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October 21, 2019

Via Email

Ms. Sheila Holman,
North Carolina Department of Environmental Quality
217 West Jones Street
Raleigh, North Carolina 27699

RE: Responses to Comments Received on the MVP Southgate Project

Dear Ms. Sheila Holman:

Thank you for coordinating your agency's review of the MVP Southgate Project. Mountain Valley prepared a general response to inquiries regarding the need for the project and system alternatives in Attachment 1 to this letter. On October 11th we met with members of your agency to continue our conversation on environmental justice concerns and will include an updated map of environmental justice communities along the route in our October supplemental filing to the FERC that expands the analysis out to one mile from the project's alignment.

In response to your comments on the Draft Environmental Impact Statement for the Southgate Project dated September 16, 2019, information is being provided in Attachment 2 of this letter that addresses your comments.

Should you have any additional questions or need further information to complete your review of the Project, please do not hesitate to contact Alex Miller at (713) 374-1599 or via email at alex.miller@nee.com or myself at (561) 691-7054 or via email at kathy.salvador@nexteraenergy.com. Thank you for your continued consideration.

Sincerely,
Mountain Valley Pipeline, LLC

Kathy Salvador

Kathy Salvador
Senior Director, Environmental Services

cc: Jennifer Mundt, NCDEQ
Amanda Mardiney, FERC
Allen Jacks, Cardno
William Lavarco, MVP Southgate
Alex Miller, MVP Southgate

MVP Southgate Project

FERC Docket No. CP19-14-000

Responses to North Carolina Department of Environmental Quality Comments Received on the MVP Southgate Project

Attachments

October 2019

MVP Southgate Project

Attachment 1

Response to Comments Regarding the Southgate Project's Purpose and Need

October 2019

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Mountain Valley Pipeline, LLC	)	**Docket No. CP19-14-000**

ANSWER OF MOUNTAIN VALLEY PIPELINE, LLC TO COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

Pursuant to Rule 213 of the Federal Energy Regulatory Commission's ("FERC" or "Commission") Rules of Practice and Procedure,[1] Mountain Valley Pipeline, LLC ("Mountain Valley") hereby answers certain comments filed regarding the Commission's Draft Environmental Impact Statement prepared for the Southgate Pipeline Project ("Southgate Project" or "Project").[2]

BACKGROUND

The Commission issued a Notice of Availability of the DEIS for the Southgate Project on July 26, 2019, requiring comments on the DEIS be submitted by September 16, 2019.[3] The DEIS concludes that while the Southgate Project may result in some adverse environmental impacts, the majority of impacts "would be reduced to less-than-significant levels" with the implementation of various mitigation measures.[4] In this Answer, Mountain Valley responds to a number of comments on the Project filed by non-governmental organizations, state and local governments, and other commenters.[5]

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[1] 18 C.F.R. §§ 385.212 & 385.213 (2019).
[2] Mountain Valley Pipeline, LLC, Draft Environmental Impact Statement for the Southgate Project, Docket No. CP19-14-000 (July 26, 2019) ("DEIS").
[3] Notice of Availability of the Draft Environmental Impact Statement for the Proposed Southgate Project, Docket No. CP19-14-000, at 2 (July 26, 2019).
[4] DEIS at ES-9; 5-1.
[5] Mountain Valley provided additional information in response to specific commenters in its response to the Commission's October 3, 2019 Environmental Information Request, Post-Application No. 4, submitted on October 18, 2019.

Mountain Valley responds to certain issues that are predominately legal in nature in this narrative and responds to other more discrete issues raised by commenters in the table attached as Exhibit 1.

The Southgate Project is a new natural gas pipeline system commencing near Chatham, Virginia and terminating at a delivery point with Dominion Energy North Carolina[6] ("DENC") near Graham, North Carolina. The Project includes approximately 73 miles of pipe, one compressor station, associated valves, piping, and appurtenant facilities, and will receive gas from two new interconnections, one with the Mountain Valley Pipeline Project ("Mainline Facilities")[7] and one with East Tennessee Natural Gas Transmission, LLC ("East Tennessee"). Mountain Valley has a long-term, binding precedent agreement with DENC for 300,000 dekatherms ("Dth") per day on the Project.

I.
EXECUTIVE SUMMARY

Notwithstanding protestations of insufficient time to comment, numerous detailed comments were filed on a multitude of issues in the DEIS. Certain commenters argue that Mountain Valley has failed to demonstrate that the Southgate Project is needed, but ignore the compelling fact that Mountain Valley has entered into a binding 20-year precedent agreement with DENC, a local distribution company operating in North Carolina, for

[6] Formerly "PSNC Energy." After Mountain Valley filed the Application for the Southgate Project, Dominion Energy, Inc. ("Dominion") acquired PSNC Energy, which is now called Dominion Energy North Carolina and referred to as "DENC" in this Answer.

[7] The Commission issued the Certificate Order for the Mainline Facilities, which are currently under construction, on October 13, 2017. *See Mountain Valley Pipeline, LLC*, 161 FERC ¶ 61,043 (2017) ("Certificate Order"), *order denying reh'g*, 163 FERC ¶ 61,197 (2018), *aff'd*, *Appalachian Voices v. FERC*, No. 17-1271, 2019 WL 847199 (D.C. Cir. Feb. 19, 2019) (unpublished opinion). The MVP Certificate Order was upheld on appeal by the Court of Appeals for the District of Columbia Circuit ("D.C. Circuit"), which considered sixteen different challenges to FERC's environmental review of the Mainline Facilities and subsequent issuance of the certificate and denied all challenges, finding them without merit. *See Appalachian Voices v. FERC*, No. 17-1271 (D.C. Cir. Feb. 19, 2019).

300,000 Dth per day of capacity, representing approximately 80 percent of the total Project capacity. This is a strong demonstration of market need for the Project and is fully consistent with Commission policy and precedent.

Despite assertions otherwise, the National Environmental Policy Act ("NEPA") does not require the Commission to prepare a revised or supplemental DEIS for the Project. The DEIS, while not a final document, is thorough, comprehensive, and certainly does not warrant the preparation of a revised or supplemental draft. It contains more than sufficient information to provide the public an opportunity for meaningful analysis.

The DEIS analyzes all direct, indirect and cumulative impacts of, and reasonable alternatives to, the Project, consistent with the Commission's NEPA responsibilities. The DEIS does not improperly segment the Southgate Project by not evaluating the Mainline Facilities in the same environmental document. It is beyond reproach that any argument regarding segmentation does not apply in this situation, where the Commission has completed an EIS for the Mainline Facilities and is in the process of completing another comprehensive EIS for the Southgate Project—an FEIS which will include a comprehensive cumulative impacts analysis that considers the Mainline Facilities and two Transcontinental Gas Pipe Line Company, LLC ("Transco") compressor stations as "cumulative actions" within a resource-specific geographic scope of the Project.

Similarly, the DEIS provides a robust alternatives analysis consistent with NEPA requirements. The DEIS considered the no-action alternative, system alternatives, major route alternatives and variations, and alternative locations for proposed above-ground facilities. Based on this, the DEIS reasonably concludes that no alternative "would provide

a significant environmental advantage over the Project" and "that the proposed Project is the preferred alternative that can meet the Project's stated purpose."[8]

The DEIS also appropriately considered the principle of environmental justice in determining that the Southgate Project would not disproportionately impact minority or low-income populations. The DEIS identified the environmental justice communities within one mile of the proposed Lambert Compressor Station, and explains that impacts to these communities would not be disproportionately high or adverse because impacts to air quality from construction and operation of the Southgate Project would not be significant with respect to *any* population.

The DEIS also addresses the potential greenhouse gas ("GHG") emissions attributable to the construction and operation of the Southgate Project, including cumulative impacts, and concludes that construction and operation-related emissions are not expected to have a significant impact on local or regional air quality. There is no NEPA requirement that the Commission consider impacts from upstream natural gas production allegedly induced by the Southgate Project, because the impacts of such activities are neither causally connected to the Southgate Project nor are they reasonably foreseeable.

With respect to downstream GHG emissions, Mountain Valley in both its Application and in its own comments on the DEIS has explained in detail that any potential downstream GHG emissions associated with the Southgate Project have already been accounted for in the Commission's "upper bound" estimate for the Mainline Facilities and by virtue of the fact that the expected deliveries of natural gas from East Tennessee into the Southgate Project will come from existing capacity and will not require any expansion

[8] DEIS at 3-48.

of the East Tennessee system. Thus, any further quantitative estimate would result in misleading and inaccurate double-counting of impacts. For the same reason, there is no need to consider upstream GHG emissions, as the Southgate Project is not transporting additional volumes of natural gas and cannot, therefore, be said to be "inducing" additional natural gas production.

In sum, the Commission's DEIS is consistent with the requirement that the Commission take a "hard look" at the environmental impacts of its actions.[9]

II.
ANSWER

A. Mountain Valley Has Fully Demonstrated the Need and Demand for the Project.

Commenters argue that the Southgate Project is not needed and that market demand in the Southeastern United States does not support the Project.[10] Notwithstanding that this argument is not a comment regarding the DEIS, Mountain Valley will once again explain why these commenters are incorrect. Commenters deliberately ignore that Mountain Valley has entered into a binding 20-year precedent agreement with DENC, a local distribution company operating in North Carolina, for 300,000 Dth per day of capacity on the Southgate Project, representing approximately 80 percent of the total Project capacity, which fully supports the market need for the Project.[11]

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[9] *Mo. Coal. for the Env't v. FERC*, 544 F.3d 955, 958 (8th Cir. 2008) (quoting *Mayo Found. v. Surface Transp. Bd*., 472 F.3d 545, 549 (8th Cir. 2006)); *see also Balt. Gas & Elec. Co. v. Nat. Res. Def. Council, Inc*., 462 U.S. 87, 97 (1983).

[10] Comments of Appalachian Mountain Advocates, *et al.* on Draft Environmental Impact Statement for Mountain Valley Pipeline, LLC's Proposed Southgate Project, Docket No. CP19-14-000, at 5-7 (Sept. 16, 2019) ("AMA Comments"); Comments and Request for 60-Day Extension for Comments of Blue Ridge Environmental Defense League, Docket No. CP19-14-000, at 5-8 (Sept. 16, 2019) ("BREDL Comments").

[11] Application of Mountain Valley Pipeline, LLC for Authorization to Construct and Operate Pipeline Facilities Under the Natural Gas Act, Docket No. CP19-14-000, at 7 (Nov. 6, 2018) ("Application"). Mountain Valley will be at risk for the additional 20 percent of the capacity as stated in its Application.

The Commission's Certificate Policy Statement plainly states that binding precedent agreements are "significant evidence of demand for [a] project."[12] In approving the Mainline Facilities, the Commission explained that binding agreements are the "best evidence that additional gas will be needed" in the markets the Project is intended to serve.[13] On appeal, the D.C. Circuit unequivocally affirmed the Commission's finding of need based on long-term precedent agreements.[14] While Commenters introduce their own demand projections, this does not overcome the fact that the most objective evidence of market demand for the pipeline capacity created by the Project is Mountain Valley's precedent agreement with DENC for the overwhelming majority of the Project capacity. The D.C. Circuit consistently has upheld the Commission's finding of need based on the existence of precedent agreements under similar circumstances.[15] Therefore, in accordance with longstanding Commission practice and D.C. Circuit precedent, the Commission reasonably may conclude that Mountain Valley's long-term, binding precedent agreement with DENC provides adequate evidence of need for the Project.

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[12] *Certification of New Interstate Natural Gas Pipeline Facilities*, 88 FERC ¶ 61,227, at p. 61,748 (1999) ("Certificate Policy Statement"), *clarified*, 90 FERC ¶ 61,128 (2000), *further clarified*, 92 FERC ¶ 61,094 (2000). *See, e.g.*, *Dominion Transmission, Inc. v. Summers*, 723 F.3d 238, 242 (D.C. Cir. 2013) (recognizing FERC's finding that precedent agreements supporting the project constituted "strong evidence of market demand") (citation omitted).

[13] Certificate Order, 161 FERC ¶ 61,043 at P 41.

[14] *Appalachian Voices*, No. 17-1271, 2019 WL 847199 at *1 ("Notwithstanding petitioners' argument to the contrary, FERC's conclusion that there is a market need for the Project was reasonable and supported by substantial evidence, in the form of long-term precedent agreements for 100 percent of the Project's capacity"). *See also Sierra Club v. FERC*, 867 F.3d 1357, 1379 (D.C. Cir. 2017) (holding that applicants met the market need "by showing that 93% of their capacity has already been contracted for").

[15] *See Myersville Citizens for a Rural Community, Inc. v. FERC*, 783 F.3d 1301, 1311 (D.C. Cir. 2015) ("[T]he Commission concluded that the evidence that the Project was fully subscribed was adequate to support the finding of market need. It is the case here, as it was in *Minisink*, that 'Petitioners identify nothing in the policy statement or in any precedent construing it to suggest that it *requires*, rather than *permits*, the Commission to assess a project's benefits by looking beyond the market need reflected by the applicant's existing contracts with shippers.") (quoting *Minisink Residents for Envtl. Pres. & Safety v. FERC*, 762 F.3d 97, 111 n.102 (D.C. Cir. 2014)) (emphasis added).

Commenters argue that the Commission must also consider indicators of project need other than precedent agreements. This is incorrect. While the Certificate Policy Statement *allows* the Commission to consider this type of information, it did not *require* the Commission to do so. The Certificate Policy statement *allows* pipelines to submit additional types of evidence that "*might include* . . . demand projections, potential cost savings to consumers, or a comparison of projected demand with the amount of capacity currently serving the market."[16] Indeed, Mountain Valley submitted such a market study with its Application. However, precedent agreements remain "significant evidence of demand for [a] project."[17]

The Certificate Policy Statement permits additional evidence to allow pipelines to demonstrate project need even if the pipeline had executed few (or even no) agreements to support it, because the amount of capacity under contract may not fully reflect "all the public benefits that can be achieved by a proposed project."[18] Accordingly, benefits could include "the 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."[19] Mountain Valley explained in its Application that the Project provides many of these benefits. The Project introduces meaningful competition as it represents an additional interstate pipeline into

[16] Certificate Policy Statement, 88 FERC at p. 61,747 (emphasis added).
[17] *Id.* at p. 61,748.
[18] *Id.* at p. 61,744.
[19] *Id*.

North Carolina, where Transco has a near monopoly. Further, the Project provides DENC with flexibility, optionality, and diversity of supply.[20]

Thus, Mountain Valley has not only demonstrated Project need through its precedent agreement with DENC, it also has identified additional public benefits upon which the Commission may rely as evidence of Project need.

B. The DEIS Includes Sufficient Information to Analyze Impacts and Provide for Meaningful Public Review.

Some commenters assert that the DEIS is incomplete and lacks information necessary to analyze environmental impacts under NEPA, and that without this information, "the public cannot meaningfully comment on the project."[21] As a result, commenters argue that the Commission must either prepare a revised DEIS and release it for public comment, or issue a supplemental DEIS that addresses new information.[22] Commenters misapprehend the purpose of a DEIS and overstate the requirements under NEPA to prepare a revised or supplemental DEIS. The DEIS contains more than sufficient information for the public to understand the impacts of the Project and comment meaningfully thereon.

As the D.C. Circuit has held, "[b]y its very name, the DEIS is a draft of the agency's proposed [final] EIS, and as such the purpose of a DEIS 'is to elicit suggestions for change[,]'" and to provide a "springboard for public comment."[23] In the same vein, the

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[20] Application at 7-9.

[21] *See, e.g.*, Southern Environmental Law Center Comments on FERC's Draft Environmental Impact Statement for Mountain Valley Pipeline's Southgate Project, Docket No. CP19-14-000, at 6 (Sept. 16, 2019) ("SELC Comments"); BREDL Comments at 1-2.

[22] SELC Comments at 6.

[23] *Nat'l Comm. for the New River, Inc. v. FERC*, 373 F.3d 1323, 1328, 1329 (D.C. Cir. 2004) (quoting *City of Grapevine, Tex. v. Dep't of Transp.*, 17 F.3d 1502, 1507 (D.C. Cir. 1994)); *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989)). *See also Se. Supply Header, LLC*, 120 FERC ¶ 61,257, at P 27 (2007) (denying request to issue revised DEIS where DEIS called for submission information before the end of the comment period or prior to construction).

Commission has explained that the DEIS "put[s] interested parties on notice of the types of activities contemplated and of their impacts."[24] Commenters must show that any alleged omissions in the DEIS "left the public unable to make known its environmental concerns about the project's impact."[25] It is not sufficient that the public was not able to "analyze each aspect of the project, such as specific rather than generalized statements of proposed sitings."[26] Courts have recognized that due to "the practical realities of large projects," such as the Southgate Project, "[i]f every aspect of the project were required to be finalized before any part of the project could move forward, it would be difficult, if not impossible, to construct the project."[27]

These practical realities are evidenced by the Commission's "longstanding practice to issue environmental documents along with recommended mitigation measures that request specific documentation of agency consultation, construction plans, and detailed information to supplement baseline data."[28] It is thus reasonable—and consistent with Commission practice—for the DEIS to contemplate that certain information will be provided subsequent to issuance of the DEIS.[29] The mere fact that additional information will be submitted after issuance of the DEIS does not, as commenters erroneously suggest,

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[24] *Constitution Pipeline Co.*, 154 FERC ¶ 61,046, at P 31 (2016).
[25] *New River*, 373 F.3d at 1329. The volume of comments received in response to the DEIS indicates the opposite—that commenters were more than able to make environmental concerns known to the Commission. *See id.*, 373 F.3d at 1329-30.
[26] *Id.*, 373 F.3d at 1329.
[27] *Id.* (quoting *E. Tenn. Nat. Gas Co.*, 102 FERC ¶ 61,225, at P 25 (2003)); *see also Robertson*, 490 U.S. at 350 (NEPA does not require all plans to be finalized and complete in draft or even final EIS).
[28] *Algonquin Gas Transmission, LLC*, 150 FERC ¶ 61,163, at P 56 (2015), *reh'g denied*, 154 FERC ¶ 61,048 (2016).
[29] SELC alleges that key information is missing from the DEIS (*see* SECL Comments at 5-6). However, the DEIS instructs Mountain Valley to either provide such information prior to the comment period deadline for the DEIS, or at a future date (*see* DEIS at 5-14 – 5-21). Mountain Valley complied with the DEIS and submitted the information required by the comment period deadline (*see, e.g.*, Mountain Valley Pipeline, LLC, Response to FERC Staff's Recommended Mitigation, Docket No. CP19-14-000 (Sept. 13, 2019)). Mountain Valley will continue to comply with all Commission directives contained within the DEIS, FEIS, and Commission orders.

in and of itself require the Commission to prepare a revised DEIS. "NEPA does not require agencies to constantly revise their issued analyses as new information becomes available."[30] The "fact that many of the permits, approvals, consultations, and variances required for the . . . project have been or will be filed after the formal public notice and comment periods does not mean that the public is excluded from meaningful participation."[31] On the contrary, information filed after the comment period continues to be "accessible to the public in the Commission's electronic database."[32]

This practice is consistent with the Council on Environmental Quality's ("CEQ") regulations implementing NEPA. CEQ regulations provide that an agency shall prepare a revised DEIS if the "draft statement is so inadequate as to preclude meaningful analysis."[33] The CEQ regulations further provide that an agency shall prepare a supplemental DEIS if: "(i) The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or (ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts."[34] Neither of these conditions is present in this case; there is no basis to warrant a revised or supplemental DEIS.

