McGuireWoods LLP
Gateway Plaza
800 East Canal Street
Richmond, VA 23219-3916
Tel 804.775.1000
Fax 804.775.1061
www.mcguirewoods.com

Kristian M. Dahl
Direct: 804.775.4730

McGUIREWOODS

kdahl@mcguirewoods.com
Direct Fax: 804.698.2004

July 12, 2016

BY HAND

Joel H. Peck, Clerk
State Corporation Commission
c/o Document Control Center
Tyler Building – First Floor
1300 East Main Street
Richmond, Virginia 23219

Application of Virginia Electric and Power Company
For approval and certification of electric transmission facilities:
Remington-Gordonsville 230 kV Double Circuit Transmission Line
Case No. PUE-2015-00117

Dear Mr. Peck:

Please find enclosed an original and fifteen (15) copies of *Virginia Electric and Power Company's Rebuttal Testimony and Exhibits* in the above-captioned proceeding

Please do not hesitate to call if you have any questions in regard to the enclosed.

Very truly yours,

Kristian M. Dahl

Enclosures

cc: Hon. Deborah V. Ellenberg
William H. Chambliss, Esq.
Alisson P. Klaiber, Esq.
Andrea B. Macgill, Esq.
Charlotte P. McAfee, Esq.
Service List

CERTIFICATE OF SERVICE

I hereby certify that on this 12th day of July 2016, a true and accurate copy of the foregoing filed in Case No. PUE-2015-00117 was hand delivered or mailed first class, postage pre-paid, to the following:

C. Meade Browder, Jr., Esq.
Office of the Attorney General
Division of Consumer Counsel
202 North 9th Street, 8th Floor
Richmond, VA 23219

Thomas E. Lacheney, Esq.
Deal & Lacheney P.C.
County Attorney
P.O. Box 1762
Midlothian, Virginia 23113

Herbert R. Putz, Ph.D.
1825 Locust Grove Church Road
Orange, VA 22960

Michael Mosko, Jr.
677 John Tucker Road
Madison, VA 22727

Bobbi Jo Alexis, Esq.
Culpeper County Attorney
306 N. Main Street
Culpeper, VA 22701

V.R. Shackelford, III, Esq.
Madison County Attorney
V.R. Shackelford III, PLC
147 West Davis Street
Culpeper, VA 22701

James A. Alexander, Esq.
1130 George James Loop
Radiant, VA 22732

William Sanford
1570 Forest Drive
Orange, VA 22960

David W. Taylor
1082 Tinsley Drive
Radiant, VA 22732

Diana E. Norris, Esq.
Robert G. Marmet, Esq.
Piedmont Environmental Council
45 Horner Street
P.O. Box 460
Warrenton, VA 20188

John A. Pirko, Esq.
LeClair Ryan
4201 Dominion Boulevard, Suite 200
Glen Allen, VA 23060

John Grano
OMC Alliance
25535 Somerville Road
Mitchells, VA 22729-1948

Caroline V. Davis, Esq.
Duane, Hauck, Davis & Gravatt, P.C.
100 West Franklin Street
Richmond, VA 23220

Charlotte E. Chumlea
1866 Field Road
Charlottesville, VA 22903-1619

Collin Sumpter, Resource Manager
Tombstone Limited Partnership
14504 Greenview Drive, Suite 210
P.O. Box 850
Laurel, MD 20725

John C. Egertson
Interim County Administrator
Culpeper County
302 North Main Street
Culpeper, VA 22701

Stephen B. Carpenter
1321 Tinsley Drive
Radiant, VA 22732

Jeffry A. Tillery
172 Great Run Lane
Radiant, VA 22732

COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

APPLICATION OF	)	
	)	
VIRGINIA ELECTRIC AND	)	
POWER COMPANY	)	Case No: PUE-2015-00117
	)	
For approval and certification of	)	
electric transmission facilities:	)	
Remington-Gordonsville 230 kV	)	
Double Circuit Transmission Line	)	

REBUTTAL TESTIMONY AND EXHIBITS
OF
VIRGINIA ELECTRIC AND POWER COMPANY

WITNESS REBUTTAL TESTIMONY SUMMARY

Witness: David C. Witt

Title: Engineer III – Electric Transmission Planning Department

Company Witness David C. Witt responds to the State Corporation Commission of Virginia Staff report sponsored by David Essah ("Staff Report"). Mr. Witt addresses testimony in the Staff Report about the need for the proposed Project. Specifically, Mr. Witt responds to aspects of the Load Flow Verification Report conducted by GDS Associates, Inc. ("GDS") on behalf of the Staff, included as Appendix C to the Staff Report.

