanent Disturbance (acres)
No earth disturbance is anticipated	0	0
Total (acres):	0	0

Disturbance Notes:

N/A

Support Materials:

Provide a map (required), supporting graphic, information, and resource reports that support or explain the proposed activity, as needed.

- Map/Drawing Engineering Drawing Photos Additional Resource Reports

Owner Authorization or Variance:

- EQT confirms that this variance has been reviewed and is needed to complete the Mountain Valley Pipeline Project

VARIANCE REQUEST FORM
Mountain Valley Pipeline Project

CIC USE ONLY

Variance Request Number:

VA-MVP-005

Date Received by CIC:

June 1, 2018

Section B – Compliance Inspection Contractor / Agency Review

Variance Level Determination

- Level 1** (Minor field adjustment within the approved ROW grant that conforms to the POD) – Forest Supervisor or Authorized Officer
- Level 2** (Consistent with the EIS, but may require additional resource survey and concurrence with resource specialists) – Forest Supervisor or Authorized Officer
- Level 3** (Action that requires additional NEPA) – Regional Manager

Specialist Review (Assigned by Project Manager)

Wildlife	<u>Carol H. Crozy</u>	Date: <u>6-8-18</u>	N/A: <input type="checkbox"/>
Botany	_____	Date: _____	N/A: <input type="checkbox"/>
Aquatic	_____	Date: _____	N/A: <input type="checkbox"/>
Hydrology	_____	Date: _____	N/A: <input type="checkbox"/>
Soils	_____	Date: _____	N/A: <input type="checkbox"/>
Geology	_____	Date: _____	N/A: <input type="checkbox"/>
Cultural	_____	Date: _____	N/A: <input type="checkbox"/>
Recreation	_____	Date: _____	N/A: <input type="checkbox"/>
Engineering	_____	_____	N/A: <input type="checkbox"/>
Visual	_____	_____	N/A: <input type="checkbox"/>
Other:	_____	Date: _____	N/A: <input type="checkbox"/>

BLM Authorized
Officer:

*Barbara L. Eggen,
Acting SO*

Date: *6-8-18*

Decision: *approved*

U.S. Forest Service
Regional Manager
(Level III):

Date: _____

Decision: _____

U.S. Forest Service
Supervisor/Authorized
Officer (Level I, II):

[Signature]

Date: *6/8/18*

Decision: *APPROVED*

FERC Project Manager
(Level I, II, III):

Date: _____

Decision: _____

EQT Project
Manager/Authorized
Officer (Level I, II, III):

Date: _____

Decision: _____

Stipulations (additional comments need to be added below the respective stipulation)

Stipulation:

Attachment A

From: Stahl, Megan D.
Sent: Wednesday, May 30, 2018 5:07 PM
To: Paul Friedman <Paul.Friedman@ferc.gov>; 'Cindy Schulz' <cindy_schulz@fws.gov>; 'Troy Andersen' <troy_andersen@fws.gov>
Cc: 'tabing@fs.fed.us' <tabing@fs.fed.us>; 'mleveret@blm.gov' <mleveret@blm.gov>; 'vcraft@blm.gov' <vcraft@blm.gov>; Paul Friedman <Paul.Friedman@ferc.gov>; 'Lavinia DiSanto' <Lavinia.DiSanto@cardno.com>; Dawley, Joseph <JDawley@eqt.com>; Eggerding, Matthew <MEggerding@eqt.com>
Subject: MVP Request to Clear Trees in JNF

Paul, Cindy and Troy,

Mountain Valley requests permission to clear trees in two very small areas of the Jefferson National Forest during the period June 1 - July 31. The two areas are (1) the area of the tree sitters at the top of Peters Mountain (an area approximately 0.31-acre between about Engineering Station Numbers 10370+00 and 103775+00) and (2) an area needed for widening the hairpin turn on Mystery Ridge Road in Giles County, VA.

A tree sitter prevented Mountain Valley from clearing the trees on Peters Mountain. Mountain Valley is awaiting final FERC approval for widening and clearing trees along the hairpin turn on Mystery Ridge Road.

Based on negative results of mist net surveys, both of these areas can be categorized as suitable unoccupied summer habitat. In the Biological Opinion, the Service stated that adverse effects to bats are not expected from clearing suitable unoccupied summer habitat. Further, the Biological Opinion does not specify a time-of-year restriction for this habitat category. These two areas are not within 150-feet of Northern long-eared bat maternity roost trees and therefore impacts associated with clearing activity would be covered by the Final 4(d) rule.