Likewise, the Commission is not required to prepare a supplemental DEIS because the practical realities of the Southgate Project necessitate additional filings after issuance of the DEIS. The Supreme Court has soundly rejected the notion that an agency is required to prepare a supplemental DEIS each time new information becomes available. According

[30] *Dominion Cove Point LNG, LP*, 151 FERC ¶ 61,095, at P 52 (2015), *aff'd sub nom. EarthReports, Inc. v. FERC*, 828 F.3d 949 (D.C. Cir. 2016).
[31] *Constitution Pipeline*, 154 FERC ¶ 61,046 at P 31.
[32] *Id.*
[33] 40 C.F.R. § 1502.9(a).
[34] *Id.* § 1502.9(c)(1)(i)-(ii).

to the Court, requiring otherwise "would render agency decisionmaking intractable, always awaiting updated information only to find the new information outdated by the time a decision is made."[35] Whether to prepare a supplemental DEIS is subject to the Commission's discretion.[36] The Commission's decision on whether to prepare a supplemental DEIS is subject to a "rule of reason:" "if the new information is sufficient to show that the remaining action will 'affec[t] the quality of the human environment' in a significant manner or to a significant extent not already considered, a supplemental EIS must be prepared."[37] The significance of the new information depends on whether it "provides a *seriously* different picture of the environmental landscape."[38] In this case, none of the information that commenters allege is missing or deficient would present a "*seriously* different picture" of the impacts of the Project, and the Commission should appropriately decline to issue a supplemental DEIS.

C. The Commission Has Not Inappropriately Segmented Its Review of the Southgate Project From the Mainline Facilities.

Some commenters assert that the DEIS impermissibly "segments" the Southgate Project by failing to evaluate the Mainline Facilities as a "connected action" in the same environmental document.[39] This argument is nonsensical. According to these commenters, the failure to include the Mainline Facilities in the Commission's review of the Southgate Project undermines its cumulative impacts analysis and determination that

[35] *Marsh v. Ore. Nat. Res. Council*, 490 U.S. 360, 373 (1989). *See also Altamont Gas Transmission Co.*, 75 FERC ¶ 61,348, at p. 62,106 (1996) (denying request for supplemental EIS).
[36] *Wisconsin v. Weinberger*, 745 F.2d 412, 417 (7th Cir. 1984).
[37] *Marsh*, 490 U.S. at 374.
[38] *City of Olmsted Falls, OH v. FAA*, 292 F.3d 261, 274 (D.C. Cir. 2002) (quoting *Wisconsin*, 745 F.2d at 418).
[39] *See* AMA Comments at 8-10; BREDL Comments at 3-5.

the Southgate Project will cause only limited adverse environmental impacts.[40] However, commenters conveniently ignore the entire purpose of the rule against segmentation—to ensure that agencies do not analyze projects in smaller components to avoid a finding of significance that would trigger the need to prepare an EIS.[41] Here, the Commission is preparing an EIS for the Southgate Project, and commenters are opining on that very document.[42] Further, the Commission already completed a thorough environmental review of the Mainline Facilities, including preparation of a full DEIS and Final EIS, and concluded that it would have limited adverse environmental impacts.[43] The Commission cannot go back in time more than two years and add the impact of the Southgate Project into the Mainline Facilities' DEIS and FEIS. There is thus no segmentation.

Moreover, as discussed further below,[44] the DEIS considers the Mainline Facilities as a "cumulative action" in its cumulative impacts analysis, including an evaluation of cumulative impacts to certain water resources.[45] To the extent that commenters argue the

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[40] AMA Comments at 8; BREDL Comments at 3. *See also* DEIS at 5-1 (noting that any adverse environmental impacts would be reduced to less than significant levels with recommended mitigation measures).

[41] *See* 40 C.F.R. § 1508.27(b)(7); *Taxpayers Watchdog, Inc. v. Stanley*, 819 F.2d 294, 299 (D.C. Cir. 1987) ("'Piecemealing' or 'Segmentation' allows an agency to avoid the NEPA requirement that an EIS be prepared for all major federal actions with significant environmental impacts by dividing an overall plan into component parts, each involving action with less significant environmental effects.").

[42] The Commission's decision to prepare an EIS for the Southgate Project is the most detailed review under NEPA and in contrast to most projects of this size where the Commission prepares an EA. *See, e.g., Cheyenne Connector, LLC*, 168 FERC ¶ 61,180 (2019) (Commission staff prepared an EA for a new 70-mile pipeline project); *Spire STL Pipeline LLC*, 164 FERC ¶ 61,085 (2018) (Commission staff prepared an EA for a new 65-mile pipeline); *Gulf South Pipeline Company, LP*, 155 FERC ¶ 61,287 (2019) (Commission staff prepared an EA for a new 66-mile pipeline).

[43] Mountain Valley Pipeline, LLC, Final Environmental Impact Statement, Docket No. CP16-10-000, at 5-1 (June 23, 2017) ("Final EIS"). The Final EIS did note that impacts to forested resources would be more significant, but would be reasonably reduced through adherence to certain mitigation measures. *Id. See also* Certificate Order, 161 FERC ¶ 61,043 at P 308 (Mainline Facilities would be "environmentally acceptable actions" if constructed in accordance with requisite mitigation measures). The Commission's environmental review of the Mainline Facilities lasted nearly three years, beginning with the environmental pre-filing review process in 2014. *See generally* Docket No. PF15-3-000.

[44] *See infra* pages 14-17.

[45] DEIS at 4-246.

cumulative impacts analysis should include the "full impacts of each project in a single EIS," commenters are incorrect.[46] The Commission is not required to re-analyze the entire Mainline Facilities as part of its cumulative impacts analysis.[47] Rather, the DEIS properly addresses cumulative impacts to specific resources within a defined geographic scope, in accordance with CEQ regulations.[48] Thus, the Commission is already undertaking what commenters are requesting, and concerns over segmentation are wrong and disingenuous.

Commenters'[49] reliance on the D.C. Circuit's decision in *Delaware Riverkeeper Network v. FERC*[50] is similarly misplaced because, unlike the projects at issue in *Delaware Riverkeeper*, the Commission has already completed a thorough, nearly three-year environmental review of the Mainline Facilities, including preparation of an EIS, not an EA, and is now in the process of preparing yet another EIS for the Southgate Project. Therefore the Commission is certainly addressing the "true scope and impact" of the Southgate Project.[51]

D. The DEIS's Cumulative Impacts Analysis Takes a Sufficient Hard Look at Cumulative Impacts Associated with the Project.

[46] AMA Comments at 10.
[47] *See Coal. on Sensible Transp. v. Dole*, 826 F.2d 60, 71 (D.C. Cir. 1987) (noting that "[f]urther analysis" of projects already fully evaluated for environmental impacts would be unnecessarily redundant and "in no material way serve the purposes of NEPA").
[48] DEIS at 4-235 – 4-243; *see* 40 C.F.R. § 1508.7.
[49] AMA Comments at 8-10; BREDL Comments at 4-5.
[50] 753 F.3d 1304 (D.C. Cir. 2014).
[51] *Id.* at 1309, 1319. Note that since issuing the decision in *Delaware Riverkeeper*, the D.C. Circuit has decided several cases clarifying and limiting its application to the unique set of facts present in that case. *See City of Boston Delegation v. FERC*, 897 F.3d 241, 252 (D.C. Cir. 2018) (projects were not "under simultaneous consideration by the agency," nor were they "financially and functionally interdependent"); *Myersville*, 783 F.3d at 1326 (noting that the court had "premised [its] decision [in *Delaware Riverkeeper*] requiring joint NEPA consideration on the unquestionable connectedness of the projects, the fact that the projects all were under consideration by the Commission at the same time, and the fact that the projects were financially interdependent"); *Minisink*, 762 F.3d at 113 n.11 (noting that the "critical facts" in *Delaware Riverkeeper* were "worlds apart" from the facts in *Minisink*). These cases indicate that the same unique factors present in *Delaware Riverkeeper* must be present for the court to reach the same result in a subsequent case.

Some commenters assert that the DEIS failed to take a hard look at the cumulative impacts of the Southgate Project because the temporal and geographic scope of the analysis is too narrow.[52] According to these commenters, the DEIS must be revised to broaden the scope of its analysis to include "massive projects" that would affect the same environmental resources.[53] Such projects, according to commenters, include a mixed-used development,[54] as well as two existing compressor stations within the vicinity of Lambert Compressor Station proposed as part of the Southgate Project.[55] Other commenters argue that the DEIS only includes a "minimal analysis" of cumulative impacts associated with the Mainline Facilities.[56] Contrary to these assertions, the cumulative impacts analysis in the DEIS is thorough and comprehensive, and properly defines the geographic and temporal scope of the analysis.

A "cumulative impact" is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions."[57] The D.C. Circuit has explained that

> a meaningful cumulative impact analysis must identify (1) the area in which the effects of the proposed project will be felt; (2) the impacts that are expected in that area from the proposed project; (3) other actions—past, present, and proposed, and reasonably foreseeable—that have had or are expected to have impacts in the same area; (4) the impacts or expected impacts from these other actions; and (5) the overall impact that can be expected if the

[52] SELC Comments at 10-11.
[53] *Id.* at 11.
[54] SELC argues the DEIS fails to address the cumulative impacts of Chatham Park, a mixed-use development in Pittsboro, North Carolina. *Id.* at 10-11. The Chatham Park development is approximately 25 miles south of the Project in Chatham County, North Carolina and none of the Project facilities are located in Chatham County.
[55] *Id.* at 10; BREDL Comments at 15.
[56] AMA Comments at 10.
[57] 40 C.F.R. § 1508.7.

individual impacts are allowed to accumulate.[58]

The DEIS's cumulative impacts analysis satisfies this criteria. The DEIS properly explained that "[f]or a cumulative impact to occur, another project(s) must impact the same resource(s) as the Southgate Project."[59] Because [i]impacts often vary in extent and duration," the DEIS accounts for this variation "by considering resource-specific geographic scopes" for a range of resources, including: soils; groundwater, surface water, and wetlands; vegetation; wildlife; fisheries and aquatic resources; land use, recreation special interest areas, and visual resources; socioeconomics and environmental justice; cultural resources; and air quality and noise.[60] The DEIS then identified other past, present, and reasonably foreseeable projects within the resource-specific geographic scope of analysis, and analyzed the cumulative effects of such projects combined with the Southgate Project.[61]

The DEIS identifies both jurisdictional and non-jurisdictional projects within proximity to the Southgate Project, including *both* Transco Compressor Stations 165 and 166 and the Mainline Facilities.[62] The DEIS then analyzes the cumulative impacts associated with those projects within the geographic scope of each resource. With respect to water resources in particular, the DEIS looked at projects within the same HUC-12 watershed for impacts to groundwater, and within the larger HUC-10 watershed for impacts

[58] *Grand Canyon Tr. v. FAA*, 290 F.3d 339, 345 (D.C. Cir. 2002) (amended Aug. 27, 2002) (citation omitted).
[59] DEIS at 4-236.
[60] *Id.*
[61] *Id.*
[62] *Id.* at 4-244 – 4-246 (identifying the Virginia Southside Expansion Project, the Virginia Southside Expansion II Project, and the Mainline Facilities); *see also id.* at 2-246 – 2-248 (identifying non-jurisdictional Southgate Project-related facilities, other energy projects, mining operations, transportation and road improvement projects, and commercial, industrial, and residential projects).

on surface water.[63] Importantly, both analyses included the Mainline Facilities as a project that could have cumulative impacts on water resources.[64] The DEIS concluded with respect to groundwater, that "it is unlikely that pipeline activities would negatively affect groundwater supplies from wells" due to the "shallow . . . nature of pipeline trenching."[65] Concerning surface water, the DEIS explained that because most impacts are short-term, and would be minimized by the installation and maintenance of best management practices, the cumulative effect of the Project, combined with the 37 other projects within the HUC-10 watershed, would be minor.[66]

The DEIS also evaluated cumulative impacts on air quality resulting from construction and operation of the Southgate Project facilities. Specifically with respect to the Lambert Compressor Station, the DEIS evaluated cumulative impacts on air quality as a result of the Southgate Project and projects within 31.1 miles of the Lambert Compressor Station.[67] The DEIS acknowledges that operation of both Transco Compressor Station 165 and 166, as well as the Southgate Project, would result in long-term, stationary sources of air emissions. Importantly, none of the major source thresholds would be exceeded, and the facilities would continue to operate in compliance with all applicable permitting

[63] *Id.* at 2-450. To the extent that Appalachian Mountain Advocates, *et al.* ("AMA") asserts that the DEIS only analyzed the cumulative impacts of the Southgate Project and the Mainline Facilities on HUC-12 watersheds, AMA is incorrect. The DEIS considered projects within the HUC-12 watershed for groundwater, and within the larger HUC-10 watershed for surface water. Both analyses included the Mainline Facilities. *Id.*

[64] DEIS at 2-450.

[65] *Id.*

[66] DEIS at 4-252. The DEIS explained that most projects, including the Mainline Facilities, would be required by permit to install erosion and stormwater control devices, so "any cumulative impacts from upland construction of multiple projects . . . would not likely be significant." *Id.* at 4-251 – 4-252. It also noted that because of geographic and temporal separation of waterbody crossings, "it is unlikely that cumulative impacts would be significant." *Id.* at 4-252.

[67] *Id.* at 4-265.

requirements, including federal, state, and local air regulations.[68] As a result, the DEIS reasonably concluded that "operation of the Southgate Project combin[ed] with other projects would not result in significant cumulative impacts on air quality."[69]

Thus, contrary to commenters' assertions, the DEIS comprehensively evaluates cumulative impacts associated with the Southgate Project and other projects within its resource-specific geographic scope, including the Mainline Facilities and both Transco Compressor Stations.

E. The DEIS Properly Articulates the Purpose and Need of the Project and Evaluates Reasonable Alternatives.

Commenters incorrectly argue the DEIS ignores the "question of whether there is a real public need for the [Project]" and "improperly restricts its analysis of alternatives to those that can transport Mountain Valley's full desired volume of gas from its desired starting and ending points."[70] However, the DEIS articulates properly the purpose and need of the Project and evaluates sufficiently the Project alternatives as required by NEPA.

Courts and the Commission have properly explained that NEPA requires the Commission to identify and analyze reasonable alternatives during its review of a proposed action.[71] Importantly, "NEPA is a procedural statute; it does not mandate particular results, but simply prescribes the necessary process."[72] CEQ's NEPA regulations require the Commission to "briefly specify the underlying purpose and need to which the agency is

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[68] *Id.* The DEIS also explained that because the Transco compressor stations were constructed more than three years ago, these emissions are "considered part of the ambient air quality within the Southgate Project geographic scope and are accounted for in existing facility permits." *Id.* Any future upgrades to Compressor Station 165 "would be reviewed for compliance with [National Ambient Air Quality Standards] and required air quality permits." *Id.*

[69] *Id.*

[70] AMA Comments at 1-2.

[71] *Minisink*, 762 F.3d at 102; *Millennium Pipeline*, 157 FERC ¶ 61,096 at P 112 (citing 42 U.S.C. § 4332(2)(C) (2012) and 40 C.F.R. §§ 1502.1, 1502.14, and 1502.16 (2016)).

[72] *Minisink*, 762 F.3d at 111 (internal quotation marks omitted) (quoting *Robertson*, 490 U.S. at 350).

responding in proposing the alternatives including the proposed action."[73] It is not the intent of the DEIS to "reach a conclusion on whether there is a need for a proposed project."[74] Rather, "[t]he function of a statement of purpose and need . . . is to define the objectives of the proposed action such that the agency can identify and consider legitimate alternatives."[75]

In this case, the DEIS properly articulates the purpose and need of the Project:

> In general, as described by Mountain Valley, the purpose and need for the Southgate Project is to meet the specific requests for natural gas transportation service of its anchor shipper, [DENC], a local natural gas distribution company. Mountain Valley states that the Project will provide additional firm natural gas transportation services for [DENC] to meet its growing supply needs via interconnections with the under construction Mountain Valley Pipeline project in southern Virginia and the interstate pipeline of East Tennessee in North Carolina to two new delivery points on the [DENC] distribution system in Rockingham and Alamance Counties, North Carolina.[76]

This purpose and need is consistent with the requirements of the Project shipper, DENC. Based on this purpose and need, the DEIS properly evaluates reasonable alternatives to the Project, consistent with the Commission's stated methodology and precedent.

CEQ regulations on the alternatives analysis require the Commission to "[r]igorously explore and objectively evaluate all *reasonable* alternatives."[77] While NEPA does not define what constitutes a "reasonable alternative," CEQ guidance clarifies that alternatives are not reasonable if they are not feasible.[78] CEQ guidance further provides

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[73] 40 C.F.R. § 1502.13. *See also Kern River Gas Transmission Co.*, 138 FERC ¶ 61,037, at P 27 (2012) ("The Council on Environmental Quality (CEQ) regulations implementing NEPA requires only that an EA include a brief discussion of the need for the proposal.") (citing 40 C.F.R. § 1508.9 (2011)).
[74] *Kern River Gas Transmission*, 138 FERC ¶ 61,037 at P 27.
[75] *Id.* (citing *Colo. Envtl. Coal. v. Dombeck*, 185 F.3d 1162, 1175 (10th Cir. 1999)).
[76] DEIS at 1-2.
[77] 40 C.F.R. § 1502.14 (emphasis added).
[78] *Enable Gas Transmission*, LLC, 153 FERC ¶ 61,055, at P 25 (2015) (citing *Guidance Regarding NEPA Regulations*, 48 Fed. Reg. 34,263 (July 28, 1983)).

that "[r]easonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense."[79]

When evaluating whether an alternative is preferable to a proposed action, the Commission considers three evaluation criteria.[80] These criteria are: (1) whether "the alternative meets the stated purpose of the project;" (2) whether the alternative "is technically and economically feasible and practical; and" (3) whether the alternative "offers a significant environmental advantage over a proposed action."[81] The Commission, therefore, is not required to consider "alternatives that are not consistent with the purpose and need of the proposed project."[82] Consistent with these criteria, the DEIS considers the no-action alternative, system alternatives, major route alternatives and variations, and alternative locations for proposed aboveground facilities.[83] Based on this analysis, the DEIS reasonably concludes that no alternative "would provide a significant environmental advantage over the Project" and "that the proposed Project is the preferred alternative that can meet the Project's stated purpose."[84]

Despite this comprehensive review of alternatives, Commenters nevertheless argue that the Commission "must consider other systems, including *non-gas energy alternatives, and/or energy conservation or efficiency*."[85] But because such alternatives cannot "meet[] the stated purpose of the project," i.e., to meet the specific request for natural gas

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[79] *See Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations*, 46 Fed. Reg. 18,026, 18,027 (Mar. 23, 1981).
[80] DEIS at 3-1.
[81] *Id*.
[82] *Dominion Transmission, Inc.*, 155 FERC ¶ 61,106, at P 113 (2016) (citing *Pac. Coast Fed'n of Fishermen's Ass'ns v. Blank*, 693 F.3d 1084, 1100 (9th Cir. 2012)).
[83] DEIS at 3-1 – 3-48.
[84] *Id.* at 3-48.
[85] North Carolina Department of Environmental Quality Comment on the Draft Environmental Impact Statement (DEIS) for the Southgate Project, Docket No. CP19-14-000, at 3 (Sept. 16, 2019) ("NCDEQ Comments").

transportation service of its anchor shipper, DENC, they are not "reasonable" alternatives that the Commission must consider under NEPA.[86] Commission precedent recognizes that the use of renewable energy sources and increased energy conservation may not meet the purpose of a natural gas pipeline project.[87] Not surprisingly, these commenters fail to explain how the customers of DENC can utilize solar energy or wind energy or energy conservation programs to operate their gas appliances, gas furnaces and other devices and machinery that are natural gas fueled. Therefore, the DEIS properly considered reasonable alternatives to the Project, consistent with Commission precedent and the requirements of NEPA.