Mr. Witt notes that Staff retained GDS to provide an independent analysis of the Company's load flow modeling and contingency analyses for the Project and that the Load Flow Verification Report states that the GDS role in this proceeding is to evaluate the need for the proposed Project. Mr. Witt agrees with the Staff's conclusion that the Company has reasonably demonstrated the need for the Project and that the proposed Project addresses the electrical violations identified by PJM Interconnection, L.L.C. ("PJM").

Mr. Witt discusses how the Company conducted power flow analyses for the projected 2019 and 2023 system topologies using the 2015 PJM load forecast, which confirm the 2019 need date for the Project. Mr. Witt notes that the Company also referenced transmission planning analyses conducted by PJM in 2014 based on PJM's 2014 Load Forecast to identify future network violations. However, the results of these studies do not directly support the Project's 2019 need date, and are based on historical system conditions.

Mr. Witt also notes the following clarifications to the Staff Report:

- Appendix B to the Staff Report summarizes the North American Reliability Corporation ("NERC") Reliability Standards, which the Company follows as a member of PJM. Appendix B should not be confused with the Company's own Transmission Planning Criteria upon which the need for the Project is based.
- The Project provides network-wide benefits that are not limited to the Project area.

REBUTTAL TESTIMONY
OF
DAVID C. WITT
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUE-2015-00117

Q. Please state your name, business address, and position with Virginia Electric and Power Company ("Dominion Virginia Power" or the "Company").

A. My name is David C. Witt, and my business address is One James River Plaza, 701 East Cary Street, Richmond, Virginia 23219. I am an Engineer III in the Electric Transmission Planning department of Dominion Virginia Power.

Q. Have you previously submitted testimony in this proceeding?

A. Yes. I submitted pre-filed direct testimony on behalf of Dominion Virginia Power to the State Corporation Commission of Virginia ("Commission") in this proceeding on November 13, 2015.

Q. What is the purpose of your rebuttal testimony?

A. I will respond to the Commission Staff ("Staff") report sponsored by Staff Witness David Essah ("Staff Report" or "Report") filed in this proceeding on May 27, 2016. Specifically, I will respond to aspects of the Load Flow Verification Report conducted by GDS Associates, Inc. ("GDS") on behalf of the Staff, included as Appendix C to the Staff Report. I will also address some clarifications to the Staff Report.

Q. What is your understanding of GDS' role in this proceeding?

A. Dominion Virginia Power understands that the Staff retained GDS to provide an independent analysis of the Company's load flow modeling and contingency analyses for

the Project. The Load Flow Verification Report states that the GDS role in this proceeding "is related to the need determination for the Project based on the identified thermal and voltage violations and the subsequent effectiveness of the Project to mitigate those violations." (Staff Report Appendix C at 8-9.) As explained in the Appendix and in my direct testimony, the Company's power flow studies show that it is necessary for the Company to build a new 230 kV transmission line between Remington and Gordonsville Substations no later than summer (commencing June 1) 2019 to assure that the Company can continue to provide reliable electric service to the customers served from the Company's Gordonsville Substation consistent with mandatory North American Reliability Corporation ("NERC") Reliability Standards.

Q. Page 13 of the Load Flow Verification Report states that "GDS agrees with the results of the power flow analysis performed by the Company, and has successfully reviewed and verified the Company's analysis for the Project." Do you have any comments?

A. The Company concurs with GDS' review and verification of the Company's power flow analysis for this application ("Application").