Prior to clearing, Mountain Valley proposes to conduct additional bat surveys (emergence counts) on trees within the specified areas that are equal to or greater than 5 inches DBH. In addition, Mountain Valley will continue to monitor a nest in the vicinity of the remaining trees on Peters Mountain that belongs to a migratory bird species protected by the Migratory Bird Treaty Act. The nest is currently active and therefore is being protected by a 50 foot buffer that will remain in place until avian biologists confirm that the nest is no longer active.

Please let me know if you have any questions.

Thanks,

Megan

Megan Stahl

Permitting Supervisor

625 Liberty Avenue, Suite 1700

Pittsburgh, PA 15222

T 412-553-7783

C 412-737-2587



www.eqt.com

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United States Department of the Interior



FISH AND WILDLIFE SERVICE

Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

June 6, 2018

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

Attn: James Martin, Branch Chief

Re: Mountain Valley Pipeline, LLC; Docket
Number CP16-10-000; Project #05E2VA00-
2016-F-0880 and #05E2WV00-2015-F-0046

Dear Ms. Bose:

On November 21, 2017, the U.S. Fish and Wildlife Service (Service) delivered a non-jeopardy biological opinion on the Mountain Valley Project (MVP) and its effects on the federally listed endangered Indiana bat (*Myotis sodalis*) and Roanoke logperch (*Percina rex*) and the federally listed threatened Northern long-eared bat (*Myotis septentrionalis*), small whorled pogonia (*Isotria medeoloides*), and Virginia spiraea (*Spiraea virginiana*) in accordance with section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended.

The Service's November 21, 2017 biological opinion analyzed the MVP as described in the Federal Energy Regulatory Commission's (FERC) June 23, 2017 Final Environmental Impact Statement and July 10, 2017 Biological Assessment, which included time-of-year restrictions (TOYRs) to minimize impacts on several federally listed species. The TOYRs analyzed for the Indiana bat (Ibat) (Table 5 from the November 21, 2017 biological opinion) are below.

Habitat Category	TOYRs	Season/Months when Tree Clearing will Occur
Known use summer habitat	Trees will be removed between November 15 and March 31, when Ibats will not be present	winter
Unknown use summer habitat	Trees will not be removed between June 1 and July 31, when young cannot	winter, April, May, August, September

	fly	
Unknown use spring staging/fall swarming habitat	Trees will be removed between November 15 and March 31, and potentially in April, May, August, and September	winter, April, May, August, September
Known use spring staging/fall swarming habitat	Trees will be removed between November 15 and March 31, when Ibats will not be present	winter

Because these TOYRs to minimize impacts of the MVP on the Indiana bat were included in FERC's proposed action, our analysis was conducted assuming no tree clearing during specific months/seasons as outlined in the above table.

On May 30, 2018, Mountain Valley requested approval to clear trees in two areas of the Jefferson National Forest between June 1 and July 31, 2018. The two areas are (1) the area at the top of Peter's Mountain in Monroe County, WV (an area approximately 0.31-acre between about Engineering Station Numbers 10370+00 and 103775+00), and (2) an area needed for widening the hairpin turn on Mystery Ridge Road in Giles County, VA. Prior to clearing, Mountain Valley proposes to conduct additional bat surveys (emergence counts) on trees within the specified areas that are equal to or greater than 5 inches diameter at breast height.

On June 6, 2018, Mountain Valley informed the Service that the trees along the hairpin turn on Mystery Ridge Road in Giles County, VA, were cleared on May 31, 2018. Approval to clear these trees prior to June 1, 2018 was provided by the Service on April 23, 2018 but the necessary approvals from the U.S. Forest Service and FERC were not received until May 31, 2018. Since Mountain Valley was unsure when all approvals would be finalized, they included this area in their May 30, 2018 request.