Transco and Atlantic Coast Pipeline ("Atlantic Coast") each submitted comments on the hypothetical alternatives in the DEIS that address their respective pipeline systems.[88] Transco comments that it could, in theory, provide the same capacity required by DENC by using its existing system with minor modifications at an existing compressor station and constructing a 37.7-mile long lateral pipeline that would follow existing pipeline rights-of-way.[89] Unsurprisingly, in offering this hypothetical alternative, Transco fails to explain how it would meet a number of criteria DENC considered when it contracted for capacity

[86] *Dominion*, 155 FERC ¶ 61,106 at P 113 (citing *Pac. Coast*, 693 F.3d at 1100).
[87] *Id.* (citing *Pac. Coast*, 693 F.3d at 1100). *See also Envtl. Law & Policy Ctr. v. NRC*, 470 F.3d 676, 684 (7th Cir. 2006) (NRC properly declined to consider energy-efficiency alternatives when goal of project was to generate baseload energy and private applicant "was in no position to implement such measures"); *National Parks Conservation Ass'n v. Forest Service*, 177, F.Supp.3d 1, 14 (D.D.C. 2016) (quoting *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991)) (noting that where an agency is "asked to sanction a specific plan," it must "take into account the needs and goals of the parties involved in the application," and holding that purpose of "exploration of private minerals" was consistent with NEPA).
[88] Transcontinental Gas Pipe Line Company, LLC, Comments on Draft Environmental Impact Statement, Docket No. CP19-14-000 (Sept. 18, 2019) ("Transco Comments"); Atlantic Coast Pipeline. Draft Environmental Impact Statement for Southgate Project, Docket No. CP19-14-000 (Sept. 16, 2019) ("Atlantic Coast Comments").
[89] Transco comments at 2.

on the Southgate Project.[90] Specifically, the Transco alternative to the Project would not (1) add competition to an interstate pipeline market where Transco has a near monopoly; (2) provide DENC with a third direct interstate pipeline connection improving reliability and adding resiliency to the interstate pipeline services that DENC receives; (3) diversify risk and provide access to the other pipelines to continue serving DENC's customers without interruption in the event of an unplanned outage or interruption; and (4) provide a direct connection of DENC's system to East Tennessee's pipeline through which DENC sources its gas storage on Saltville Gas Storage Company L.L.C.'s storage facilities, which will allow DENC to replace less reliable secondary-firm backhaul deliveries on Transco with primary-firm forward-haul deliveries on the Southgate Project. Mountain Valley is not alone in describing these benefits, as DENC filed a response in this proceeding on December 28, 2018 describing how the Southgate Project will provide many of these benefits, including filing testimony provided before the North Carolina Utilities Commission ("NCUC").[91] Moreover, regarding the first three criteria, the NCUC has recognized the need for competitive interstate pipeline capacity alternatives *other* than Transco—which Transco fails to explain or acknowledge.[92] DENC further filed its own

[90] In fact, DENC solicited interest for additional pipeline capacity necessary to meet anticipated incremental demand on its distribution system from all existing and proposed pipelines, including Transco and Atlantic Coast. Application at 3. In choosing Mountain Valley and the Southgate Project, DENC cited numerous reasons, including transportation cost, supply cost, supply diversity, reliability and resiliency, and operational efficiencies. *Id.* at 7.

[91] *See Motion for Leave to Answer, Answer, and Motion to Lodge of Public Service Company of North Carolina, Inc*., Docket No. CP19-14-000 (Dec. 28, 2018) ("*Answer*"). In the *Answer*, DENC [PSNC] referenced its application before the NCUC seeking approval for compensation under the Southgate agreement wherein its stated various benefits the Southgate Project provides, including " access to MVP capacity, which constitutes the best-cost alternative available to satisfy the Company's long-term interstate capacity needs;" "increase reliability, resiliency and direct to low-cost natural gas produced in the Marcellus and Utica shale regions;" "contribute to optionality of natural gas supply sources;" and "allow PSNC to replace secondary-firm backhaul deliveries with primary forward-haul deliveries." *Answer* at 5.

[92] *See* Docket No. G-100, Sub 91, *Investigation Regarding Competitive Alternatives for Additional Natural Gas Service Agreements*. The NCUC approved the Southgate Project as beneficial to consumers in North Carolina, and authorized payment under the precedent agreement. *See* Order on Annual Review of Gas

response to comments on the DEIS stating that Transco has failed to explain how it could provide mainline capacity to serve DENC and never presented this new proposal until now and accordingly it is too late.[93] In short, the only comment Transco offered that is helpful to the Commission's alternatives analysis is that Atlantic Coast is not a viable alternative.[94]

Atlantic Coast comments that Commission staff "should ***not*** assume when considering [Atlantic Coast Pipeline ("ACP")] as an alternative to Southgate that ACP would deliver gas to PSNC at the same delivery points proposed by [Mountain Valley]."[95] According to Atlantic Coast, instead of delivering gas where the Southgate Project is proposed to deliver gas and where DENC wants it delivered, the Commission should consider an alternative where Atlantic Coast would deliver gas on the eastern side of DENC's system, reducing the length of pipeline necessary for Atlantic Coast to deliver gas to DENC. Atlantic Coast further suggests that in order to do so, it would need additional capacity to be added to the Piedmont intrastate pipeline.[96] But this is not what DENC has requested. Moreover, an Atlantic Coast alternative would not provide the crucial connection to East Tennessee that the Project will provide. Therefore, Atlantic Coast's new suggested system alternative would not meet the purpose of the Southgate Project, which, rather than simply delivering gas to DENC, specifically includes receiving gas from

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Costs, *In re Application of Public Service Company of North Carolina, Inc. for Annual Review of Gas Costs Pursuant to N.C.G.S. § 62-133.4(c) and Commission Rule R1-17(k)(6)*, Docket No. G-5, Sub 591 (NCUC Dec. 6, 2018); Order Accepting Affiliated Agreements for Filing and Permitting operation Thereunder Pursuant to N.C. Gen. Stat. § 62-153, *In re Application of Public Service Company of North Carolina, Inc. for Approval of Payment of Compensation Under a Service Agreement with Mountain Valley Pipeline, LLC*, Docket No. G-5, Sub 591 (NCUC Oct. 9, 2018) (attached to Mountain Valley's Application as Ex. Z-1).

[93] *See* DENC [PSNC] Response filed October 17, 2019 in Docket No. CP19-14-000.

[94] Transco Comments at 2, n.1.

[95] Atlantic Coast Comments at 2 (emphasis in original). Atlantic Coast's lead developer and largest equity owner is Dominion. As noted earlier, Dominion acquired the former PSNC Energy in January 2019, after PSNC Energy entered into the binding precedent agreement with Mountain Valley. DENC/PSNC and ACP are now affiliates. DENC/PSNC and Mountain Valley are not affiliates.

[96] Atlantic Coast Comments at 3.

the interconnection with the Mainline Facilities (on which DENC is a customer) and from the new interconnection with East Tennessee and delivering gas to two new delivery points on the DENC distribution system in Rockingham and Alamance Counties, North Carolina. Neither would this alternative meet the goal of diversifying the interstate pipeline market in North Carolina, as evident by the NCUC's recognition of the need for competitive pipeline alternatives, notwithstanding the fact that DENC had an existing commitment on ACP.[97]

More fundamentally, however, is that neither the Atlantic Coast alternative or the Transco alternative as put forward are real projects. While it may be appropriate to evaluate those "alternatives" under NEPA, the alternatives are hypothetical only, as neither pipeline company has proposed either "alternative" as a viable project. As the Commission recently explained in *Cheyenne Connector, LLC*, even if a potential alternative assessed under NEPA may present an environmental advantage, "NEPA does not require the Commission to certificate the most environmentally favorable alternative."[98] Based on comments from a competing pipeline company that its hypothetical system alternative provided less environmental impact over the proposed project, the Commission explained that the competing pipeline did not present a "viable system alternative" because that pipeline company did not have commitments from shippers or submit an application for an alternative project.[99] Further, while the Commission assessed the potential impacts from the hypothetical alternative project for NEPA purposes, it ultimately issued a certificate for

[97] *See Answer* (explaining DENC's 20-year precedent agreement with Atlantic Coast for 100,000 dth/d). Atlantic Coast itself "fully understands and appreciates" the need for "a new pipeline alternative to serve North Carolina." Atlantic Coast Comments at 2.
[98] *Cheyenne Connector, LLC*, 168 FERC ¶ 61,180, at P 107 (2019).
[99] *Id*. at 105.

the proposed project because, among other things, the benefits of the proposed project "outweigh the potential environmental benefits of the non-viable, hypothetical system alternative proffered by [the competitor]."[100] The same analysis applies here where the Commission is faced with Atlantic Coast's and Transco's non-viable alternatives.

In this case, while both hypothetical alternatives may be appropriate for Commission consideration under NEPA (and have been considered), neither alternative is a real, viable project that the Commission has the ability to consider under the Natural Gas Act ("NGA"). The NGA restricts Commission action to issue certificates to an "*applicant*" when it finds that the "*proposed . . . construction . . .* is or will be required by the present or future public convenience and necessity."[101] Neither Atlantic Coast nor Transco are applicants for these proposed alternatives as both pipelines require construction of additional facilities to serve DENC. Furthermore, neither company has filed applications or presented evidence that they have customer support for their alternatives.[102] Therefore, their hypothetical alternatives are not viable projects and remain exactly what they are—hypothetical.

F. The DEIS Sufficiently Analyzes Impacts to Environmental Justice Populations.

Some commenters assert that the DEIS failed to analyze adequately impacts to environmental justice communities.[103] According to the SELC, the DEIS does not analyze

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[100] *Id*. at 107.

[101] 15 U.S.C. § 717f(e) (emphasis added).

[102] Atlantic Coast purports not to question DENC's decision to contract with Mountain Valley, as opposed to Atlantic Coast, and states that the Commission "should not look behind precedent agreements to judge a pipeline customer's decision." Atlantic Coast Comments at 2.

[103] SELC Comments at 7-8. The NCDEQ also raises environmental justice concerns with respect to the possibility that DENC will have a small increase in the total bill amount to its customers as a result of the Southgate capacity. Comments at 8-10. This argument is outside the scope of NEPA and not one properly before this Commission but rather an issue that should be raised before the applicable state utility commission.

the health impacts that the Lambert Compressor Station would have on environmental justice populations.[104] However, SELC's comments essentially boil down to a disagreement with the DEIS's analysis of air quality impacts in the vicinity of the Lambert Compressor Station—not the DEIS's evaluation of environmental justice. The DEIS appropriately considered the principles of environmental justice and determined that the Southgate Project "would not have a disproportionately high and adverse environmental or human health impact on minority or low-income populations."[105]

Consistent with CEQ environmental justice guidance, the DEIS identified environmental justice communities by identifying census block groups with a specified minority population or household poverty rate.[106] The DEIS specifically identified two census block groups within one mile of the Lambert Compressor Station containing environmental justice populations.[107] SELC acknowledges these two populations in the DEIS, but asserts that the DEIS "does not assess the health impacts that the compressor station would have on these populations."[108] This is incorrect. The DEIS explains that although construction and operation of the compressor station "would result in long-term impacts on air quality," these impacts would not be significant because Mountain Valley would take steps to minimize dust during construction and potential operational emissions would be below the NAAQS, "which are designated to protect public health."[109] As a

[104] *Id.* at 7.
[105] DEIS at 4-138.
[106] *Id.* at 4-128 – 4-130. Executive Order 12898 requires federal agencies to identify adverse environmental or human health effects that are disproportionally higher on low-income and minority populations. *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, Executive Order 12898, 59 Fed. Reg. 7629 (Feb. 16, 1994). CEQ promulgated guidance to assist federal agencies in identifying these populations. CEQ, *Environmental Justice: Guidance Under the National Environmental Policy Act* (Dec. 10, 1997).
[107] DEIS at 4-131; *see also* SELC Comments at 7.
[108] SELC Comments at 7.
[109] DEIS at 4-131. Impacts on air quality are more fully discussed in Section 4.11 of the DEIS.

result, the Southgate Project "would not have significant adverse air quality impacts on the low-income or minority populations in the Project area."[110]

SELC's comments do not pertain to the DEIS's identification and discussion of environmental justice populations. Rather, their comments take issue with the DEIS's conclusions with respect to the Lambert Compressor Station's impacts on air quality generally.[111] However, the DEIS thoroughly evaluated impacts (including cumulative impacts) to air quality resulting from construction and operation of the Lambert Compressor Station, concluding that impacts would not be significant.[112] With respect to its NEPA obligations to determine whether the Project will have a "disproportionately high and adverse impact on low-income and predominantly minority communities," the DEIS satisfies this standard.[113] By concluding that impacts to air quality from construction and operation of the Southgate Project would not be significant with respect to the general population, the DEIS appropriately concluded the Southgate Project would not have a "disproportionately high and adverse impact" on the two identified environmental justice populations.[114] The DEIS thus satisfies NEPA's goal of informed decisionmaking by recognizing and discussing the Southgate Project's impacts on environmental justice populations.

G. Commission Review of GHG Emissions for the Project Is Consistent with NEPA.

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[110] *Id.*

[111] SELC Comments at 7 (arguing that "existing evidence" indicates impacts surrounding compressor station "could be significant").

[112] *See* DEIS §§ 4.11, 4.13.2.9.

[113] *See Sierra Club*, 867 F.3d at 1368 (internal quotations and citation omitted).

[114] *Id.* at 1369 (noting that the Commission had concluded that the project at issue would not have a high and adverse impact on any population, "meaning, in the agency's view, that it could not have a *disproportionately* high and adverse impact on any population, marginalized or otherwise") (internal quotations and citation omitted). *See also id.* at 1370 (noting that EIS had "explained that the [compressor] station's noise and air-quality effects on these [environmental justice] locations were expected to remain within acceptable limits").

The DEIS properly provides an estimate of the GHG emissions associated with construction and operation of the Southgate Project, and concludes that impacts on air quality during construction and operation will not be significant.[115] Several commenters assert that the DEIS's analysis of GHG emissions is deficient because it does not address emissions associated with upstream production and downstream combustion of natural gas to be transported by the Southgate Project.[116] Commenters argue that the DEIS should include a quantitative estimate of both upstream and downstream GHG emissions associated with the Southgate Project.[117] For the reasons explained below, the DEIS's analysis of GHG emissions associated with construction and operation of the Southgate Project fully complies with NEPA.

CEQ regulations implementing NEPA require consideration of direct and indirect effects of a proposed project.[118] Indirect effects are "caused by the [project] and are later in time or farther removed in distance, but are still reasonably foreseeable."[119] Commenters assert that the DEIS failed to estimate potential indirect downstream GHG emissions associated with natural gas to be transported by the Southgate Project.[120] According to one

[115] DEIS at 4-193 – 4-195, tbls. 4.11-4 and 4.11-5.
[116] *See* AMA Comments at 11-12; Motion to Intervene on Behalf of Food and Water Watch and Comments in Opposition to DEIS, Docket No. CP19-14-000, at 4 (Sept. 16, 2019) ("Food and Water Watch Comments"); NCDEQ Comments at 5-6; Institute for Policy Integrity at New York University School of Law, Comments on Failure to Quantify and Monetize Greenhouse Gas Emissions in the Draft Environmental Impact Statement for the Southgate Project, Docket No. CP19-14-000, at 2, 4 (Sept. 16, 2019) ("NYU Law Comments").
[117] Some commenters further assert that the DEIS should also assess the significance of GHG emissions using available methodologies, including the Social Cost of Carbon. *See* AMA Comments at 18-23; NCDEQ Comments at 5; NYU Law Comments at 1-2. The DEIS properly explains (at 4-269) that there is not a "universally accepted methodology" "to determine the incremental impact of individual projects." Nothing more is required. *See Appalachian Voices*, No. 17-1271, 2019 WL 847199 at *2 (noting that Commission provided reasons for declining to use Social Cost of Carbon tool, and holding that nothing more "is required for NEPA purposes").
[118] 40 C.F.R. § 1502.16(b).
[119] *Id.* § 1508.8(b).
[120] *See* AMA Comments at 13-15; Food and Water Watch Comments at 1-2; NCDEQ Comments at 5-6; NYU Law Comments at 1.

commenter, the specific end-use of the gas is irrelevant, because the Commission can provide a "full-burn" estimate of GHG emissions.[121] Ignoring the fact that the Commission has repeatedly explained why the "full-burn" estimate of GHG emissions is not accurate,[122] the Commission has already done what commenters request—provided an "upper bound" estimate of emissions associated with the Mainline Facilities. In analyzing the environmental impacts of the Mainline Facilities, the Commission conservatively estimated the full combustion of the Mainline Facilities' total volume of natural gas transportation capacity.[123] As Mountain Valley explained in Resource Report 9 submitted with its Application,[124] and in its comments on the DEIS submitted on September 13, 2019, it is unnecessary for the Commission to provide an estimate of the upper-bound GHG emissions resulting from end-use combustion for the Southgate Project. This is because potential downstream emissions associated with the Southgate Project have already been accounted for in the Commission's upper-bound estimate for the Mainline Facilities.

To clarify further, Commission approval of the Southgate Project will not cause any incremental downstream GHG emissions. As reflected in its precedent agreement, DENC expects to source more than 80 percent of the natural gas to be transported on the Southgate Project from the Mainline Facilities, and the remaining amount from East Tennessee's existing pipeline system.[125] Accordingly, there is no incremental pipeline capacity, and therefore no additional gas use, attributable to the Project. Downstream GHG emissions were already considered as part of the Commission's evaluation and approval of

[121] AMA Comments at 14-15.
[122] *See, e.g.*, Certificate Order, 161 FERC ¶ 61,043 at P 293.
[123] *Id.*
[124] *Mountain Valley Pipeline, LLC*, Application, Resource Report 9 at 9-24 (Nov. 6, 2018).
[125] Resource Report 9 at 9-24 (noting that natural gas will be received "at either the Mountain Valley Pipeline interconnection near Chatham, Virginia or from East Tennessee at the LN 3600 Interconnect near Eden, North Carolina").

the Mainline Facilities. The Project simply represents different future utilization of the natural gas transported on the Mainline Facilities or East Tennessee.[126] Thus, a quantitative estimate of GHG emissions for the Southgate Project is not only unnecessary, but would result in an inaccurate double-counting of impacts. In short, commenters simply fail to explain how natural gas can be consumed twice.