Q. What is Staff's conclusion with respect to the need determination for the Project?

A. Staff concludes that the Company has reasonably demonstrated the need for the Project and, based on an independent review of the Company's load flow studies, that the proposed Project addresses the electrical violations identified by PJM Interconnection, L.L.C. ("PJM") and the Company. (*See* Staff Report at 23.)

Q. Please briefly describe the transmission planning analyses supporting the Company's Application for the proposed Project.

A. In support of the Application, the Company conducted power flow analyses for the projected 2019 and 2023 system topologies using the 2015 PJM load forecast. The results of those analyses are tabulated in Attachments I.B.3 and I.B.4 in the Appendix.

Specifically, for the 2019 system topology, the Company used the 2019 Base Case without a solution, the proposed Remington-Gordonsville Project applied to the 2019 Base Case, a 230 kV Remington-Pratts-Gordonsville alternative project (*see* Section I.C of the Appendix) applied to the 2019 Base Case, and a 230 kV North Anna-Gordonsville alternative project applied to the 2019 Base Case. For the 2023 system topology, the Company used a 2023 Base Case without a solution, the proposed Remington-Gordonsville Project applied to the 2023 Base Case, a 230 kV Remington-Pratts-Gordonsville alternative project applied to the 2023 Base Case, and a 230 kV North Anna-Gordonsville project applied to the 2023 Base Case. As noted, all of these cases were based on PJM's 2015 Load Forecast and confirm the 2019 need date for this Project.

Q. Did the Company reference other transmission planning analyses in its Application?

A. Yes. As with many transmission projects, there were multiple studies conducted over time both by the Company and PJM. As part of the discussion in its Application of the evolution of the Project as proposed, the Company also referenced transmission planning analyses conducted by PJM in 2014 to identify future network violations. The violations found in this analysis (including the 2018 Stress Case violation) were included in PJM's

2014 Open Window #2 solicitation. These analyses were based on PJM's 2014 Load Forecast.

At the request of Staff and GDS, the Company ran transmission planning studies for the 2019 system topology and the 2018 system stress case based on PJM's 2014 Load Forecast with the proposed Remington-Gordonsville Project applied and provided the underlying data and outputs to Staff through informal discovery. This analysis was not provided in the Company's initial discovery responses because the results of these studies do not directly support the Project's 2019 need date, and are based on historical system conditions.

Q. Appendix B to the Staff Report is entitled "Dominion Virginia Power Transmission Planning Standards." Do you have any comments regarding Appendix B?

A. I would like to clarify that Appendix B to the Staff Report summarizes the NERC Reliability Standards which the Company follows as a member of PJM. The information contained in Appendix B appears to be taken largely from the Company's Transmission Appendix in this proceeding. However, Appendix B to the Staff Report should not be confused with the Company's own Transmission Planning Criteria upon which the need for the Project is based.[1]

[1] The Company's Transmission Planning Criteria can be found in Exhibit A of the Company's Facility Interconnection Requirements document, which is available online at https://www.dom.com/library/domcom/pdfs/electric-transmission/facility-connection-requirements.pdf.

Q. Page 12 of the Staff Report states: "The primary benefit of the Project is increased reliability of the electrical network in the Project area." Do you have any comments?

A. Yes. I would like to clarify that the Project provides network-wide benefits that are not limited to the Project area. As the Company noted at the outset, the Project will accommodate future load growth in the region while enabling long-term reliability of the regional transmission system, and was recommended for PJM Board approval and inclusion in the Regional Transmission Expansion Plan in 2015. The Project provides benefits to the 115 kV corridor of Lines #11, #2, and #70 between Gordonsville and Remington Substations, as well as beyond the Project area including reliability benefits to the 115 kV transmission line corridor of Line #153 between Oak Green and Spotsylvania Substations.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

WITNESS REBUTTAL TESTIMONY SUMMARY

Witness: Greg Baka

Title: Supervisor – Siting & Permitting of Electric Transmission

Company Witness Greg Baka addresses the Virginia Department of Environmental Quality's ("DEQ") coordinated reviews of the rebuild Project ("DEQ Report") submitted to the State Corporation Commission of Virginia. Mr. Baka also responds to aspects of the Commission Staff ("Staff") report sponsored by Staff Witness David Essah ("Staff Report" or "Report") concerning the potential to use shorter structures ("Shorter Structure Option") than proposed in the Application ("Company Proposal").