The Service has reviewed the Mountain Valley request to clear trees from June 1 through July 31, 2018 at the top of Peter's Mountain as described above and conduct additional bat surveys (emergence counts) on trees within the specified area. We analyzed the effects of the proposed tree removal in Indiana bat unknown use spring staging/fall swarming habitat during June and July. The negative results of mist net surveys indicate probable absence of Indiana bat during the summer. In the biological opinion, we stated that tree removal may disrupt bats engaging in fall swarming, spring staging, and roosting behavior and this was included in the incidental take statement. These activities would occur in the spring or fall, not from June 1 through July 31; therefore no direct effects would occur from tree removal. The indirect effects of the tree clearing were previously analyzed and included in the incidental take statement. Therefore, no adverse effects to Indiana bats that were not previously considered are expected from tree clearing in this area from June 1 through July 31, 2018.

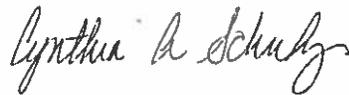
Therefore, because the above revisions do not change our analysis of the effects of the project on

the Indiana bat, we advise that reinitiation of consultation is not triggered by this change. However, it is the action agency's decision whether to reinitiate consultation. Additionally, based on previous negative mist net survey results, no additional emergence surveys are necessary in this area.

Unless specifically addressed in this letter, no further changes or modifications are being made to the Service's November 21, 2017 biological opinion and all other portions of the biological opinion remain in effect. This letter should be appended to the November 21, 2017 biological opinion and maintained as part of the decision document and administrative record.

If you have any questions, please contact Troy Andersen of this office at (804) 824-2428 or via email at Troy_Andersen@fws.gov.

Sincerely,



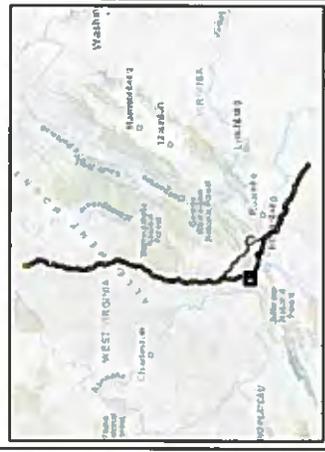
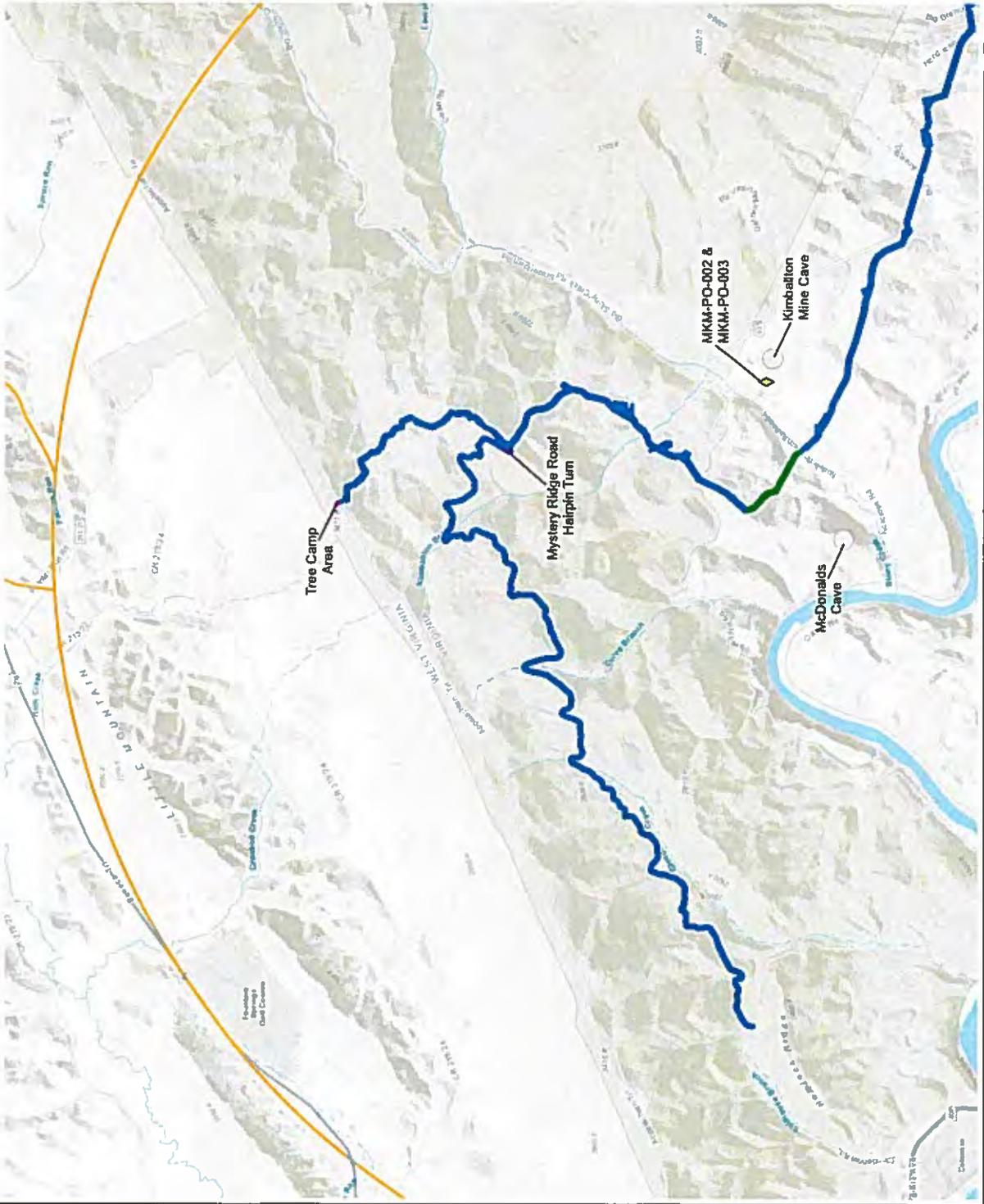
Cindy Schulz
Field Supervisor
Virginia Ecological Services