Similarly, the Commission is not required to assess alleged impacts the Project could have on upstream natural gas production "induced by" the Southgate Project, as asserted by some commenters.[127] As explained above, the Southgate Project is not transporting additional volumes of natural gas. Rather, it is an extension of the MVP

[126] The expected deliveries of natural gas from East Tennessee into the Southgate Project do not require an expansion project on the East Tennessee system.
[127] *See* AMA Comments at 11-12; Food and Water Watch Comments at 1-2.

Mainline Facilities and cannot, therefore, be said to be "inducing" additional natural gas production.

IV.
CONCLUSION

Mountain Valley requests that the Commission accept this Answer to comments filed in this proceeding.

Respectfully submitted,

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Dated: October 21, 2019

EXHIBIT 1

CERTIFICATE OF SERVICE

Pursuant to Rule 2010 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.2010 (2019), I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Washington, D.C., this 21st day of October 2019.

/s/ *Claire M. Brennan*

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MVP Southgate Project

Attachment 2

Response to Comments on the Draft Environmental Impact Statement dated September 16, 2019

October 2019

DEIS Comments from NCDEQ Division of Energy, Minerals, and Land Resources (DEMLR)

2.3 Land Requirements.

DEMLR Comment:
149.8 acres of contract yards. It is unclear from the DEIS if the contractor yards are land uses in keeping with utility line construction or if they are intended to be long term/permanent laydown areas that are to be used for utility maintenance or future expansion, going forward.

Post construction storm water control measures may be appropriate or required if these sites are to be used long term. No detail was provided on how contractor yard restoration would occur once work is completed. No details, criteria, schedules or detail on post deconstruction inspections were provided. No information was provided to address efforts to abate soil compaction, enhance infiltration, replanting efforts, or identify unauthorized uses, post construction.

MVP Response:
The proposed contractor yards are only intended to last through the completion of the Project's construction and restoration. Contractor yards will be stripped of topsoil and stockpiled. Upon Project completion, the yards will be seeded and stabilized. They will be monitored for at least two growing seasons following the completion of the Project.

DEMLR Comment:
62.4 acres of access roads. DEIS does not clearly explain MVP's criteria for temporary roads. Many different type of land uses install "temporary roads." However, "temporary roads" are often or at least periodically put back into service for use. This commonly occurs in forestry, agriculture and industrial settings. Thereby, the roads are not truly temporary, rather the uses are episodic and fallow roads often remain as an ongoing source of sedimentation. The DEIS does not explain how MVP will ensure the roads are truly temporary and will not remain sources off site sedimentation. No details, criteria, schedules or detail on post deconstruction inspections were provided. No information was provided to address efforts to abate soil compaction, enhance infiltration, replanting efforts, or identify and abate unauthorized uses, post construction.

MVP Response:
The proposed temporary access roads are only intended to last through the completion of the Project's construction and restoration. The Project tried to utilize existing roads to every extent practical in an effort to minimize environmental impacts. Where new access roads had to be created, every effort will be taken to return to pre-existing condition unless otherwise specified by a landowner. They will be monitored for at least two growing seasons following the completion of the Project.

DEMLR Comment:
Additional Temporary Workspace - 184.9 acres in NC. The DEIS includes no detail on restoration. No information is provided detailing revegetation and abating soil compaction to address increase storm water runoff and decrease infiltration, post construction.

MVP Response:
The project will be considered stabilized when "a ground cover is achieved that is uniform, mature enough to survive and will inhibit erosion". Full restoration details, outlined in the project's erosion and sediment control plan, outline the steps necessary to ensure the project is constructed to final grade, has a permanent stabilization cover, has permanent post-construction devices installed, and meets the

definition of stabilized so that temporary ECDs may be removed. These details are included in the ESC plans so that the steps may be reviewed and approved by the appropriate state agency and comply with the state's general construction permit

Stormwater plans will be submitted to the NCDEQ in the 4th quarter of 2019 for review.

2.4.1.2 Clearing and Grading.

DEMLR Comment:
DEIS does not detail how areas beyond construction corridor would be identified to ensure work/land disturbance and impacts to waters do not occur beyond the footprint of the approved construction corridor.

MVP Response:
Construction activities will be limited to the approved limits of disturbance. No additional ground disturbance will be allowed without applicable state and FERC approval.

In all (or most) cases, the Additional Temporary Work Spaces (ATWS) are enclosed with perimeter controls - silt/sediment fence, super silt fence or clean water diversion dike - for erosion & sediment control purposes. In cases where there is none needed, the boundaries will be staked and flagged with safety fence, tape, etc. to ensure the boundary is established so no work occurs beyond the permitted project LOD.

2.4.1.3 Trenching.

DEMLR Comment:
The DEIS states "excess rock would be trucked to approved disposal areas." However, the DEIS does not detail how this approval process will occur and be managed to ensure impacts to waters, wetlands, or need for additional erosion control measures would not occur.

MVP Response:
A record of each load that is taken to an approved landfill or permitted storage/disposal site will be kept in the SWPPP or other on-site documentation. Areas where the rock/stone is to remain are recorded in the landowner agreement or the commitments list. Redlines on the erosion and sedimentation control plans may also be necessary depending on the scope or extent of stone remaining. Unless specifically allowed through additional state and Federal permitting, no impacts to aquatic resources will occur through the placement of excess rock.

2.4.1.5 Lowering-in and Backfilling.

DEMLR Comment:
The DEIS states "The pipeline would then be lowered into the trench by side-boom tractors. Trench breakers (such as sand bags or foam) would then be installed in the trench on slopes at specified intervals to prevent subsurface water movement along the pipeline." The DEIS includes no detail, requirements or construction criteria} was detailed on installation, construction or specifics of when anti-seep/trench breakers are to be used. Detail is not provided as to how MVP will ensure contractors understand when to install these measures. Failure to do properly do so could result in impacts to waters and wetlands.

The DEIS states "first 12 inches at the bottom of the trench above the pipe would be clean fill, absent of rocks. Limestone dust may be brought in and used as padding material only when other local suitable fill is unavailable." In this section, the DEIS fails to clearly state that suitable material will not consist of soils contaminated with oil, petroleum, hazardous materials, or coal combustion residuals.

MVP Response:
Use of trench breakers/anti-seep collars will be further within the landslide mitigation plans and narrative of the erosion and sediment plans which have started the review process. Mountain Valley will use existing soils to recompact the trench and therefore existing soils should be clean. Any contaminated materials resulting from construction activities will be isolated and removed from the project footprint and disposed of per the requirements of the state;

The location of trench breakers is explicitly shown on the plan and profile sheets as well as in the general construction sequence of the erosion & sediment control plans. Further specifics are presented in the construction typical details such as spacing, cross section views, and composition of trench breakers. MVP will also ensure the first 12 inches at the bottom of the trench are free of contamination. Language clearly stating these requirements was also added to Erosion and Sediment Control Plans, General Construction Narrative.

2.4.1.8 Cleanup and Restoration.

DEMLR Comment:
DEIS states that "excess rock/stone would be disposed of within the construction right-of-way with landowner approval or at an approved landfill." Based on this cleanup and restoration approach, the DEIS does not address how this process will occur and be managed to ensure impacts to waters, wetlands, or the need for additional erosion control measures would not occur.

MVP Response:
Application of excess rock/stone would be disposed of within the right-of-way in a stabilized manner and only within upland areas.

A record of each load that is taken to an approved landfill or permitted storage/disposal site will be kept in the SWPPP or other on-site documentation. In areas where the rock/stone is to remain, included in landowner approval is acknowledgement that additional erosion and sediment control may be needed, as well as permanent stormwater management, to be handled in Post-Construction/Restoration Plans. Unless specifically allowed through additional state and Federal permitting, no impacts to aquatic resources will occur through the placement of excess rock.

2.4.2.1 Waterbody Crossing.

DEMLR Comment:
The DEIS states that "Trench spoil would be placed on the banks above the high water mark for use during backfilling. In some cases, the pipeline would be coated with concrete for negative buoyancy." The DEIS does not explain what measures will be taken to prevent direct contact between uncured or curing concrete and waters of the state. The DEIS does not detail how inadvertent contact of uncured concrete will be managed to ensure that discharges to waters of the state do not occur.

MVP Response:
No concrete will be cured along the right-of-way.

Staging areas to be located above the high water mark and enclosed with perimeter erosion and sediment control, as indicated in the ESC Plans. The top trench material within the stream is to be separated and stored separately from the deeper trench material so that the stream bed can be restored to reflect original conditions. Any use of concrete would be outside of the stream and in a protected area to ensure to material was able to enter the water. Additionally, a wash-out pit will be implemented and materials disposed of properly should concrete need to be mixed on-site.

The location of trench breakers is explicitly shown on the plan and profile sheets as well as in the general construction sequence of the erosion & sediment control plans. Further specifics are presented in the construction typical details such as spacing, cross section views, and composition of trench breakers.

2.4.2.2 Wetland Crossings.

DEMLR Comment:
The DEIS states that "After the pipeline sinks into position, trench breakers are installed where necessary to prevent the subsurface drainage of water out of the wetland." Details are not included to describe how MVP will ensure contractors understand when to install these measures. Failure to do this properly could result in impacts to waters and wetlands.

MVP Response:
Engineers will have determined where trench breakers need to be installed and they will be included in the erosion and sediment controls designs to be approved by the DEMLR.

2.4.2.5 Foreign Utilities.

DEMLR Comment:
The DEIS does not clearly address how MVP plans to respond to impacts to potable waterlines, reuse lines, sewer lines (both gravity lines and force mains), and other fuel supply lines that may be encountered along the Project route. It is imperative that MVP have contacts with all local governments and utilities along the Project route and have a firm understanding of their reporting, remediation, and any other requirements. This was not addressed in the DEIS.

MVP Response:
As described in the Project's November 2018 Resource Report 11, Section 11.4.9 Utility Protection, prior to construction, existing utility lines and other sensitive resources identified in easement agreements or by federal and state agencies, will be located and marked to prevent accidental damage during pipeline construction.

The Project’s contractors will contact the one-call system to verify and mark utilities along the Project workspaces to minimize the potential for damage to other buried facilities in the area. Where there is a question as to the location of utilities (i.e. water, cable, oil, gas, product, and sewer lines), they will be located by field instrumentation and/or test pits.

4.1.4.6 Shallow Bedrock and Blasting.

DEMLR Comment:
The DEIS states that "As outlined in the General Blasting Plan, Mountain Valley would:

- use seismograph equipment to monitor the velocity of the blasts at select monitoring locations including closest adjacent facilities;
- use excess rock from blasting to restore the right-of-way, placed as per landowner agreements, or hauled off-site to an approved disposal site."

The DEIS fails to provide specific detail on actual blasting procedures, clearly whether and when seismographs will be used to monitor ground vibration and noise levels.

The DEIS does not detail how excess rock disposal approval process will take place and be managed to ensure impacts to waters, wetlands, or need for additional erosion control measures would not occur.

MVP Response:
The Projects Blasting Plan is included as Attachment 3. Bedrock will be placed aside in an area managed by erosion controls and used as backfill where possible.

4.1.4.7 Flooding.

DEMLR Comment:
The DEIS explains that mitigation measures may include using concrete coating, gravel filled blankets, or concrete weights on the pipeline to maintain negative buoyancy.

The DEIS does not explain what measures will be taken to prevent direct contact between uncured or curing concrete and water of the state. Furthermore, the DEIS does not detail how inadvertent contacts of uncured concrete will be managed to ensure that discharge to waters of the state do not occur.

MVP Response:
No concrete will be poured along the Project's right-of-way.

4.3.2.6 Surface Water Appropriations.

Hydrostatic Test Water
DEMLR Comment:
The hydrostatic test water would be discharged through sediment filters in vegetated uplands away from waterbodies and wetlands. MVP did not detail in the DEIS how it will ensure discharges occur at non-erosive velocities. The DEIS does not include or propose sampling to determine or demonstrate if protective coatings, sediment, turbidity or other constituents would be discharged with test water.

MVP Response:
The project is working with various federal and state agencies, including the DEQ, to determine the appropriate discharge locations and methods. In general, discharges will occur in well-vegetated areas within structures to control for sediment runoff.

The holding tanks will be regulated by valves, for which product-specifics can be provided to ensure a non-erosive discharge to adjacent areas is achieved. That said, field conditions will be assessed at each

selected discharge location to determine the appropriate energy dissipation device, including but not limited to, a combination of filter bags, compost filter sock, and/or sediment (silt) fence, in order to enhance the protection of downstream properties and receiving channels. Although no hydrostatic discharge permit is required, MVP will conduct sampling to ensure that discharges meet regulatory thresholds. Additionally, drilling fluid will not be discharged to the ground but rather hauled away and disposed of at an approved and properly permitted waste facility.

Horizontal Drilling Water

DEMLR Comment:

The HDD process requires water to be added to a bentonite clay mixture to create drilling fluid. The disposal of the drilling fluid is not adequately detailed in the DEIS. "All drilling fluid would be disposed of at an approved facility or recycled in an approved manner in accordance with the HDD Contingency Plan. Mountain Valley would separate all water from HDD equipment washing areas from wetlands or waterbodies by drainage barriers to prevent any runoff entry."

MVP Response:

See Attachment 4 for the HDD Contingency Plan.

2.4.2.6 Agriculture Lands.

DEMLR Comment:

The DEIS explains that other mitigation measures in agricultural lands would include relief from compaction and removal of rocks from topsoil.

MVP Response:

Prior to seeding, the contractor will disc areas to a depth of 4-6" to facilitate revegetation. Discing will be performed on subsoils to a depth of 4-6" and again following tops oiling. MVP will also remove as many rocks from the topsoil as practical. Compaction testing will also be completed, as necessary.

4.1.2 Mineral Resources.

DEMLR Comment:

The DEIS states that "The East Alamance Quarry is a crushed stone aggregates operation in Haw River and is owned and operated by Martin Marietta Materials, Inc. (North Carolina Department of Environmental and Natural Resources Permit No. 01-08) on 600 acres of land, 375 acres of which are bound under Permit No. 01-08. This permit also provides limitations on blasting practices at the quarry, restricting maximum peak particle velocities to 1.0 inch per second. The Project alignment would cross parcels owned by the East Alamance Quarry for approximately 230 feet, near MP 67. Mountain Valley obtained public information that indicates that the operator has not yet filed for a mining permit on the parcel in question (NC-AL-128); however, through discussions with the operator, it was identified that future mining operations may be completed on this parcel. Mountain Valley therefore proactively rerouted the pipeline on this parcel in an attempt to minimize impacts on any future expansion of the East Alamance Quarry. Currently, the Project alignment is approximately 430 feet from disturbed areas at MP 66.7 and more than 1,200 feet from disturbed areas at MP 67. Mountain Valley has committed to working with the East Alamance Quarry regarding landowner easement agreements to minimize inconvenience and impact to the quarry. Based on these factors, we conclude that the Project would not significantly impact or be affected by the East Alamance Quarry." The DEIS explains that the project alignment would cross parcels owned by the East Alamance Quarry for approximately 230 feet. A permit modification was submitted to DEMLR

on April 15, 2019, by Martin Marietta Materials, Inc. for this mine. This modification has not yet been approved by the Division and it did not address this MVP alignment crossing.

The modification plans submitted by Martin Marietta Materials will either need to release this area from the permit or Marin Marietta Materials will need to request a modification for its mining permit. Further, the description in the DEIS, as included above, does not accurately depict/address blasting permit conditions as set forth in the East Alamance mining permit 01-08, which includes seismic monitoring.

MVP Response:
The Project has eliminated all expected impacts to the East Alamance Quarry by rerouting the pipeline off of the Martin Marietta-owned properties and providing a significant buffer to the property line. The current pipeline route will be provided in the Project's Supplemental Filing to be filed October 2019. As the Project understands, the quarry's April 25, 2019 permit modification is within the existing permit boundary, which does not change the Project's analysis.

4.6.5.3 General Fisheries and Aquatic Resources Impacts and Mitigation.

DEMLR Comment:
In the DEIS, Mountain Valley states that it "would minimize impacts from water withdrawals by adhering to the measures in Mountain Valley's Procedures and E&SC Plan. The measures outlined in these plans include preventing water withdrawal from and discharges into exceptional value waters or waters that provide habitat for federally listed threatened and endangered species, unless approved by applicable resource and permitting agencies; screening and positioning water intakes at the water surface to minimize the entrainment of fish and other biota; maintaining adequate flow rates to protect aquatic species; placing water pumps in secondary containment devices to minimize the potential for fuel spills or leaks; regulating discharge rates; and using energy dissipating devices and sediment barriers to prevent erosion. Mountain Valley would obtain and comply with all state water withdrawal and discharge permits." This is not typically required as a part of the state Erosion and Sedimentation Control Plan approval process, and oversight and management of this activity needs to be revisited by MVP.

MVP Response:
MVP is coordinating with the USFWS and NC Wildlife Resources Commission (NCWRC) with regards to freshwater withdrawals. Any applicable ground disturbance from these activities will be captured and reflected in the erosion and sediment control plans provided to NC DEQ, otherwise all other coordination and specifics will be directed to USFWS and NCWRC.

4.8.1.1 Pipeline Facilities. Agriculture Lands.

DEMLR Comment:
The DEIS explains that "To avoid and minimize impacts on agricultural lands, Mountain Valley would implement numerous measures as identified in FERC's Plan including measures that address soil segregation, soil compaction, and irrigation systems and would adhere to all other applicable federal, state, and local permit requirements." The DEIS does not clearly detail how soil compaction will be addressed or abated.

MVP Response:
Prior to seeding, the contractor will disc areas to a depth of 4-6" to facilitate revegetation. Discing will be performed on subsoils to a depth of 4-6" and again following topsoiling. MVP will also remove as many rocks from the topsoil as practical. Compaction testing will also be completed, as necessary.

DEIS Comments from NCDEQ Division of Water Resources (DWR)

4.3.2.2 Surface Water Crossings.

NCDWR Comment:
The DEIS does not explicitly provide that MVP will comply with all the requirements in the state 404 permit and 401 water quality certification, in addition to complying with other pertinent federal and state requirements.

MVP Response:
The Project continues to work diligently with the state of North Carolina to comply with all pertinent federal and state requirements, including the 401 Water Quality Certification.

4.3.2.3 Contaminated Sediments and Impaired Waters.

NCDWR Comment:
The DEIS does not specifically address whether the Project will cross any watersheds draining to impaired waters and if so, what additional measures will be employed to protect these watersheds.

MVP Response:
Any TMDL watersheds crossed by the project footprint will adhere to an enhanced inspection schedule. Per the NCG01 and TMDL watershed requirements, projects must complete inspections twice within 7 days. MVP will continue to coordinate with the NCDEQ in development of the erosion and sediment control plans to ensure these areas are properly identified along with the enhanced inspection schedule (if applicable).