Mr. Baka notes that, because the two Remington-Pratts variations presented originally as the "Option B" route alternatives were eliminated from consideration by the Hearing Examiner's Ruling, the coordination with Madison County recommended by DEQ is no longer applicable. Aside from this clarification, the Company generally agrees with the recommendations included in the Summary of Findings and Recommendations identified on pages 6-7 of the DEQ Report.

Mr. Baka notes that the existing right-of-way along the Project route ranges in width between 70 and 100 feet. Under the Company Proposal, the Company would attempt to acquire an additional 30 feet of right-of-way for the entire length of the Project where practical along parcels that currently have a 70-foot-wide right-of-way. In situations where the expansion of the right-of-way would necessitate the demolition of a primary structure – such as an existing home or a business establishment – or are subject to other constraints, such expansion of the right-of-way would not be practically feasible. Right-of-way in these locations would remain at 70 feet.

In response to the Staff Report, the Company evaluated the potential to use the Shorter Structure Option where feasible along portions of the Project route, including the need to expand the right-of-way to 140 feet to accommodate the Shorter Structure Option. The Company believes that it is technically feasible and may be reasonable to install the Shorter Structure Option for portions of the right-of-way where there are not constraints, provided that there is (1) consent by all affected property owners; (2) agency consent where applicable; (3) grant of easements for the 40 feet beyond the 100 feet needed for the proposed Project without additional compensation from the Company; and (4) an uninterrupted line distance of approximately three miles. Mr. Baka notes that the Company's request for flexibility to install the shorter structure type represents a balancing of cost and impacts.

The Company seeks the flexibility to pursue the Shorter Structure Option for the identified portions of the route where the right-of-way could be expanded, subject to the conditions specified herein, if the Commission finds the incremental Project costs to be appropriate.

REBUTTAL TESTIMONY
OF
GREG BAKA
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUE-2015-00117

Q. Please state your name, business address, and position with Virginia Electric and Power Company ("Dominion Virginia Power" or the "Company").

A. My name is Greg Baka, and my business address is One James River Plaza, 701 East Cary Street, Richmond, Virginia 23219. I am a Supervisor – Siting & Permitting of Electric Transmission at Dominion Virginia Power.

Q. Have you previously submitted testimony in this proceeding?

A. Yes. I submitted pre-filed direct testimony on behalf of Dominion Virginia Power to the State Corporation Commission of Virginia ("Commission") in this proceeding on November 13, 2015.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to address the Virginia Department of Environmental Quality's ("DEQ") coordinated reviews of the Remington-Gordonsville 230 kV Transmission Line project submitted to the Commission on November 13, 2015. I will also respond to aspects of the Commission Staff ("Staff") report sponsored by Staff Witness David Essah ("Staff Report" or "Report") concerning the potential to use shorter structures ("Shorter Structure Option") than proposed in the Application ("Company Proposal").

Q. As a preliminary matter, please describe the Company's January 29, 2016 filing submitted to the Commission in this proceeding.

A. At the request of the Virginia Department of Historic Resources ("VDHR"), the Company filed a revised Pre-Application Analysis report prepared by Natural Resources Group ("NRG") to omit information regarding alternative routes rejected by the Company in this proceeding and to reflect VDHR's recommendations on the proposed Project's impact upon several historic resources. The Pre-Application Analysis report assesses potential impacts on historic and archeological resources in accordance with VDHR's 2008 *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia.* A copy of the revised Pre-Application Analysis report was transmitted to VDHR on January 4, 2016. It should be noted that while the Company and NRG prepared the Pre-Application Analysis report, VDHR will make the determination as to which resources require mitigation.