cc: BLM, Flowood, MS (Attn: Victoria Craft)
Corps, Norfolk, VA (Attn: William Walker)
DOI, Washington, DC (Attn: Erika Vaughan)
FERC, Washington, DC (Attn: Paul Friedman)
USFS, Atlanta, GA (Attn: Timothy Abing)
USFS, Roanoke, VA (Attn: Jennifer Adams)
VDACS, Richmond, VA (Attn: Keith Tignor)
VDCR-DNH, Richmond, VA (Attn: Rene Hypes)
VDGIF, Richmond, VA (Attn: Ernie Aschenbach)
WVDNR, Elkins, WV (Attn: Cliff Brown)
MVP, Pittsburgh, PA (Attn: Joseph Dawley)
MVP, Pittsburgh, PA (Attn: Megan Stahl)

Attachment B

Tree clearing by habitat Category - Virginia

-  Portal Opening (point location)
 -  5-mile potential hibernacula buffer
 -  Portal Opening (area feature)
 -  MVP Variance
- Unknown use spring staging/fall swarming habitat TOYR: Trees will not be removed between June 1 and July 31 and October 1 and November 14.
Tree clearing will occur between November 15 and May 31 and/or August 1 to September 30.



Base Map: ESRI/ArcGIS Web service - "World Topographic Map" accessed - 6/17/2018



ENVIRONMENTAL SOLUTIONS & INNOVATIONS, INC.
Project No. 593

VARIANCE REQUEST FORM
Mountain Valley Pipeline Project

CIC USE ONLY

Variance Request Number:

VA-MVP-006

Date received by CIC:

6/5/2018

Section A – Owner/Contractor to Complete

Descriptive Title: Windrows and Merchantable Timber off ROW Requested Start Work Date: Upon approval

Purpose and Need Statement:

To retrieve trees and brush that have rolled or pushed off the right-of-way.

Description of Request:

MVP is requesting to retrieve trees that have rolled or were pushed off the right-of-way. MVP will utilize mechanical equipment from the right-of-way to pick up each tree and carry it back onto the right-of-way. If it is determined due to potential damage to a resource that the tree cannot be brought back onto the right-of-way by mechanical equipment within the LOD, MVP personnel will walk off right-of-way and cut the tree into movable lengths and carry the sections back onto the right-of-way.

Locations of the windrow piles outside of the LOD:

11662+15, 11661+00, 11659+50, 11659+00-11657+75, 11657+00, 11655+00, 11653+50, 11652+50, 11649+75, 11642+00, 11639+00, and 11638+00.

Merchantable timber outside of the LOD locations 11658+80, 11650+75.

Northern Clearing will utilize forwarders, dozers, track hoes, and laborers with chain saws to remove the windrow piles and merchantable timber back onto the right-of-way.

It's expected that these impacts would occur within the culturally surveyed area (approximately 30 feet from the LOD). Tracked equipment will not travel beyond the LOD.