4.3.2.4 Federal and State Designated Use and Exceptional Waters.

NCDWR Comment:
The DEIS provides that "North Carolina administers a river designation intended to protect specific rivers with outstanding natural, scenic, educational, recreational, geologic, fish and wildlife, historic, scientific, cultural or other values. The Project does not cross any North Carolina rivers with these designations." DEQ repeats its request made in our comment on Draft Resource Report 2 that MVP address whether the Project crosses the watershed of any of these rivers, and if so, describe the additional measures MVP will take to protect these valuable resources.

MVP Response:
There are four rivers in North Carolina designated with one or more outstanding natural, scenic, or recreational values (https://www.ncparks.gov/more-about-us/about-state-parks-system/components, January 2019). The four rivers are the Horsepasture, Linville, Lumber, and New rivers. The Project is not located within the watershed of these four rivers."

The Project will protect all water resources affected by the Project as described in its November 2018 Resource Report 2, Section 2.3.6 Construction and Operation Impacts and Mitigation.

NCDWR Comment:
The DEIS provides that the Project will cross WS-II, WS-IV, Nutrient Sensitive Waters (NSW), and HQW, but there is no discussion of what measures MVP will take to avoid those crossings or what additional measures will be employed within the watershed of those classified waters to ensure they are protected. In particular, the Department calls attention to the WS-11 watershed (the entire watershed not just the "watershed" designated in the WS rules for development).

DEQ repeats its request made in our comment on DRR2 that MVP address specific alternatives analysis in addition to the general discussion of these waterbodies in the DEIS.

MVP Response:
"The Project crosses the following WS-II, WS-IV, NSW, HQW waters in North Carolina: Giles Creek (MP 48.7), Stony Creek (MP 63.6), Deep Creek (MP 64.1RR), and Boyds Creek (MP 67.6). Giles and Boyds creek will be crossed using the open cut method while Stony and Deep creek will be crossed using the horizontal directional drill and conventional bore methods, respectively.

These construction methods are described in the Project's November 2018, Resource Report, Section 1.4.1.1 Standard Construction and Restoration Techniques and the waterbodies and measures to protect them during construction are presented in the Project's November 2018 Resource Report 2, Section 2.3.6 Construction and Operation Impacts and Mitigation.

Additional measures the Project will adhere to during construction to minimize impacts within all watersheds are included in the Project's Upland Erosion Control, Revegetation, and Maintenance Plan (""Plan"") and Wetland and Waterbody Construction and Mitigation Procedures(""Procedures"") and the Project's Project-specific Erosion and Sediment Control Plan (""E&SCP"") included in the October 2019 FERC filing. **"**

4.3.2. 7 General Impacts and Mitigation on Surface Water.

NCDWR Comment:
The DEIS states that hydrostatic test water would be discharged over vegetated land surfaces and the discharge rate would be regulated using valves and energy dissipation devices. DEQ requests a detailed evaluation of discharge rates be included in the final EIS.

MVP Response:
The holding tanks will be regulated by valves, for which product-specifics can be provided to ensure a non-erosive discharge to adjacent areas is achieved. That said, field conditions will be assessed at each selected discharge location to determine the appropriate energy dissipation device, including but not limited to, a combination of filter bags, compost filter sock, and/or sediment (silt) fence, in order to enhance the protection of downstream properties and receiving channels.

MVP Southgate Project

Attachment 3

General Blasting Plan

October 2019

MVP Southgate Project

Docket No. CP19-14-000

General Blasting Plan

Revised March 2019

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1 INTRODUCTION

The MVP Southgate Project General Blasting Plan (Plan) outlines the procedures and safety measures that the contractor(s) will adhere to while implementing blasting activities during the construction of the MVP Southgate Project. This Plan addresses blasting for the proposed pipeline route alignment and associated Project facilities filed with the Federal Energy Regulatory Commission (FERC or commission).

Mountain Valley Pipeline, LLC (Mountain Valley) is seeking a certificate of public convenience and necessity (certificate) from FERC pursuant to section 7C of the Natural Gas Act to construct and operate the MVP Southgate Project (Project). The Project will be located in Pittsylvania County, Virginia and Rockingham and Alamance Counties, North Carolina. Mountain Valley proposes to construct approximately 73 miles of natural gas pipeline (known as the H-650 pipeline) to provide timely, cost-effective access to new natural gas supplies to meet the growing needs of natural gas users in the south eastern United States. The approximately 73 mile pipeline will be constructed of 24-inch diameter steel and welded pipe starting at milepost 0.00 and ending a milepost 31.0 at which point the pipeline diameter will be reduced to 16-inch diameter steel and welded pipe starting at milepost 31.0 and ending at milepost 73.11.

This plan includes a brief description of the pipeline alignment and overall physio geographic setting and bedrock geology in the vicinity of the Project. Information on shallow bedrock soils and bedrock outcroppings is taken from the Project's Resource Report 6 – Geological Resources. A map depicts the location of the Project's route is provided in Figure 1.2-1 Project overview Resource Report 1- General Project Description.

Information for blast and rip characteristics of the bedrock may be elevated, at least in a general sense, and applied toward an appropriate bedrock excavating method. The hard and intact nature of the un-weathered bedrock may possibly be removed by ripping or mechanical means.

Other geologic features may control the effects of blasting, rock fabric, or the arrangement of minerals determines intrinsic rock stressing, and thus influence rock excavation, joint spacing, bedding, and foliation also influence rock excavation.

2 PROJECT ALIGNMENT

The proposed FERC jurisdictional facilities described in this plan will consist of approximately 31.0 miles of 24-inch diameter pipeline and 42.1 miles of 16-inch diameter pipeline for a pipeline length of 73.1 miles; installing one new compressor station; aboveground sites for interconnections; main line block valves; launchers and receivers; control systems; and other facilities, as further described in Resource Report 1 - General Project Description.

The proposed pipeline, compressor stations, and interconnect facilities are summarized below:

- **Pipeline – Facilities would include:** Installation of approximately 73 miles of 24-inch and 16-inch diameter pipeline with a 1,440 pounds per square inch gauge (psig) maximum allowable operating pressure (MAOP), with portions of the pipeline paralleling existing buried natural gas pipelines. The pipeline will be located in the Virginia County of Pittsylvania and the North Carolina Counties of Rockingham and Alamance. The proposed pipeline will extend from the existing Mountain Valley Pipeline in Pittsylvania County, Virginia to its terminal at the T-21 Haw River Interconnect in Alamance County, North Carolina.

- **Compression** – The project will consist of the construction of one new compressor station, totaling approximately 28,915 horsepower of new compression.

- **Interconnections** – The Project will have a total of four (4) interconnections at Lambert Interconnect in Pittsylvania County, Virginia; LN 3600 Interconnect in Rockingham County, North Carolina; T-15 Dan River Interconnect in Rockingham County, North Carolina; and T-21 Haw River Interconnect in Alamance County, North Carolina.

3 GEOLOGIC SETTING

The proposed Project route begins in Pittsylvania County, Virginia and proceeds in a southeasterly direction through one Virginia county into North Carolina County of Rockingham and at the Dan River, the route turns southeasterly through the remainder of Rockingham county into Alamance County, North Carolina to the T-21 Haw River interconnect. Along the proposed project route, topography ranges from 470 to 880 feet above mean sea level (amsl) and crosses over several synclines and anticlines, as well as mineral resources that are discussed in detail by Resource Report 6-Geological Resources.

3.1 Regional Physiographic Setting

The proposed Project is located within the Piedmont Uploads Section of the Piedmont Physiographic Province. The project's physiographic settings discussed in detail by Resource Report 6-Section 6.2.1

3.2 Regional Geology

The Project will traverse geology of numerous timeframes and rock types, as discussed in detail in Resource Report 6 – Table 6-B-2 in Resource Report 6.

3.3 Active Faults

The Project alignment was evaluated for the presence of Quaternary-age faulting and the potential for ground movement and failure. The findings of the evaluation are discussed in detail in Resource Report 6–Section 6.5.

3.4 Areas of Shallow Bedrock

The pipeline will be installed to allow a minimum cover of 36 inches in areas of shallow bedrock. Therefore, the proposed Project area was evaluated for areas where bedrock might be encountered above a depth of 80 inches (Resource Report 6 - Appendix A Figure 6-13).

Areas where shallow bedrock may be encountered are discussed in detail in Resource Report 6 – Section 6.2 and Resource Report 7 – Appendix 7-A.

Where un-rippable subsurface rock is encountered, approved alternative methods of excavation will first be explored including: rock trenching machines, rock saws, hydraulic rams, jack hammers, blasting, etc. The alternative method to be used will be dependent on the proximity to: structures, pipelines, wells, cables, water resources, etc., and the capabilities of the alternative excavation method. Should blasting for pipeline grade or trench excavation or site development be necessary, care will be taken to prevent damage to underground structures (e.g., cables, conduits, and pipelines) or to springs, water wells, or other water sources. Blasting mats or padding will be used as necessary to prevent the scattering of loose rock (fly-rock). All blasting will be conducted during daylight hours and will not begin until occupants of nearby buildings, stores, residences, places of business, and farms have been notified. Where competent bedrock occurs in the stream bed, blasting may be used to reduce bedrock, so the trench can be excavated. Specific locations requiring blasting will be determined in the field, based on the limitations of the mechanical excavation equipment.

3.5 Mineral Resources

Mineral resources, quarries, and other mineral extraction along and within the proposed route of the pipeline and its related facilities are discussed in detail in Resource Report 6 – Section 6.4

No blasting is foreseen to occur within the limits of active mining areas or past mining areas, both surface and deep.

4 BLASTING SPECIFICATIONS

Blasting for pipeline facilities grade or trench excavation, compressor station and interconnect site development will be considered only after all other reasonable means of excavation have been evaluated and determined to be unlikely to achieve the required results. MVP may specify locations (foreign line crossings, nearby structures, etc.) where consolidated rock will be removed by approved mechanical equipment, such as rock trenching machines, rock saws, hydraulic rams, or jack hammers, instead of blasting. Areas where blasting may be required will be surveyed for features, such as Karst terrain, structures, utilities, and wells. The pre-construction condition of human-occupied buildings will be documented. Occupied buildings and their condition within 150 feet of the blasting area will be documented as to their pre-blast condition, as set forth in Appendix A - Pre-Blast Survey, and their condition after blasting, as set forth in Appendix E - Post-Blast Survey. MVP will provide verbal notification, followed by written documentation, to the buildings' occupant(s) of any blasting activity during both pre-construction and post-construction within 150 feet of a blast location.

If blasting is conducted within 150 feet of an active water well, as necessary, The Project will offer pre- and post-construction quality and yield testing for all water wells and water supple springs located within 150 feet of construction workspaces. Landowners will be contacted by an MVP representative, and a qualified independent contractor will conduct the testing. Wells within 150 feet of proposed Project work areas are tabulated in Resource Report 2 - Water Use and Quality.

MVP will evaluate, on a timely basis, landowner complaints regarding damage resulting from blasting to wells, homes, or outbuildings. If the damage is substantiated, MVP will negotiate a settlement with the landowner that may include repair or replacement.

Before any blasting occurs, Contractor will complete a project/site-specific blasting plan and provide it to MVP for review. No blasting shall be done without prior approval of MVP. In no event shall explosives be used where, in the opinion of MVP, such use will endanger existing facilities and/or structures. The Contractor shall obtain MVP approval, and provide forty-eight (48) hours' notice prior to the use of any explosives. MVP will provide at least a 24-hour notice to occupants of nearby (within 150 feet of blasting area) buildings, stores, residences, businesses, farms, and other occupied areas prior to initiating blasting operations. These notices will be verbal, followed by written documentation of the 24-hour notice.

4.1 Specifications

Blasting shall adhere to the following federal, state, county, township, local, and MVP standards and regulations. These standards and regulations are to be considered as the minimum requirements. Should there be a conflict between jurisdictions, standards, and regulations, the most stringent jurisdictions, standards, and regulations shall be followed.

These blasting requirements for the MVP Project are as follows:

- MVP Project, Resource Report 6 - Geological Resources, Docket No. PF18- 4-000.
- MVP, Design and Construction Manual, Design Standard, Pipeline, 4.11 Blasting Proximate to Buried Pipelines.

- MVP, Design and Construction Manual, Design Standard, Pipeline, 4.17 Blasting Activities During Construction.
- 29 CFR 1926 Subpart U – Blasting and the Use ofExplosives.
- 27 CFR 555 Subpart K, U. S. Bureau of Alcohol, Tobacco, andFirearms.
- 30 CFR 816.68 Mine Safety and Health Administration(MSHA).
- 49 CFR Part 192 USDOT.
- 27 CFR Part 55.
- 30 CFR '715.19.
- National Fire Protection Association 495.
- U. S. Bureau of Mines Report of Investigations 8507.
- Virginia 4 VAC25-130-816.11, 4 VAC25-130-816.64, 4 VAC25-110-210, and 3 VAC25-150-250.
- North Carolina Chapter 33 Explosives and Fireworks 2006 North Carolina State Fire Prevention Code (Fire Code).

5 PRE-BLAST INSPECTIONS

As required by Resource Report 6 – Geological Resources, MVP shall conduct pre- blast surveys, with landowner permission, to assess the conditions of structures, wells, springs, and utilities within 150 feet of the proposed construction ROW. Should local or state ordinances require inspections in excess of 150 feet from the work, the local or state ordinances shall prevail. The survey will include, at a minimum:

- Informal discussions to familiarize the adjacent property owners with blasting effects and planned precautions to be taken on this project;
- Determination of the existence and location of site-specific structures, utilities, septic systems, and wells;
- Detailed examination, photographs, and/or video records of adjacent structures and utilities; and
- Detailed mapping and measurement of large cracks, crack patterns, and other evidence of structural distress.

The results will be summarized in a Pre-Blast Condition Report that will include photographs and be completed prior to the commencement of blasting. The pre-blast conditions will be documented with the information outlined by “Pre-Blast Survey, MVP Project”. This Pre-Blast Survey Form is considered the minimum information needed. Appendix A presents the Pre-Blast Survey Form. The completion of the Pre-Blast Survey Form is in addition to all other local, county, township, state, or federal reporting/survey data collection and reports.

6 MONITORING OF BLASTING ACTIVITIES

During blasting, MVP contractors will take precautions to minimize damage to adjacent areas and structures. Precautions include:

- Dissemination of blast warning signals in the area ofblasting.
- Backfilling with subsoil (no topsoil to be used) or blasting mats or other approved methods.
- Blast warning in congested areas, in shallow water bodies, or near structures that could be damaged by fly-rock.
- Use of matting or other suitable cover, as necessary, to prevent fly-rock from damaging adjacent protected natural resources.
- Posting warning signals, flags, and/orbarricades.
- Following Federal, State, Local, and MVP procedures and regulations for safe storage, handling, loading, firing, and disposal of explosivematerials.
- Manning adjacent pipelines at valves for emergency response, as appropriate.
- Posting of portable signage, portable barricades, and visual survey of the blast area access ways to prevent unauthorized entrance into the blast zone by spectators and/or intruders.
- Maintain communications between all persons involved for security of the blast zone during any and all blasting/firing.

Excessive vibration will be controlled by limiting the size of charges and by using charge delays, which stagger each charge in a series of explosions.

If the Contractor must blast near buildings, structures, or wells, a qualified independent Contractor will inspect structures or wells within 150 feet, or farther if required by local or state regulations, of the construction right-of-way prior to blasting, and with landowner permission. Post-blast inspections by company's representative will also be performed, as warranted. All blasting will be performed by registered blasters and monitored by experienced blasting inspectors. Recording seismographs will be installed by the Contractor at selected monitoring stations under the observation of MVP personnel. During construction, the Contractor will submit blast reports for each blast and keep detailed records as described in Section 7.10.

As appropriate, effects of each discharge will be monitored at the outer limits of the construction right of way and closest adjacent facilities by seismographs.

If a charge greater than eight pounds per delay is used, the distance of monitoring will be in accordance with the U. S. Bureau of Mines Report of Investigations 8507.

To maximize its responsiveness to the concerns of affected landowners, MVP will evaluate all complaints of well or structural damage associated with construction activities, including blasting. A toll-free landowner hotline will be established by MVP for landowners to use in reporting complaints or concerns. In the unlikely event that blasting activities temporarily impair a water well, MVP will provide alternative sources of water or otherwise compensate the owner. If well or structural damage is substantiated, MVP will either compensate the owner for damages to the structure and well, or arrange for a new well to be drilled.

7 BLASTING REQUIREMENTS

MVP has standard practices for blasting operations, as outlined by Sections 1.0 and 4.0 of this Blasting Plan. The potential for blasting along the pipeline to affect any wetland, municipal water supply, waste disposal site, well, septic system, spring, or pipelines will be minimized by controlled blasting techniques and by using mechanical methods for rock excavation as much as possible. Controlled blasting techniques have been effectively employed by MVP and other companies to protect active gas pipelines within 15 feet of trench excavation. The following text presents details of procedures for powder blasting.

7.1 General Provisions

- The contractor will provide all personnel, labor, and equipment to perform necessary blasting operations related to the work. The Contractor will provide a permitted blaster possessing all permits required by the local, county, township, and states in which blasting is required during construction, and having a working knowledge of state and local laws and regulations that pertain to explosives.
- Project blasting will be done in accordance with 27 CFR Part 55, 30 CFR '715.19, National Fire Protection Association 495 – Explosive Materials Code; the above referenced Specification; and all other state and local laws, when required; and regulations applicable to obtaining, transporting, storing, handling, blast initiation, ground motion monitoring, and disposal of explosive materials and/or blasting agents.
- The Contractor shall be responsible for supplying explosives and blasting materials that are perchlorate-free in order to eliminate the potential for perchlorate contamination of ground water. Further, the use of ammonium nitrate is prohibited. However, the use of emulsion type explosives, including those having ammonium nitrate as a constituent, such as Dyna 1062 Bulk Emulsion, shall be permitted, as these types of explosives are considered industry standard for area blasting related to large scale earthwork construction. In addition, detonators containing small amounts of perchlorate, such as Dyno Nobel NONEL EZ Dets, are an industry standard and shall be permitted.
- The contractor shall be responsible for securing and complying with all necessary permits required for the transportation, storage, and use of explosives. The Contractor shall be responsible for all damages or liabilities occurring on or off the right-of-way resulting from the use of explosives. When the use of explosives is necessary to perform the work, the Contractor shall use utmost care not to endanger life or adjacent property, and shall comply with all applicable laws, rules, and regulations governing the storage, handling, and use of such explosives. MVP will conduct a pre- and post- surficial leak survey along the centerline of each adjacent live pipeline to the planned blast area. The surficial leak survey will be conducted by MVP's employees and/or designated representative, with the surficial leak survey extending a minimum of 100- feet (both directions) past the limits of the planned blast area.
- Blasting activities will strictly adhere to all MVP, local, state, and federal regulations and requirements applying to controlled blasting and blast vibration limits regarding structures, underground gas pipelines, and underground utilities. In addition to following state and federal blasting guidelines, MVP will contact each governmental agency (if project is not undertaken within twelve months as of the date of this Blasting Plan) along the proposed route to determine local ordinances or guidelines for blasting (refer to Table 7.1.1).