Q. Do you have any comments regarding the Summary of Findings and Recommendations included in the report submitted by DEQ to the Commission as a result of the DEQ-coordinated review ("DEQ Report")?

A. Yes, I do. The Company appreciates the DEQ's review and provides one clarification: Because the two Remington-Pratts variations presented originally as the "Option B" route alternatives were eliminated from consideration by the Hearing Examiner's Ruling dated April 12, 2016, the coordination with Madison County recommended by DEQ is no longer applicable.

Subject to the foregoing, the Company generally agrees with the recommendations included in the Summary of Findings and Recommendations identified on pages 6-7 of the DEQ Report. The Company has no issues or objections to the permit requirements described in the DEQ Report, and fully intends to comply with all applicable federal, state, and local laws.

In addition, although not included in the DEQ's Summary of Findings and Recommendations, the Virginia Outdoors Foundation ("VOF"), a state agency established to promote the preservation of open-space and recreational lands in the Commonwealth, submitted comments recommending the use of non-reflecting or de-glazed conductors. These comments appear to have been adopted as a Staff recommendation in the Staff Report filed on May 27, 2016 in this proceeding. The Company does not believe this would be appropriate for the reasons stated in the rebuttal testimony of Company Witness Robert J. Shevenock II.

Q. On page 22 of the Report, Staff notes that the Project could potentially be constructed using shorter structures than currently proposed. Has the Company undertaken an analysis of the feasibility to use the Shorter Structure Option?

A. Yes. In response to the Staff Report, the Company filed a Motion on June 13, 2016, requesting additional time to further examine, evaluate and present evidence for the Commission's consideration on the potential to utilize the Shorter Structure Option where feasible along portions of the Project route, including the potential need to expand right-of-way to accommodate the Shorter Structure Option. The Hearing Examiner granted the Company's Motion and extended the procedural schedule to accommodate the additional analysis. The Company has undertaken this analysis and presents its findings herein.

My rebuttal testimony describes the conditions upon which the Company believes it could reasonably pursue the Shorter Structure Option located on expanded right-of-way along certain segments of the route, including consents from affected agencies, property owners and other interested parties, where applicable, in order to accommodate the Shorter Structure Option. Company Witness Shevenock will address the design and estimated incremental costs associated with utilizing the Shorter Structure Option. Company Witness Jon M. Berkin will provide testimony on the areas where the right-of-way could be expanded to accommodate the Shorter Structure Option and the related incremental environmental and land use impacts compared to the Project under the Company Proposal.

The Company does not believe that expansion of the existing right-of-way – to 140 feet or even 100 feet – is possible or necessarily appropriate over the entire length of the Project; however, it requests the flexibility to install the Shorter Structure Option where appropriate.

Q. Before discussing the additional right-of-way that would be required to accommodate the Shorter Structure Option as suggested in the Staff Report, please describe the existing right-of-way to be used for the Project.

A. The entire 38.2-mile existing transmission line corridor in Fauquier, Culpeper, Orange and Albemarle Counties currently contains existing 500 kV Line #535 and 115 kV Lines #2, #70 and #11. Dominion Virginia Power holds easements for the existing right-of-way for the entire transmission corridor between Remington and Gordonsville Substations, which varies between 70 and 100 feet in width. A total of approximately 21.6 miles of the existing corridor is 100 feet in width, while the remaining

approximately 16.0 miles of the existing corridor is 70 feet in width.[1] The easements along the existing corridor were acquired starting in 1928 and the right-of-way has been in use continually since the 1930s.

The majority of the Project under the Company Proposal will involve removing existing wooden and steel structures supporting Lines #2, #70 and #11 and replacing them with new weathered steel monopole structures that will support both the existing 115 kV circuits as well as the proposed 230 kV Remington-Gordonsville Line #2153. The existing steel 115 kV structures between Remington Substation and Remington Junction will remain in place and the proposed 230 kV line will be located on the existing towers supporting 500 kV Line #535.