Alternatives Considered:

If this variance is not approved, the alternative solution is to leave the windrow piles and merchantable timber in place off right-of-way.

NEPA/Resource Analysis:



NEPA

The Affected Area is Analyzed within the EIS: Yes No Document Citation: FERC/FEIS – 0272F June 2017 & POD Appendix C-3

Forest Plan Consistency Review: Consistent Conflict

Notes:

N/A

Cultural Resources

Activity is Within Previously Surveyed Areas: Yes No Impact to Eligible Site: Yes No

Brief Summary:

N/A

Proposed Mitigation:

N/A

Biological Resources

Activity is Within Previously Surveyed Areas: Yes No Noxious Weeds Present: Yes No
Impact to Sensitive Resource: Yes No

Brief Summary:

N/A

Proposed Mitigation:

N/A

Wetlands/Streams

Impact to Sensitive Resource: Yes No

Brief Summary:

N/A

Proposed Mitigation:

N/A

Other Resources (Potential Impacts to Other Sensitive Resources Visual/Recreation/Hydrology/Soils/Other)

Brief Summary:

MVP anticipates that the windrows that are off right-of-way will be able to be removed back to the right-of-way with mechanical equipment. The reach of the equipment is expected to be enough to complete the work without any additional disturbance to the inventoried roadless area. If additional disturbance to inventoried roadless areas is necessary, MVP will submit a request for a variance.

Proposed Mitigation:

N/A

Disturbance Assessment:

Does the Request Result in Additional Disturbance Not Addressed in the POD/EIS: Yes No N/A

Does the variance require tree clearing: Yes No N/A

Does the variance affect a steep slope area: Yes No N/A

Disturbance Not Accounted for in POD:

Activity	Additional Temporary Disturbance (acres)	Additional Permanent Disturbance (acres)
moving windrow piles and merchantable timber back onto the right-of-way	0	0
Total (acres):	0	0

Disturbance Notes:

N/A

Support Materials:

Provide a map (required), supporting graphic, information, and resource reports that support or explain the proposed activity, as needed.

- Map/Drawing
 Engineering Drawing
 Photos
 Additional Resource Reports

Owner Authorization or Variance:

- EQT confirms that this variance has been reviewed and is needed to complete the Mountain Valley Pipeline Project

VARIANCE REQUEST FORM
Mountain Valley Pipeline Project

CIC USE ONLY

Variance Request Number:

VA-MVP-006

Date Received by CIC:

6/5/2018

Section B – Compliance Inspection Contractor / Agency Review

Variance Level Determination

- Level 1** (Minor field adjustment within the approved ROW grant that conforms to the POD) – Forest Supervisor or Authorized Officer
- Level 2** (Consistent with the EIS, but may require additional resource survey and concurrence with resource specialists) – Forest Supervisor or Authorized Officer
- Level 3** (Action that requires additional NEPA) – Regional Manager

Specialist Review (Assigned by Project Manager)

Wildlife	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Botany	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Aquatic	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Hydrology	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Soils	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Geology	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Cultural	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Recreation	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Engineering	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Visual	_____	Date: _____	N/A: <input checked="" type="checkbox"/>
Other:	_____	Date: _____	N/A: <input checked="" type="checkbox"/>

BLM Authorized
Officer:

Mitchell Lovette Date: 6/26/18 Decision: Approved

U.S. Forest Service
Regional Manager
(Level III):

_____ Date: _____ Decision: _____

U.S. Forest Service
Supervisor/Authorized
Officer (Level I, II):

Andy P. Z. Date: 6/21/18 Decision: APPROVED

FERC Project Manager
(Level I, II, III):

_____ Date: _____ Decision: _____

EQT Project
Manager/Authorized
Officer (Level I, II, III):

[Signature] Date: 6/21/18 Decision: Approved

Stipulations (additional comments need to be added below the respective stipulation)