TABLE 7.1.1 MVP PROJECT
CONTACTS AND RELATED PERMITTING PRIOR TO BLASTING

JURISDICTION	CONTACT	AGENCY	PERMIT/REGULATION
Virginia	Marshal R. Moore 276.415.9700	DMME Virginia Department of Mines, Minerals, and Energy	Permit and Notification
Virginia	Region 3 Marion Office 276.783.4860	DGIF Virginia Department of Game and Inland Fisheries	Notification: 48 hour notice
Virginia	Office: 804.371.0220 statefiremarshal@ vdfp.virginia.gov	SFMO Virginia State Fire Marshal's Office	Permit and Notification: 24 hour notice
Virginia	Anita Bradburn Realty Specialist Management Branch Huntington District USACE 304.399.5890	US Army Corps of Engineers	Notification: Blasting within 0.25-mile of Weston and Gauley Bridge Turnpike Trail
Virginia	Joby Timm Forest Supervisor O: 540.265.5118 C: 540.339.2523 jtimm@fs.fed.us	US Forest Service	Notification: Blasting within 0.25-mile of the Jefferson National Forest
North Carolina	Matthew Gantt Engineering Supervisor 336-776-9654 matt.ganttencdeur.gov	NC DEQ	Permit and Notification Notice
North Carolina	Tonya Caddle Director- Planning and Inspection 336-342-8137 tcaddieco.rockingham.nc.us	Rockingham CO, NC	Permit and Notification Notice
North Carolina	Robert L. Key Director -Inspection 336-570-4060 Robert.key@alamance-nc.com	Alamance Co, NC	Permit and Notification Notice

The Construction Contractor will be made aware of all applicable procedures and local requirements, and it will ultimately be the Contractor's responsibility to notify officials and receive appropriate blasting permits and authorization.

Typically, local regulations require copies of the blasting Contractor's Certificate of Insurance and License. In some jurisdictions, a Certificate of Bond will also be required, as well as a qualified person hired to oversee the blasting procedure.

The MVP Chief Blasting Inspector (CBI) or designated representative shall have the opportunity to witness all rock excavations or other use of explosives. The Contractor shall conduct all blasting operations in a safe manner which will not cause harm to the existing pipelines and structures in the vicinity. If the CBI determines that any project blasting operations have been conducted in an unsafe manner, the CBI will notify the Contractor of the unsafe activity. If any further unsafe actions occur on the part of the blasting firm, the CBI will request the Contractor terminate the Contract of the blasting firm and hire another blasting company.

Any failure to comply with the appropriate law and/or regulations is the sole liability of the Contractor. The Contractor and the Contractor's permitted blaster shall be responsible for the conduct of all blasting operations, which shall be subject to inspection requirements.

A Blasting Fact Sheet will be distributed to landowners where blasting is proposed and affected landowners will be contacted prior to any blasting activities.

7.2 Storage Use at Sites

Explosives and related materials shall be stored in approved facilities required under the applicable provisions contained in 27 CFR Part 55, Commerce in Explosives. The handling of explosives may be performed by the person holding a permit to use explosives or by other employees under his or her direct supervision, provided that such employees are at least 21 years of age. While explosives are being handled or used, smoking shall not be permitted, and no one near the explosives shall possess matches, open light, or other fire or flame within 50 feet of the explosives, in accordance with OSHA requirements. Suitable devices or lighting safety fuses are exempt from this requirement. No person shall handle explosives while under the influence of intoxicating liquors or narcotics at any time during construction of the Project. Original containers or Class II magazines shall be used for taking detonators and other explosives from storage magazines to the blasting area. Partial reels of detonating cord do not need to be in closed containers, unless transported over public highways. Containers of explosives shall not be opened in any magazine or within 50 feet of any magazine. In opening kegs, or wooden cases, no sparking metal tools shall be used; wooden wedges and either wood, fiber or rubber mallets shall be used. Non-sparking metallic slitters may be used for opening fiberboard cases.

No explosive materials shall be located or stored where they may be exposed to flame, excessive heat, sparks, or impact.

Explosives or blasting equipment that are obviously deteriorated or damaged shall not be used. Explosive materials shall be protected from unauthorized possession and shall not be abandoned.

No attempt shall be made to fight a fire if it is determined the fire cannot be contained or controlled before it reaches explosive materials. In such cases, all personnel shall be immediately evacuated to a safe location and the area shall be guarded from entry by spectators or intruders.

No firearms shall be discharged into or in the vicinity of a vehicle containing explosive materials or into or in the vicinity of a location where explosive materials are being handled, used, or stored.

Contractor shall maintain a daily blast inventory record of all explosive materials transported (to and from blast area), used, and returned to off-site storage, when no storage is located on blast site.

7.3 Pre-Blast Operations

The Contractor is required to submit a planned schedule of blasting operations to the CBI or his designated representative for approval, prior to commencement of any blasting or pre-blast operation, which indicates the maximum charge weight per delay, hole size, spacing, depth, and blast layout. If blasting is to be conducted adjacent to an existing pipeline, approval must be received from the pipeline's Engineering Department. The Contractor shall provide this schedule to the CBI at least five working days prior to any pre-blast operation for approval and use. Where residences or other structures are within 150 feet of the blasting operation, the CBI may require notification in excess of five days. The blasting schedule is to include the blast geometry, drill hole dimensions, type and size of charges, stemming, and delay patterns and should also include a location survey of any dwelling or structures that may be affected by the proposed operation. Face material shall be carefully examined before drilling to determine the possible presence of unfired explosive material. Drilling shall not be started until all remaining butts of old holes are examined for unexploded charges, and if any are found, they shall be re-fired before work proceeds. No person shall be allowed to deepen the drill holes that havecontained explosives.

Drill holes shall be large enough to permit free insertion of cartridges of explosive materials. Drill holes shall not be collared in bootlegs or in holes that have previously contained explosive materials. Holes shall not be drilled where there is a danger of intersecting another hole containing explosive material. Charge loading shall be spread throughout the depth of the drill hole or at the depths or rock concentration in order to obtain the optimum breakage of rock.

Loading and firing shall be performed or supervised only by a person possessing an appropriate blasting permit and license. All drill holes shall be inspected and cleared of any obstruction before loading. No holes shall be loaded, except those to be fired in the next round of blasting. After loading, all remaining explosives shall be immediately returned to an authorized magazine.

A maximum loading factor of 4.0 pounds of explosive per cubic yard of rock shall not be exceeded. However, should this loading fail to effectively break up the rock, a higher loading factor shall be allowed if the charge weight per delay is reduced by a proportional amount and approved by the CBI. The minimum safe distance from the blasting area to a live buried pipeline is placed at 10 feet measured horizontally from the edge of the blasting area to the outer edge of the affected pipeline. The site-by-site minimum safe distance between blasting areas and adjacent live natural gas pipelines will be calculated each time blasting is to occur using PIPEBLAST computer modeling program or other recognized industrial standards and applying the measured site conditions. The minimum safe distance and supporting calculations and site measurements are to be submitted for approval to MVP's CBI at least 48 hours before blasting is to occur.

All blasts will be monitored (Seismograph Monitoring-Transverse,Vertical, Longitudinal, PPV, and Acoustic) to ensure the peak particle velocity does not exceed the following specified maximum velocities:

- Four (4) inches per second for underground, welded, steel pipeline.
- Two (2) inches per second for underground, coupled, steel pipelines; above ground and underground structures; or waterwells.

The MVP Engineering Department may approve higher peak particle velocities in writing, given site-specific conditions.

The maximum amplitude of the elastic wave created by any blast shall not exceed 0.0636 inches.

The type of explosive and initiation system to be used is as follows:

7.3.1 Dyno Nobel Unimax TM (or equivalent)

An extra-gelatin dynamite with a specific gravity of 1.51 g/cc, a detonation rate of 17,400 f/s (unconfined) and a calculated energy of 1,055 c/g. The cartridge size will generally be 2” x 8” (1.25 lbs/cartridge) or 2” x 16” (2.50 lbs/cartridge).

7.3.2 Dyno Nobel Unigel TM (or equivalent)

A semi-gelatin dynamite with a specific gravity of 1.30 g/cc, a detonation rate of 14,200 f/s (unconfined) and a calculated energy of 955 c/g. The cartridge size will generally be 2” x 8” (1.15 lbs/cartridge) or 2” x 26” (2.30 lbs/cartridge).

7.3.3 Dyno Nobel Dynomax Pro TM (or equivalent)

A propagation-resistant dynamite, with a specific gravity of 1.45 g/cc, a detonation rate of 19,700 f/s (unconfined) and a calculated energy of 1,055 c/g. The cartridge size will generally be 2” x 8” (1.225 lbs/cartridge) or 2” x 16” (24.45lbs/cartridge).

7.3.4 Dyno Nobel NONEL TM 17 or 25 Millisecond Delay Connectors or Dyno Nobel NONEL EZ Det TM (or equivalent)

A nonelectric delay detonator with a 25/350, 25/500, or 25/700 millisecond delay.

7.3.5 Dyno Nobel NONEL TM Nonelectric Shock Tube System Detonator (or equivalent)

The Shock Tube will be used to initiate all shots. The Shock Tube will be attached at one point only for initiation of the entire shot and will not be used for down hole priming.

7.3.6 Dyno Nobel 1062 Bulk Emulsion (or equivalent)

An emulsion/gel product commonly used for area blasting such as road alignments or large pads. It contains the following major components: ammonium nitrate (30 to 80% w/w, calcium nitrate, sodium nitrate, and No. 2 diesel fuel (1 to 8% w/w).

Each borehole shall be primed with NONEL EZ Def™ system. The total grains of the detonator system should be limited to prevent blowing stemming out of the drill hole. Boreholes shall be delayed with a minimum of 25 milliseconds (“ms”). Slightly longer delays may be used over steep hills with prior approval of the CBI. Primers shall not

be assembled closer than 50 feet (15.25 m) from any magazine. Primers shall be made up only when and as required for immediate needs.

Blasting shall not be permitted if any part of the live pipeline lies within the perimeter of the crater zone, regardless of size of the blast/shot. Crater zone shall be defined as a circle created by turning a radius along the ground surface equal to the length of the depth below the surfaces where the shot is placed.

Tamping shall be done only with wood rods without exposed metal parts, but non-sparking metal connectors may be used for jointed poles. Plastic tamping poles may be used, provided the authority having jurisdiction has approved them. Violent tamping shall be avoided.

Recommended stemming material shall consist of clean crushed stone with d50 – 3/8 inch, which will not bridge over like dirt and will completely fill voids in the hole.

When safety fuse is used, the burning rate shall be determined and in no case shall fuse lengths less than 120 seconds be used. The blasting cap shall be securely attached to the safety fuse with a standard ring type cap crimper.

Pneumatic loading of blasting agents in blast holes primed with electric blasting caps or other static-sensitive initiation systems shall comply with the following requirements:

- A positive grounding device shall be used for the equipment to prevent accumulation of static electricity;
- A semi-conductive discharge hose shall be used; and
- A qualified person shall evaluate all systems to assure they will adequately dissipate static charges under field conditions.

No blasting caps or other detonators shall be inserted in the explosives without first making a hole in the cartridge for the cap with a wooden punch of proper size or standard cap crimper.

After loading for a blast is completed, all excess blasting caps or electric blasting caps and other explosives shall immediately be removed from the area and returned to their separate storage magazines.

7.4 Discharging Explosives

Persons authorized to prepare explosive charges or conduct blasting operations shall use every reasonable precaution, including, but not limited to, warning signals, flags, barricades, or woven wire mats to ensure the safety of the general public and workmen.

The Contractor shall obtain MVP's approval and provide them at least 24-hour notice prior to the use of any explosives. The Contractor shall comply with local and state requirements for pre-blast notifications, such as the One-Calls of Virginia and North Carolina, which require a 72 hour, minimum, notice.

Whenever blasting is being conducted in the vicinity (within 150 feet) of gas, electric, water, fire alarm, telephone, telegraph, and other utilities, (above or below grade) the blaster shall notify the appropriate representatives of such utilities at least 24-hours, or as required by the utility, in advance of blasting. Verbal notice shall be confirmed with written notice. In an emergency, the local authority issuing the original permit may waive this time limit. MVP's CBI is to be notified, both verbally and copied, with the written notice for notifications.

Blasting operations, except by special permission of the authority having jurisdiction and MVP, shall be conducted during daylight hours. No blasting shall occur on Sundays or legal holidays except by special permission of the authority having jurisdiction and MVP

When blasting is done in congested areas or in proximity to a significant natural resource, structure, railway, highway, or any other installation that may be damaged, the blast shall be backfilled before firing or covered with a mat, constructed so it is capable of preventing fragments from being thrown. In addition, all other possible precautions shall be taken to prevent damage to livestock and other property and inconvenience to the property owner or tenant during blasting operations. Any rock scattered outside the right-of-way by blasting operations shall immediately be hauled off or returned to the right-of-way.

Precautions shall be taken to prevent accidental discharge of blasting caps from currents induced by lightning, adjacent power lines, dust and snow storms, or other sources of extraneous electricity. These precautions shall include:

- Suspension of all blasting operations and removal of all personnel from the blasting area during the approach and progress of an electrical storm; and
- The use of lightning detectors is mandatory.

No blast shall be fired until the blaster in charge has made certain that all surplus explosive materials are in a safe place, all persons and equipment are at a safe distance or under sufficient cover, and an adequate warning signal has been given.

No loaded holes shall be left unattended or unprotected. Explosive shall not be primed or fused until immediately before the blast. After each blasting sequence, the Blasting Contractor shall inspect the site for cut-offs and misfires. All explosives or blasting agents shall be verified as discharged prior to starting/resuming excavation.

Only the person making connections between the cap and fuse system shall fire the shot. All connections should be made from the bore hole back to the source of ignition. If there are any misfires while using cap and fuse, all persons shall remain away from the charge for at least 15 minutes. Misfires shall be handled under the direction of the person in charge of the blasting and the construction right-of-way shall be carefully searched for the unexploded charges.

Explosives shall not be extracted from a hole that has once been charged or has misfired unless it is impossible to detonate the unexploded charge by insertion of a fresh additional primer.

7.5 Waterbody Crossing Blasting Procedures

Blasting should not be conducted within or near a stream channel without prior consultation and approval from the appropriate federal, state, and local authorities having jurisdiction to determine what protective measures must be taken to minimize damage to the environment and aquatic life of the stream. At a minimum, a five work day notice must be provided to the appropriate federal, state, and/or local authorities. In addition to the blasting permits a separate permit and approvals are required for blasting within the waters of the states of Virginia and North Carolina.

Rock drill or test excavation will occur within the limits of a flowing stream only after the streamflow has been redirected and maintained via dam and pump or flume crossing, as presented in Resource Report 2 - Section 2.3.1.4 Waterbody Crossing Methods. For those streams that have no flow at the time of rock drill or test excavation activities, the rock testing will be conducted in the streambed and the streambed disturbance created by the rock testing will be restored within the same day of disturbance.

Rock drill or test excavation and resulting blasting will only occur once the streamflow has been redirected and maintained via dam and pump or flume crossing method. For these crossings of flowing streams, work will commence immediately after the initial disturbance and continue until the stream crossing is completely installed and the streambed restored. Stream crossing methods and crossing mitigation measures are presented in Resource Report 2 – Section 2.3.

To facilitate planning for blasting activities for waterbody crossings, rock drilled or test excavations may be used in waterbodies to test the ditch-line during mainline blasting operations to evaluate the presence of rock in the trench-line. The excavation of the test pit or rock drilling is not included in the time window requirements for completing the crossing. For testing and any subsequent blasting operations, streamflow will be maintained through the site. When blasting is required, the FERC timeframes for completing in-stream construction begin when the removal of blast rock from the waterbody is started. If, after removing the blast rock, additional blasting is required, a new timing window will be determined in consultation with the Environmental Inspector. If blasting impedes the flow of the waterbody, the Contractor can use a backhoe to restore the stream flow without triggering the timing window. The complete waterbody crossing procedures are included in MVP's E&SCP.

MVP will immediately halt all construction activities if the loss of streamflow occurs after a blasting event. The construction contractor and MVP's Environmental Inspector will immediately evaluate the loss of water and develop a Contingency Plan to restore streamflow. This Contingency Plan will be provided to the local, state, and federal agencies having jurisdiction over the stream impacted, for their review and approval. Congruent with the contractor's and MVP's Environmental Inspector's evaluation, temporary emergency contingency measures will be employed to halt the loss of streamflow. Immediately upon the agencies' approval of the Contingency Plan, the contractor will implement the measures outlined in the agency-approved Contingency Plan.

The temporary emergency contingency measures and the agency-approved Contingency Plan measures will be implemented in accordance with Resource Report 2

- Section 2.4.1 Construction and Operation Impacts and Mitigation.

7.6 Karst Terrain Blasting Procedures

Karst Terrain Mitigation Plan has been developed for the Karst Terrain areas identified (Resource Report Appendix 6-Section 6.5.1 and Table 6.5.1). This Karst Terrain Mitigation Plan will be followed should any blasting be required for grade and trench excavation.

Blasting in a Karst Terrain will only be considered after all other reasonable means of excavating have been evaluated and determined to be unlikely to achieve the required grade.

Blasting should not be conducted within or near a Karst Area without MVP's Karst Specialist (KS) review and the Karst Blasting Plan obtaining approval from the appropriate federal, state and local authorities having jurisdiction to determine protective measures that must be taken to minimize damage to the Karst Terrain. At a minimum, the individual Karst Terrain Blasting Plan will be provided to the appropriate federal, state and local authorities for review and approval five working days prior to conducting the blasting.

Blasting will be conducted in a manner that will not compromise the structural integrity of the karst hydrology of known karst structures. If rock is required to be blasted to achieve grade, then the following parameters will be adhered to:

- The excavation will be carefully inspected for any voids, openings or other tell-tale signs of solution activity by MVP's KS.
- If the rock removal intercepts an open void, channel, or cave, the work in that area will be stopped until a remedial assessment can be carried out by MVP's KS.
- All use of explosives will be limited to low-force charges that are designed to transfer the explosive force only to the rock which is designated for removal (e.g., maximum charge of 2 inches per second ground acceleration).

7.7 Wetland Crossing Blasting Procedures

Wetland Crossings Mitigation Plan has been developed for the wetland crossings identified (Resource Report 2 - Section 2.4 Wetland Resources). This Wetland Crossings Mitigation Plan will be followed should any blasting be required for trench excavation.

Blasting for trench excavation crossing a wetland will only be considered after all other reasonable means of excavating have been evaluated and determined to be unlikely to achieve the required trench grade.

Blasting should not be conducted within or near a wetland without MVP's Environmental Inspector review and development of a Wetland Crossing Blasting Plan that includes protective measures to minimize damage to wetlands. At a minimum, the individual Wetland Crossing Blasting Plan will be provided to the appropriate federal, state and local authorities for review and approval five working days prior to conducting the blasting.

Blasting will be conducted in a manner that will not compromise the structural integrity of the wetland hydrology of known wetlands. If rock is required to be blasted to achieve trench grade, then the following parameters will be adhered to:

- The excavation will be carefully inspected for any voids, openings, fractures, or other tell-tale signs of dewatering activity by MVP's Environmental Inspector.
- If the rock removal intercepts an open void, channel, or fracture, the work in that area will be stopped until a remedial assessment can be carried out by MVP's Environmental Inspector.
- All use of explosives will be limited to low-force charges that are designed to transfer the explosive force only to the rock which is designated for removal (e.g., maximum charge of 2 inches per second ground acceleration).