For the Company Proposal, as stated in the Application, the Company would attempt to acquire an additional 30 feet of right-of-way for the entire length of the Project where practicable along those parcels that currently have a 70-foot-wide right-of-way, *i.e.*, 15 feet of additional permanent right-of-way would be added to either side.

In situations where the expansion of the right-of-way would necessitate the demolition of a primary structure – such as an existing home or a business establishment – or are subject to other constraints, such expansion of the right-of-way would not be practically feasible. Right-of-way in these locations would remain at 70 feet. It is possible for the Company to construct the proposed 230 kV Line #2153 on new structures that would be located entirely within a 100-foot right-of-way, structure for structure, and on 70-foot

[1] The right-of-way width for the segment of the Project between Remington Substation and Remington Junction, approximately 0.6 miles in length, is 200 feet wide. On that 0.6-mile segment of the Project, the line would be installed on existing structures that presently support an existing 500 kV line. Therefore, the Remington-Remington Junction segment is not relevant in the discussion of the Shorter Structure Option.

right-of-way for those sections where the Company cannot expand due to constraints. As I noted above, additional right-of-way of 140 feet total would be needed to accommodate the Shorter Structure Option.

Q. Are there unauthorized encroachments in the Company's existing right-of-way?

A. Yes, the Company is aware of certain unauthorized encroachments, including buildings, along the existing corridor. Buildings that encroach upon the existing right-of-way will need to be removed. The Company will work with owners of any such buildings to bring about their removal.

These encroachments must be removed in any event and are not identified as constraints to expansion of the right-of-way, although other features of the same property may be. Maintenance of unobstructed rights-of-way is critical to the support of safe and reliable electrical service, and is implemented pursuant to Dominion Virginia Power's standard policies.

Q. Is the Company willing to install, as part of the Project, the Shorter Structure Option on an expanded right-of-way?

A. Yes, subject to certain conditions. As Company Witness Shevenock explains in his rebuttal testimony, the right-of-way would need to be expanded to 140 feet in order to accommodate the Shorter Structure Option and the cost of the Project would increase. Company Witness Berkin identifies those locations along the existing corridor where routing constraints could prohibit the widening of the existing corridor, and describes the incremental land use, environmental, and cultural resource impacts of an expanded right-of-way.

Furthermore, in particular due to the VOF and VDHR easements crossed by the existing right-of-way, the Company is requesting flexibility in the Commission's Final Order for the construction of the Shorter Structure Option located along an expanded right-of-way described in the rebuttal testimony of Company Witness Shevenock.

Q. Under what circumstances would the Company install the Shorter Structure Option, subject to Commission authorization?

A. In response to concerns raised by property owners and state agencies, the Company believes that it is technically feasible and may be reasonable to install the Shorter Structure Option for portions of the right-of-way where there are not constraints, provided that there is (1) consent by all affected property owners; (2) agency consent where applicable; (3) grant of easements for the 40 feet beyond the 100 feet needed for the proposed Project without additional compensation from the Company; and (4) an uninterrupted line distance of approximately three miles.

Q. Why is the Company requesting permission to install the Shorter Structure Option?

A. The flexibility to install the Shorter Structure Option represents a balancing of cost and impacts. The Company believes that if the conditions set forth above are met, then the additional cost associated with the Shorter Structure Option may be appropriate for the Project provided that there are no additional real estate acquisition costs for the incremental right-of-way expansion beyond the 100-feet width associated with the Company Proposal. As noted in my pre-filed direct testimony, the existing right-of-way is adequate for construction of the Project under the Company Proposal. The Company believes, however, that the flexibility to use the Shorter Structure Option on an expanded right-of-way represents a balancing of cost and impacts.

The Company has taken into consideration the fact that the use of different types of structures within a relatively short length of line may lead to increased visual impacts. To mitigate these potential visual impacts, the Company has identified those portions of the route of approximately three miles or longer where the Shorter Structure Option could be used.

Furthermore, the Company does not believe that additional public notice is required if all affected property owners consent to the Shorter Structure Option along the approved route for the Project.

Q. Please describe the Company's outreach on the potential use of the Shorter Structure Option for certain areas of the Project.