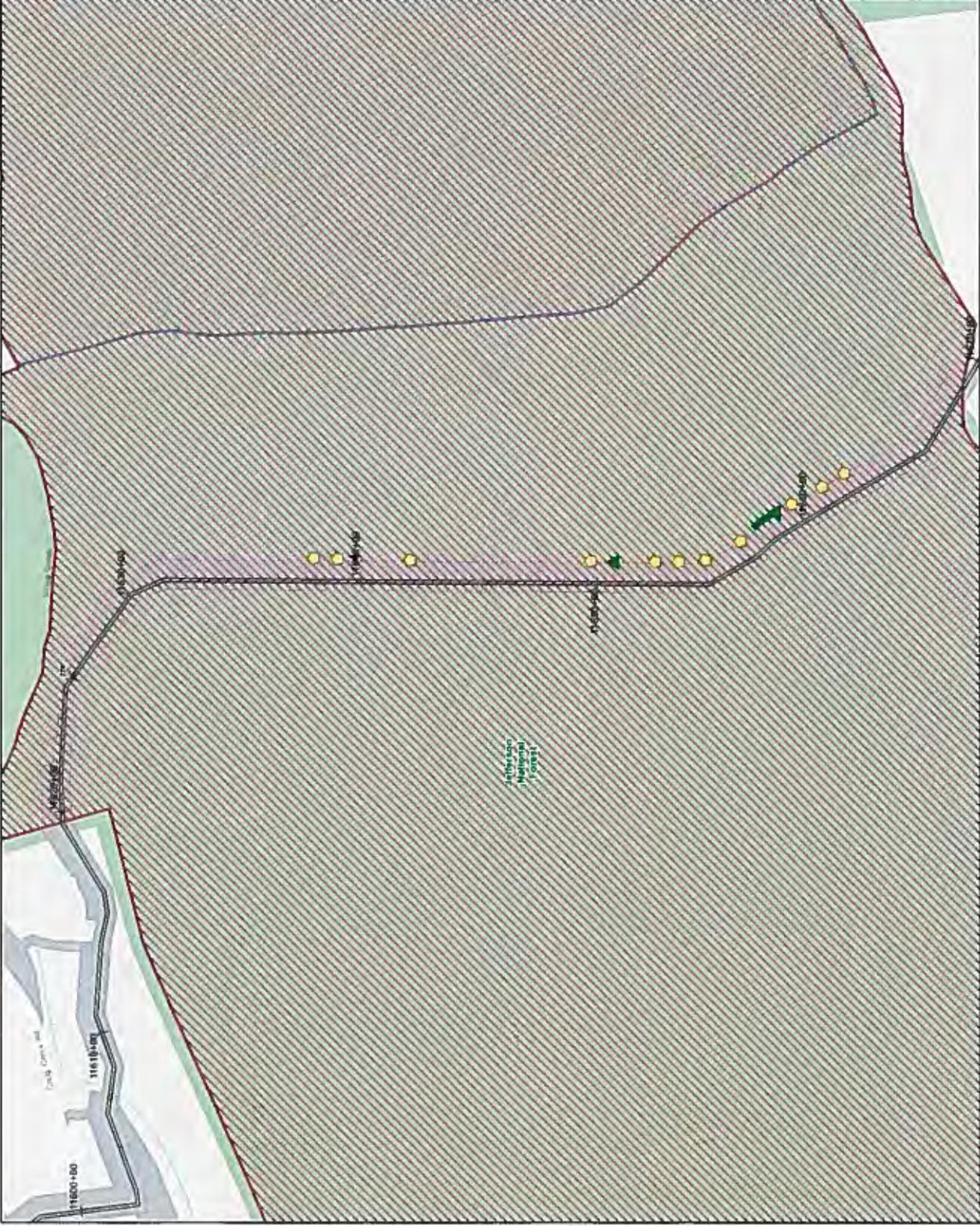
Stipulation:

Please ensure that an EI is present for the work.
Please notify the FS Compliance Monitor when the work will take place.
If additional trees or windrows are discovered outside of the LOD, MVP will send an email to the FS and Transcon including the location(s), and method of removal. These new trees or windrows will require written FS approval. The methods outlined in this variance may only be used without a further variance. If trees are located near a sensitive area (e.g. biological, cultural, undulating edge, wilderness, IRA), it will need to be brought to the attention of the FS for additional review.
MVP shall not damage or fell other trees from the work detailed in this variance.

MVP VARIANCE REQUEST

JUNE 2018

- Merchandise Timber
- Wendrow Piles
- Wendrow Piles
- Midpost
- Proposed Route
- Brush Mountain Wilderness
- U.S. Forest Service (National Forest) Lands
- Issued for Construction Levels of Disturbance
- Inventoried Roadless Area



NAD 1983 UTM 17N

1:4,800