7.8 Rock Disposal Due to Blasting

During the course of blasting for grade and trench excavation excess rock fragments that are deemed as unacceptable for trench backfill may be incurred. This excess rock may be used in the restoration of the disturbed right-of-way limits, with the rock buried within the reclamation limits of the right-of-way. With the acceptance, approval and signed individual landowner agreements for the placement of this excess rock, the rock placement will be to a depth that will help stabilize the right-of-way restoration and will be below the root zones of the cover vegetation.

If the excess rock is to be removed from the construction area, it is to be hauled to an approved local- and state-permitted disposal site. This disposal facility will need to demonstrate that it is permitted to accept and dispose of the excess rock from the blasting operations. MVP will obtain a copy of the disposal facility's permit, as issued by the local jurisdiction having authority over the disposal facility and the disposal site within.

7.9 Disposal of Explosive Materials

All explosive materials that are obviously deteriorated or damaged shall not be used and shall be destroyed according to applicable local, state, and federal requirements.

Empty containers and packages and paper or fiberboard packing materials that have previously contained explosive materials shall not be reused for any purpose. Such packaging materials shall be destroyed by burning (outside of the construction right-of- way) at an approved outdoor location or by other approved method. All personnel shall remain at a safe distance from the disposal area.

All other explosive materials will be transported from the job site in approved magazines per local and/or state regulations.

7.10 Blasting Records

A record of each blast shall be made and submitted, along with seismograph reports, to MVP's CBI. The record shall contain the following minimum data for each blast:

- Name of company or contractor;
- Location, date and time of blast;
- Name, signature and license number of contractor and blaster in charge;
- Blast location referenced to the pipeline station/milepost;
- Picture record of the blast area disturbance and of blasted trench;
- Type of material blasted;
- Number of holes, depth of burden and stemming, and spacing;
- Diameter and depth of holes;
- Volume of rock in shot;
- Types of explosives used, specific gravity, energy release, pounds of explosive per delay, and total pounds of explosive per shot;
- Delay type, interval, total number of delays and holes per delay;
- Maximum amount of explosives per delay period of 17 milliseconds or greater;
- Power factor;
- Method of firing and type of circuit;
- Direction and distance in feet to nearest structure and utility neither owned or leased by the person conducting the blasting;
- Weather conditions;
- Type and height or length of stemming;
- If mats or other protection were used; and
- Type of detonators used and delay periods used.

Within 48 hours following a blast, a Blast Report is to be provided to the MVP's CBI. The Blast Report shall provide the information outlined by "Blast Report MVP Project". This Blast Report

form is considered the minimum information needed. Appendix B and C present the Blast Report forms. In addition to the completed Blast Report, the blast design is to be attached and made part of the Blast Report. The Blast Report MVP Project is in addition to all other local, county, township, state, or federal reporting requirements. Copies of these Blast Reports are to be provided to the CBI.

At the conclusion of each blasting event, the Blasting Contractor is to conduct and inventory blasting/explosive materials with a written inventory report attached to the Blast Report. All blasting/explosive materials are to be accounted for. Any discrepancies are to be immediately reported to the governing agencies and the MVP's CBI.

The person taking the seismograph reading shall accurately indicate the exact location of the seismograph, if used, and shall also show the distance of the seismograph from the blast.

Seismograph records should include:

- Name of person and firm operating and analyzing the seismograph record;
- Seismograph serial number;
- Seismograph reading; and
- Maximum number of holes per delay period of 17 milliseconds orgreater.

Within 72 hours following a blast, at sites monitored by a seismograph, a Seismograph Report is to be provided to the MVP's CBI. Appendix D presents the Seismograph Report Form for the MVP Project. In addition to the completed Seismograph Report, the seismograph readings and written interpretations are to be attached to the report. This reporting is in addition to all other local, county, township, state, or federal reporting requirements. Copies of these Seismograph Reports are to be provided to the CBI.

8 POST-BLASTING INSPECTION

An approved independent contractor, with landowner permission, will examine the condition of structures within 150 feet, or as required by state or local ordinances, of the construction area after completion of blasting operations, to identify any changes in the conditions of the these properties or confirm any damages noted by the landowner. The independent contractor, with landowner approval, will conduct a resampling of wells within 150 feet, or as required by state or local ordinances, of the construction area. Should any damage or change occur during the blasting operations, an additional survey of the affected property may be made.

Upon receiving notice that a structure or other damages have possibly occurred due to the blasting operations, the Blasting contractor is to conduct a post-blast conditions survey. The post-blast conditions survey shall be conducted within 48 hours after being notified or at the landowner's schedule and permission. The post-blast conditions will be documented with the information outlined by "Post-Blast Survey for the MVP Project". This post-blast form is considered the minimum information needed. Appendix E presents the Post-Blast Survey form.

MVP Southgate Project

Attachment 4

Horizontal Directional Drill Contingency Plan

October 2019

MVP Southgate Project

Horizontal Directional Drill Contingency Plan

REVISED MARCH 2019

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APPENDICES

ACRONYMS

HDD	Horizontal Directional Drilling
Project or Southgate Project	MVP Southgate Project
IR	inadvertent return
CI	Chief Inspector
EI	Environmental Inspector
PC	Permit Coordinator
CM	Construction Project Manager

1.0 INTRODUCTION

Horizontal Directional Drilling ("HDD") is a trenchless excavation method that is accomplished in three phases. The first phase consists of drilling a small diameter pilot hole along a designed directional path. The second phase consists of enlarging the pilot hole to a diameter suitable for installation of the pipe. The third phase consists of pulling the pipe into the enlarged hole. HDD is accomplished using a specialized horizontal drilling rig with ancillary tools and equipment. A properly executed HDD crossing will allow for the pipeline to be installed in a minimally invasive manner.

The HDD method is proposed for the MVP Southgate Project ("Project" or "Southgate Project") crossings in North Carolina of the Dan River in Rockingham County and Stony Creek Reservoir in Alamance County. The Project is still evaluating the route and additional HDD's may be proposed based on feedback from field surveys and stakeholders.

The inadvertent return ("IR") of drilling lubricant is a potential concern when HDD methods are utilized. The HDD procedure for these crossings will utilize bentonite for drilling lubricant. In general, IRs can occur because of existing rock fractures, low density soils, or unconsolidated geology. There is a potential for inadvertent returns to directly impact surface and ground waters via existing or enhanced fracture zones or if there is a release upland which flows over ground into wetlands or streams.

The purpose of this HDD Contingency Plan is to:

- Minimize the potential for an IR associated with horizontal directional drilling activities.
- Provide for the timely detection of an IR.
- Protect areas that are considered environmentally sensitive (streams, wetlands, other biological resources, cultural resources).
- Provide an organized, timely, and "minimum-impact" response in the event of an IR.
- Provide that all appropriate notifications are made to the North Carolina Department of Environmental Quality and other appropriate regulatory agencies, and that documentation is completed.
- Provide an alternative crossing method if the HDD is deemed unsuccessful.

Table 3.1-1 Proposed HDD Locations

Crossing Name	Pipeline Diameter (inches)	Approximate Entry Milepost	Approximate Exit Milepost	Total Length (feet)	Subsurface Material
Project Component Name					
Dan River	24	30.37	29.9	2,523	Fine-grained silty sand/ Sandstone/Limestone
Stony Creek Reservoir	16	63.75	63.44	1,619	Clay/Sandstone/Schist/Quartzite

2.0 PERSONNEL AND RESPONSIBILITIES

The actions in this HDD Plan are to be implemented by the following personnel:

Construction Project Manager – A Construction Project Manager (CM) has authority over all aspects of the field work during construction. The Chief Inspector reports directly to the CM and the CM has final approval over all field decisions for the project.

Chief Inspector – The Project will designate a Chief Inspector ("CI") for the Project. The CI has overarching authority over all inspection activities occurring throughout the Project and works directly with the contractor.

Environmental Inspector – The Project will designate a minimum of one Environmental Inspector ("EI") to monitor HDD activities. The EI(s) will monitor the HDD alignment for IRs and other signs of environmental impact (such as sinkhole development or subsidence over the alignment). The EI is in the same peer group with all other inspectors and reports directly to the CI. The EI has authority to stop any activities which are out of compliance with the FERC certificate (if applicable), other applicable permits, or landowner requirements. Additionally, the EI can order corrective action.

HDD Superintendent – The HDD contractor's senior representative on-site is the HDD Superintendent. It is the HDD Superintendent's responsibility to implement this HDD Plan on the contractor's behalf. The HDD Superintendent must be familiar with all aspects of the drilling activities, the contents of this HDD Plan and the conditions of approval under which the activity is permitted. The HDD Superintendent will maintain a copy of this HDD Plan on all drill sites and distribute, as appropriate, to construction personnel. The HDD Superintendent ensures that workers are properly trained and familiar with the necessary response procedures to implement should there be an inadvertent release.

HDD Operator – The HDD operator is employed by the HDD contractor to operate the drilling rig, driller and fluid pumps. The HDD Operator is responsible for monitoring circulation through entry and exit locations as well as annular pressures during the drilling of the pilot-hole. Should circulation loss or higher than expected annular pressures occur, the HDD Operator must communicate the relevant details of this event to the HDD Superintendent and HDD contractor field crews as well as the on-site Project inspection staff. The HDD Operator is responsible for stopping or changing the drilling program in the event of observed or anticipated inadvertent returns.

HDD Contractor Personnel – During HDD installation, field crews and the Project's field representatives will be responsible to monitor the HDD alignment. Field crews will coordinate with the EI and are responsible for timely notifications and responses to observed releases in accordance with this HDD Plan. The EI ultimately must sign off on corrective action plans mitigating releases.

Permit Coordinator – Company individual(s) that is accountable for all permit approvals and communication with respective agencies for the project.

3.0 PRE-CONSTRUCTION ACTIVITIES

Prior to implementation of the HDD, the Southgate Project and the contractor will identify the potential for inadvertent releases at the HDD location. The review will include a visual review of entry and exit points, and entire HDD drill path. The contractor will review the Project's HDD Geotechnical Investigations Report, which may include descriptions of subsurface conditions, laboratory testing, design recommendations, and construction recommendations.

In addition, private water supplies within 150 feet, if identified, will be protected by implementing the following measures:

- The drilling contractor will review the site conditions prior to the start of work.
- Construction limits will be clearly marked.
- Barriers will be erected between the bore site and nearby sensitive resources prior to drilling as per the Project-specific Erosion and Sediment Control Plan.
- On-site briefings will be conducted for the workers to identify and locate sensitive resources at the site.
- Provide that all field personnel understand their responsibility for timely reporting of IRs.
- Maintaining necessary response equipment on-site and in good working order.

The primary areas of concern for IRs occur at the entrance and exit points where the drilling equipment is generally at their shallowest depths. The likelihood of an IR decreases as the depth of the pipe increases.

To minimize the potential extent of impacts from an IR, HDD operations will be continuously monitored to look for observable IR conditions or lowered pressure readings on the drilling equipment. Early detection is essential to minimizing the area of potential impact.

No oil or gas wells were identified within 0.25 mile of the Project areas based on review of Virginia and North Carolina databases (VDMME, 2018 and NCGS, 2016).

3.1 Training

Prior to the start of construction, the Site Supervisor/Foreman will ensure that the crew members receive training on the following:

- The provisions of this Contingency Plan.
- Inspection procedures for IR prevention and containment equipment materials.
- Contractor/crew obligation to immediately stop the drilling operation upon first evidence of the occurrence of an IR and to immediately report any IRs to the Project's Environmental Inspector and Environmental Coordinator.
- Contractor/crew member responsibilities in the event of an IR.
- Operation of release prevention and control equipment and the location of release control materials, as necessary and appropriate.

- Protocols for communication with agency representatives who might be on site during the clean-up effort.
- Copies of this contingency plan and the contractor's site-specific contingency plan will always be maintained at the HDD entry and exit sites in a visible and accessible location.

3.2 Site Inspection

The Project will inspect each drill path prior to construction. Any site-specific condition(s) that impedes the ability to conduct the visual and pedestrian field inspection of any portion of a drill path will be identified, and a site-specific modification to the proposed inspection routine will be developed for that location. The Project will incorporate modifications into site-specific HDD crossing plans, as applicable, prior to construction and communicate these modifications to HDD contractors as part of the initial environmental training. If necessary, the Project will also file updated HDD crossing plans within its implementation plan or within a variance request should modifications be required outside of certificated workspace areas.

Appropriate monitoring and reporting protocols include:

- If circulation is lost or annular fluid pressure increase is observed that is not within the normal pressure variations the HDD Operator will immediately notify the HDD Superintendent and field crews of the event and approximate position of the tooling;
- Where it is possible to safely do so, field crew personnel will visually inspect the ground surface near cutting head location;
- If an inadvertent release is observed, the following chain of command and associated procedures should be implemented:
    - Field crew will immediately notify the HDD Operator;
    - The HDD Operator will stop pumping drilling fluid and notify the HDD Superintendent, EI and CI;
    - The CI/EI notifies the CM and PC and they formulate a response;
    - The PC will notify the appropriate regulatory authorities (see Section 3.4) as necessary relaying relevant details of the event, the proposed response and required documentation within 24 hours;
    - The PC will immediately notify the applicable state agency, VADEQ or NCDEQ, (see Section 3.4) of any inadvertent drilling fluid returns within wetlands, waterbodies, or regulated wetland adjacent areas, and;
- The PC will prepare a report summarizing the incident, the response and outcome.

3.3 Landowner Notification Procedures

The Project will notify landowners (via mail, phone or direct contact) where HDD activities will occur a minimum of 48 hours prior to the commencement of drilling. In addition, the Project will request written

access permission for limited pedestrian surveys outside of the approved workspace areas to facilitate monitoring of the HDD activities and identification of and response to potential IRs. Copies of these permissions will be included within the final HDD Contingency Plan.

3.4 Agency Notification Procedures

The PC will notify the appropriate regulatory authorities of the event as soon as possible and within 24 hours of identification of the release, to coordinate site-specific response procedures.

EQM Midstream Partners, LP Environmental Team:

Mr. Cory Chalmers
Permit Coordinator 304-848-0061 (office)
304-627-8173 (cell)

Ms. Megan Stahl
Environmental Permitting - Supervisor 412-553-7783 (office)
412-737-2587 (cell)

Ms. Hanna McCoy
Director - Environmental Permitting 724-873-3476 (office)
412-216-9316 (cell)

Include the following information:

- Time the spill was first identified
- Description of where the spill occurred – Project MP/Station
- Latitude and Longitude of spill
- Size of spill and control measures in place
- Name of affected water resource (if known/applicable)
- Photographs of spill area and corrective measures – when available. (Do not wait to notify the Project until pictures are available. Photo documentation should begin immediately upon detection and continued throughout the duration of the cleanup).

Regulatory authorities that will be contacted in the event of a release include the following:

1. *FERC (all releases)*

   First Call: Amanda Mardiney – 202-502-8081
   Alternate if no response from first call: FERC Enforcement Hotline - 1-888-889-8030

2. *Virginia Department of Environmental Quality (releases in Virginia)*

   First Call: Mr. Michael Johnson - 757-247-2255
   Alternate if no response from first call: VADEQ Spill Hotline - 1-800-468-8892

3. *North Carolina Department of Environmental Quality (releases in North Carolina)*

   First Call: Ms. Susan Homewood – 336-776-9693
   Alternate if no response from first call: NCDEQ Spill Hotline - 1-800-858-0368

4.0 DOCUMENTATION

A copy of this HDD Contingency Plan will be provided within the environmental compliance binders that are developed for construction, and copies will also be kept at each HDD location as well as at the contractor field offices. Additional documentation that will be maintained by the Project for each HDD location and includes, but is not limited to the following:

- Records of employee training detailing when training was conducted, material covered and employees in attendance. This training may coincide with the overall environmental training for the Project;
- Logs of HDD visual and pedestrian monitoring events – these may coincide with the daily environmental inspection reports;
- Drilling fluid composition – the contractor will maintain a log of drilling fluid physical properties such as mud weight, viscosity, sand content and pH during drilling activities; and
- Records of communication with landowners and applicable regulatory agencies that occur during HDD activities. These records may include inquiries and comments as well as Project response actions.

5.0 DRILLING FLUID MANAGEMENT

During the HDD process drilling fluid consisting of bentonite clay and water is maintained in drilling pits within the construction work area and used for continuous pumping into the boring. Drilling fluid is a slurry composed of water and bentonite clay, usually approximately 95 percent fresh water, intended to maintain the stability of the drilling hole, lubricate the drilling head and reduce soil friction. Bentonite clay (sodium montmorillonite) is a naturally occurring and extremely hydrophilic; it can absorb up to ten times its weight in water.

The HDD Contractor strives to maintain the integrity of the fluid by continuously sampling, testing and recording its properties throughout drilling operations. Analysis of samples allows for adjustments to be made to the slurry which helps maintain the most efficient drilling fluid flow adaptable to various geological conditions.

Bentonite is not hazardous nor is it toxic to aquatic ecosystems. The formulation of drilling fluids and its engineering properties are specified and tested to ensure their suitability for the given subsurface conditions encountered along the alignment and at each individual HDD location.

The slurry is designed to:

- Stabilize the hole against collapse;
- Lubricate, cool, and clean the cutters;

- Transport cuttings by suspension and flow to entry and exit points; and
- Reduce soil friction and required pull loads during pilot hole, reaming, and carrier pipe installation.

5.1 Drilling Fluid Additives

Small amounts of additives (typically less than one percent) may be mixed with the drilling fluids to improve drilling performance, or in response to excessive fluid loss. If any additives are necessary, the Project's goal is to utilize only water soluble and non-hazardous substances. The following is a narrative of the drilling fluids, materials, and additives that may be incorporated into a unique drill, depending upon subsurface and other conditions.

Anticipated or Typical Drilling Mud Ingredients

1. Water - This is the largest component. It may be used in its natural state or salts may be added to change filtrate reactivity with the formation.
2. Weighting Agents - These are added to control down-hole fluid pressure. Sodium barite is most common agent.
3. Clay - Most commonly, bentonite is used to provide viscosity and create a filter cake on the bore-hole wall to control fluid loss. Clay can be replaced by organic colloids such as biopolymers, cellulose polymers or starch.
4. Polymers - These are used to reduce filtration, stabilize clays, flocculate drilled solids and increase cuttings-carrying capacity. Cellulosic, polyacrylic and natural gum polymers are used to help maintain hole stability and minimize dispersion of the drill cuttings.
5. Thinners - These are added to the mud to reduce its resistance to flow. They are typically plant tannins, polyphosphates, lignilic materials, lignosulfonates.
6. Surfactants - These agents serve as emulsifiers, foamers and defoamers, wetting agents, detergents, lubricators and corrosion inhibitors.
7. Inorganic chemicals - A variety of inorganic chemicals are added to mud to carry out various functions. Typical chemicals: calcium hydroxide, sodium hydroxide and potassium hydroxide (caustic soda and caustic potash) are used to increase mud pH; sodium carbonate (soda ash) to remove hardness, sodium chloride for inhibition and sodium chloride to increase salinity and density.
8. Bridging Materials - Calcium carbonate or cellulose fibers are added to build-up a filler cake on the borehole wall and help reduce filtrate loss.
9. Lost Circulation Materials -These are used to block large openings in the borehole. These include walnut shells, mica and xanthum and cellulose.

There are several manufacturers that focus on products specifically for deep well drilling and/or shallow HDDs as they are similar processes. HDD contractors typically have preferred manufacturers that they use depending upon the specifics of each drill location. Technical data sheets for the more typical benign and environmentally friendly products that are approved for use by the Project are included in Appendix A. Manufacture substitutions, for like in kind products are acceptable, however, proprietary blends will be

avoided, and no materials will be allowed on site without current Material Safety Data Sheets being approved in advance. Specific Material Safety Data Sheets for products selected by the HDD contractor(s) must be submitted to the Project and/or FERC for approval, prior to use.

5.2 Drilling Fluid Physical Properties

The contractor shall submit a daily log at the end of each day. The Project shall provide the current version of the requested form which shall include at a minimum; the total length of drill or ream, average penetration rate, average mud flow rate, annular pressure, and basic mud properties (i.e. pH, funnel viscosity, density and sand content). Mud samples and drill statistics shall be recorded a minimum of three (3) times per shift with no less than two (2) hours between each record. If a Mud Engineer is on site, the daily log shall also include rheometer readings to determine plastic viscosity and yield point as well as gel strength. The Mud Engineer shall also supply filter press data in the form of API fluid loss and filter cake thickness. These measurements do not need to meet the three (3) times per shift quota.

5.3 Drilling Fluid Disposal

Disposal of excess drilling fluid will be the responsibility of the selected HDD contractor. Prior to beginning HDD operations, the contractor will be required to submit their proposed drilling fluid disposal procedures to the Project for approval. In some instances, a list of approved disposal sites will be provided to the contractor. The Project will review these procedures and verify that they comply with all environmental regulations, right-of-way and workspace agreements, and permit requirements.

Should, after the removal of cutting, bentonite slurry remains, it may be re-used (recycled) in the active HDD process. The method of disposal applied to each crossing will be dependent upon applicable regulations. Potential disposal methods include transportation to a remote disposal site and land farming on the construction right-of-way or an adjacent property. Land farming involves distributing the excess drilling fluid evenly over an open area and mechanically incorporating it into the soil. Where land farming is employed, the condition of the land farming site will be governed by the Project's standard clean up and site restoration specifications and FERC's *Upland Erosion Control, Revegetation and Maintenance Plan*.

6.0 HDD OPERATIONAL CONDITIONS AND RESPONSE ACTIONS

6.1 Drilling Procedures

Drilling pressures will be closely monitored so they do not exceed those needed to penetrate the formation. Pressure levels will be monitored continuously by the operator. Pressure levels will be set at a minimum level to reduce the risk of IRs. Cutters and reamers will be pulled back into previously drilled sections after each joint of pipe is added. The Project's HDD contractor will provide and maintain the following during the drilling process: instrumentation which will accurately measure the torsional loads, and the drilling fluid discharge rate and pressure. In addition to mud pump pressure monitoring. Additionally, the Project's HDD contractor will provide a means of measuring and monitoring annular pressure during pilot hole operations. Annular pressure monitoring will be required during reaming as well depending on whether pressure-sensitive situations were discovered during the pilot process. The Project will have access to instruments and their readings at all times.

Entry and exit pits will be enclosed by sediment barriers as specified in the Project-specific Erosion and Sediment Control Plan and straw bales. A spill kit will be on-site and used if an IR occurs. Except as noted below, a vacuum truck will be readily available on-site prior to and during all drilling operations. Per the Project's Spill Prevention, Control, and Countermeasure plan, containment materials (straw, fabric filter fence, sand bags, spill kits, boom and turbidity curtain, etc.) will be staged on-site at a location where they are readily available and easily mobilized for immediate use in the event of an IR. Filter Fence or Filter Sock will be installed between the bore sites and the edge of water sources prior to drilling.

The Site Supervisor will verify that:

- All equipment and vehicles are inspected and maintained daily to prevent leaks of hazardous materials.
- Spill kits and spill containment materials are available on-site at all times and that the equipment is in good working order.
- Equipment required to contain and clean up an IR is available at the bore sites during drilling activities.

*NOTE: It is the drilling contractor's responsibility to provide any IR containment materials that are necessary to respond to the release of drill fluids. The materials listed in this contingency plan are not to be considered inclusive and may require additional equipment depending on site conditions.

If the site of the IR is not able to be accessed by a vacuum truck, a pump with sufficient power to convey the released drill fluid to a containment area will be used instead. Along with the pump, an adequate amount of hose, several filter bags, straw bales, sand bags, and 18" Fabric Filter Fence (or Compost Filter Sock) will be kept on site to create a containment area on site. Water containing mud, silt, drilling fluid, or other materials from equipment washing or other activities, will not be allowed to enter a lake, flowing stream, or any other water source.

6.2 Monitoring and Pedestrian Surveys

6.2.1 Drilling Fluid Monitoring Protocol

The drilling fluid monitoring protocol to be applied will vary depending upon the following operational conditions.

- Condition 1: Full Circulation
- Condition 2: Loss of Circulation
- Condition 3: Inadvertent Returns

Monitoring Protocol for Condition 1 – Full Circulation

When HDD operations are in progress and full drilling fluid circulation is being maintained at one or both of the HDD endpoints, the following monitoring protocol will be implemented.

- Utilization of an annular pressure monitoring tool during pilot hole operations
- The presence of drilling fluid returns at one or both of the HDD endpoints will be periodically documented.
- Land-based portions of the drilled alignment will be regularly walked, visually inspected and documented by HDD contractor and environmental inspector to achieve early detection of inadvertent releases of drilling fluid as well as surface heaving and settlement. This will occur throughout the daytime and will continue to occur whenever night time operations are being undertaken. Waterways will be visually inspected from the banks for a visible drilling fluid plume.
- Constant communication between experienced driller and mud system operator to assist in the observation of fluid loss.
- Proper mud pumping volume and pressures to be managed for the ground conditions encountered.
- Swabbing of the borehole to assist in cuttings removal and maintaining circulation when drilling conditions allow.
- Proper mud properties to be maintained for the conditions encountered. A drilling fluid specialist may be consulted if any changes to mud properties are required.
    - Mud properties that will be monitored include mud weight, viscosity, sand content and pH.
    - The monitoring of mud properties will occur every 3 hours during drilling operations.
    - A drilling fluid specialist will be consulted if the following scenarios are encountered:
        - if there is a fluid spike in the annular pressure tool during pilot hole drilling;
        - if cuttings are not being removed from the hole during pilot hole drilling and/or reaming;
        - if there is a total loss of drilling fluid circulation; or
        - if high torque or pull back forces are encountered during any of the drilling phases.
- Electronic monitoring of the mud tank level will be utilized. Drilling fluid products present at the jobsite will be documented.

If an IR is detected during routine monitoring, the monitoring protocol associated with condition 3 will immediately be implemented. *Monitoring Protocol for Condition 2 – Loss of Circulation*

When HDD operations are in progress and drilling fluid circulation to the HDD endpoints is lost or severely diminished, the following monitoring protocol will be implemented. It should be noted that lost circulation is common and anticipated during HDD installation and does not necessarily indicate that drilling fluid is inadvertently returning to a point on the surface.

- Immediate stoppage of fluid pumps after any noticed loss of drilling fluids, followed by an immediate surface walk to look for any fluids that may have reached the surface.

- The Project and its HDD contractor will implement a protocol of conducting terrestrial walks along accessible drill pathway locations to monitor for surface returns whenever a loss of downhole pressure is detected. At a minimum, accessible locations will be monitored once per hour when operating under Condition 2. For less accessible locations an aerial drone or marine craft may be utilized to conduct monitoring for surface returns.
- The Project's environmental inspector will notify the Environmental Project Manager that drilling fluid circulation to the HDD endpoints has been lost or severely diminished.
- The Project's environmental and HDD inspectors will document steps taken by the HDD contractor to restore circulation. Should the contractor fail to comply with the requirements of the HDD Specification, the Project's environmental and HDD inspectors will notify the Environmental Project Manager and the Project Manager so that appropriate actions can be taken.
- If circulation is regained, the Project's environmental inspector will inform the Environmental Project Manager and resume the monitoring protocol associated with Condition 1.
- If circulation is not re-established, the Project's environmental inspector will increase the frequency of visual inspection along the drilled path alignment as appropriate. Additionally, the Project's environmental inspector will document periods of contractor downtime (during which no drilling fluid is pumped) and the contractor's drilling fluid pumping rate in case it should become necessary to estimate lost circulation volumes.

Monitoring Protocol for Condition 3 – Inadvertent Returns

If an inadvertent return of drilling fluids is detected, the following monitoring protocol will be implemented.

- The Project's environmental inspector will inform the Construction Project Manager that an inadvertent drilling fluid return has occurred and provide documentation with respect to the location, magnitude, and potential impact of the return.
- If the inadvertent return occurs on land, the Project's environmental inspector will document steps taken by the HDD contractor to contain and collect the return. Should the contractor fail to comply with the requirements of the HDD Specification, the Project's environmental inspector will notify the Construction Project Manager so that appropriate actions can be taken.
- If the inadvertent return occurs in a waterway, the Project, in consultation with appropriate parties, will determine if the return poses a threat to the environment or public health and safety.
- If it is determined that the return does not pose a threat to the environment or public health and safety, HDD operations will continue. the Project's environmental inspector will monitor and document the inadvertent return as well as periods of contractor downtime and the contractor's drilling fluid pumping rate in case it should become necessary to estimate inadvertent return volumes.
- If it is determined that the return does pose a threat to the environment or public health and safety, drilling operations will be suspended until containment measures can be implemented by the contractor. Documentation of any containment measures employed will be provided by the Project's environmental inspector. Once adequate containment measures are in place, the

contractor will be permitted to resume drilling operations subject to the condition that drilling operations will again be suspended immediately should the containment measures fail. the Project's environmental inspector will periodically monitor and document both the inadvertent return and the effectiveness of the containment measures. Periods of contractor downtime and the contractor's drilling fluid pumping rate will also be documented in case it should become necessary to estimate inadvertent return volumes. Upon completion of the HDD installation, the Project will ensure that the inadvertent drilling fluid returns are cleaned up to the satisfaction of governing agencies and any affected parties.

7.0 RESPONDING TO INADVERTENT RELEASES

Throughout the HDD process there is a loss of drilling fluid into the geologic formation through which the drill passes. In some cases, the drilling fluid may be forced to the surface resulting in what is commonly referred to as an inadvertent return. Therefore, while the intent of the HDD method is to avoid surface disturbance, surface disturbance may occur when there is an inadvertent return of drilling fluid.

It is extremely important to note that a loss of drilling fluid into the formation is not necessarily an indication that an inadvertent return has occurred or is about to occur. It is normal to lose a significant amount of fluid into the formation without ever having an inadvertent return. In fact, in very soft ground formations or in highly fractured formations it is normal to lose all the drill fluid pumped into the borehole without an inadvertent return occurring. Drill fluid pumping rates can be as high as 750 gallons per minute.

An inadvertent return cannot occur unless drill fluid escapes from the borehole into the formation. Hence preventing and managing such escapes will in turn prevent and manage inadvertent returns. Drilling fluid releases are typically caused by pressurization of the drill hole beyond the containment capability of the overburden soil material. In some cases, an inadvertent return of drilling fluid can be caused by existing conditions in the geologic materials (e.g., fractures) even if the down hole pressures are low.

Drill fluid pressures are generally the highest during the pilot hole process and hence it is this process that presents the greatest risk for an inadvertent return. If an inadvertent return occurs during the pilot hole it opens a path through the ground formation for drill fluid to escape during the subsequent processes. Hence inadvertent returns are likely, at the same location during the hole opening and pullback process. Similarly, if the pilot hole process can be completed without an inadvertent return then it is likely that the entire installation can also be completed without an inadvertent return.

The Project will conduct IR response activities in accordance with applicable regulatory requirements and will seek environmental and cultural resource clearances / approvals as necessary prior to the commencement of response activities. Additionally, the Project will conduct IR response activities in accordance with the standards and restrictions described within Resource Reports 1 and 2 for activities within uplands and wetlands / waterbodies, respectively. Therefore, the Project does not anticipate additional restrictions for equipment use and clearing to access and clean up IRs that may occur.

Considerations for managing inadvertent returns are described below.

7.1 Terrestrial Release Procedures

- Stop work immediately.
- The bore stem will be pulled back to relieve pressure on the IR.
- Isolate the area with hay bales, sand bags, filter sock, or silt fencing to surround and contain the drilling mud.
- Determine and document the following to the extent reasonably possible:
  - Quantity (gallons) of material released
  - Distance (feet) to the nearest waterbody
  - Name of the waterbody affected, if any
- Immediately contact the appropriate parties as listed in the "Required Notifications" section at the end of this document.
- A mobile vacuum truck (or pump if in an inaccessible area) will be used to pump the drilling mud from the contained area and into either a return pit or (if using a pump) into a filter bag surrounded by 18" Fabric Filter Fence or Compost Filter Sock.
- Once excess drilling mud is removed, the area will be seeded and/or replanted using species similar to those in the adjacent area or allowed to re-grow from existing vegetation.
- When there is no visible indication of flow at the IR location, the IR will be considered stabilized.

After the IR is stabilized, document the IR from discovery through post-cleanup conditions with photographs and prepare an IR incident report describing time, place, actions taken to remediate IR, and measures implemented to prevent recurrence. The incident report will be provided to the Project Environmental Coordinator within 24 hours of the occurrence.

7.2 Aquatic Release Procedures

- Stop work immediately.
- The bore stem will be pulled back to relieve pressure on the IR.
- Isolate the area with hay bales, sand bags (cofferdam), plastic sheeting, filter sock, silt fence or other appropriate containment structure to surround and contain the IR;
- Immediately contact the appropriate parties as listed in the "Required Notifications" section at the end of this document.
- Utilize clean water pumps to establish a pump around to convey upstream flow around the IR;
- Turbidity curtains may be deployed (depending on site conditions at time of IR);
- Determine and document the following to the extent reasonably possible:
  - Quantity (gallons) of the IR

  - Quantity (gallons) that was released to the waterbody
  - Distance (feet) the material traveled down the waterbody
  - Name of the affected waterbody

- A mobile vacuum truck (or pump if in an inaccessible area) will be used to pump the drilling mud from the contained area and into either a return pit or (if using a pump) into a filter bag surrounded by 18" Fabric Filter Fence or Compost Filter Sock.
- Drilling mud will be collected and typically recycled through the drilling mud reclaimer, reused or disposed of at a licensed disposal facility.
- When there is no visible indication of flow at the IR location, the IR will be considered stabilized.

After the IR is stabilized, document the IR from discovery through post-cleanup conditions with photographs and prepare an IR incident report describing time, place, actions taken to remediate IR, and measures implemented to prevent recurrence. The incident report will be provided to the Project Environmental Coordinator within 24 hours of the occurrence.

If an IR impacts a private drinking water supply, the Southgate Project will supply temporary drinking water supply in accordance with the Project's Water Resources Identification and Testing Plan immediately after the problem is discovered. The temporary water would be supplied until testing confirms that the water quality of the water supply returns to baseline. Additional long-term measures will be employed in accordance with the Water Resources Identification and Testing Plan if necessary, including the installation of permanent treatment, connection to a secondary water source, or establishment of a new on-site source.

7.3 Wetland Release Procedures

The Project intends the final designs of the HDDs to minimize the potential for inadvertent releases at resource crossing locations. However, inadvertent releases are still possible. Should one occur, the following measures will be employed:

1. Estimate the amount of release to conclude if containment structures would effectively contain the release.
2. Implement necessary containment measures to contain and recover the slurry unless one of the following conditions is present:
    a. The sensitivity of wetland areas may result in containment and recovery efforts causing additional disturbance due to travel of equipment and personnel, possibly offsetting any benefit gained from containing and removing the slurry.
    b. Should the amount of the slurry be too small to allow practical collection from the affected area, the fluid will be diluted with fresh water or allowed to dry and dissipate naturally.
3. Suspend drilling operations if the release cannot be controlled or contained until appropriate containment can be installed.
4. Remove contained fluids by either a vacuum truck or by pumping to a location where a vacuum truck can access them.

5. Conduct final clean-up once HDD installation is complete

7.4 Accessing Releases Off Right-of-Way and in Inaccessible Areas

Prior to the commencement of HDD activities, the Project will attempt to acquire written permission from landowners crossed by the HDDs to allow for pedestrian monitoring and/or IR cleanup activities. The permission will allow for biological and cultural resource surveys as necessary as well as for limited equipment access for cleanup / restoration should an IR to surface or within a wetland / waterbody occur. Should an IR occur outside of approved workspaces or require a workspace variance for access to allow for cleanup / restoration, the Project will obtain the necessary environmental and/or cultural clearances and submit a request for variance to FERC for review and approval prior to the initiation of any activity outside of those approved workspaces.

8.0 RESTORATION

The Project will restore areas affected by IRs to pre-construction conditions and surface elevations to the extent practicable. Upland areas will be restored through standard right-of-way restoration procedures as detailed within Resource Report of the Environmental Report and applicable regulatory clearances and approvals. Restoration of wetlands and waterbodies will be conducted in accordance with the procedures identified within Resource Report 2 of the Environmental Report as well as applicable regulatory clearances and approvals.

9.0 CONTINGENCY PLANNING

9.1 Alternate Crossing Measures

If the HDD installation is unsuccessful and the Southgate Project determines abandonment of the HDD is necessary, the Project's proposed alternative is to use the Contingency Plan. The Contingency Plan includes implementation of an open cut wet or dry ditch crossing method (scenario dependent). This alternative crossing method would require Federal Energy Regulatory Commission and other environmental permitting approvals.

9.2 Abandonment

Should an HDD fail, and the drill hole needs to be abandoned to allow for a secondary attempt or an alternative construction method, the Project will, if necessary, seal the drill hole with grout to a point approximately five feet from the surface. The remainder of the annulus will be filled with soil and compacted as necessary to meet the density of the surrounding soil. Abandonment procedures will be completed in accordance with applicable regulatory requirements.

10.0 REFERENCES

This Contingency Plan was adapted from the following websites:

http://www.blm.gov/pgdata/etc/medialib/blm/wy/information/NEPA/cfodocs/greencore.Par.0871.File.dat/P ODappH.pdf

https://www.csx.com/index.cfm/library/files/customers/property-real-estate/permitting/sample-fraction-mitigation-plan/

http://www.energy.ca.gov/sitingcases/smud/documents/applicants_files/Data_Response_Set-1Q/APPENDIX_C_FRAC_OUT_PLAN3.PDF

Other References include:

Virginia Department of Environmental Quality (VDEQ). 2018. Division of Mineral Mining. Available online at: https://dmme.virginia.gov/DMM/uraniumpermit.shtml Accessed July 19, 2018.

North Carolina Geological Survey (NCGS). 2016. NC Oil and Gas Wells. Available online at: https://files.nc.gov/ncdeq/Energy%20Mineral%20and%20Land%20Resources/Energy/documents/Energy/NC_Oil_%26_Gas_Wells_terrane_plot.jpg Accessed July 16, 2018.