A. The Company has not contacted property owners specifically concerning the potential expansion of the existing right-of-way for the Project under the Company Proposal, or new right-of-way potentially to be located on their property to support the Shorter Structure Option. Subject to Commission direction, the Company will mail a postcard to all affected property owners (*i.e.*, those on the portions of the route where the Company decides to try and expand the right-of-way based upon the previously-stated criteria in order to accommodate the Shorter Structure Option) to (i) alert them of the possibility of the Shorter Structure Option; (ii) establish a deadline for determining eligibility for the Shorter Structure Option; and (iii) provide instructions for access to necessary forms. To document eligibility, the Company must receive written consent from all affected property owners and agencies (as applicable) for the continuous portions of the route identified by Company Witness Berkin.

Q. Please describe any planned communications with agencies on easements or expanding the right-of-way needed to accommodate the Shorter Structure Option, where feasible, along portions of the route.

A. The Company plans to meet with VOF and VDHR in advance of the evidentiary hearing to discuss the potential Shorter Structure Option and expansion of the existing right-of-way located within existing easements. The ability of the Company to expand its right-of-way through existing easements held by VOF and VDHR is uncertain without the consent of the respective agencies, as well as the underlying property owners.

Q. Having analyzed the potential to utilize the Shorter Structure Option, what is the Company recommending for Commission approval in this proceeding?

A. The Company has identified those portions of the Project route where it appears to be feasible to utilize the Shorter Structure Option based on the potential to expand the existing right of way to 140 feet. The use of the Shorter Structure Option may be appropriate and feasible in certain locations to reasonably minimize impacts; however, the modified structure on a widened right-of-way would result in increased Project costs, as Company Witness Shevenock testifies, as well as increased land use, environmental, and cultural resource impacts, as Company Witness Berkin testifies. The Company seeks the flexibility to pursue the Shorter Structure Option for the identified portions of the route where the right-of-way could be expanded, subject to the conditions specified herein, if the Commission finds the incremental Project costs to be appropriate.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

WITNESS REBUTTAL TESTIMONY SUMMARY

Witness: Robert J. Shevenock II

Title: Consulting Engineer – Electric Transmission Line Engineering

Company Witness Robert J. Shevenock II responds to the State Corporation Commission of Virginia ("Commission") Staff report sponsored by David Essah ("Staff Report" or "Report"). Mr. Shevenock addresses Staff's recommendations concerning the finish of the structures and conductors, as well as the suggestion that shorter structure heights could be utilized ("Shorter Structure Option") than proposed in the Application ("Company Proposal").

Finish of Structures and Conductors:

Mr. Shevenock explains that if galvanized poles were installed for the Project, it would be at an additional expense of approximately $627,437 to the estimated cost of the Project.

Mr. Shevenock disagrees with the Staff's recommendation to use non-reflecting or deglared conductors. The Company does not believe it is appropriate to add incremental costs to the Project in order to accelerate the natural aging process by less than a year. The Company proposes to install ACSR conductor that will dull naturally over time and is less expensive than a non-reflective conductor.

Shorter Structure Option:

In response to Staff's suggestion to use the Shorter Structure Option, Mr. Shevenock notes that there are portions of the route where it is technically feasible to use shorter structures if the right-of-way width could be expanded to 140 feet. Mr. Shevenock explains that the configuration for the alternative shorter structure requires an expanded right-of-way of 140 feet. The use of the Shorter Structure Option for those identified portions of the route would cost approximately $313,000 more per mile than the Company Proposal, excluding forestry and real estate costs.

Finally, Mr. Shevenock responds to Staff's suggestion that a "2-single circuit" structure configuration could be utilized. Mr. Shevenock notes that use of this structure would require the right-of-way to be expanded from its existing width of 70 and 100 feet to 180 feet. Based on the Company's additional routing analysis, it does not recommend the use of this configuration.

The Company seeks the flexibility to pursue the use of the Shorter Structure Option for discrete portions of the route, subject to the conditions specified by Company Witness Baka, if the Commission deems the incremental Project costs to be appropriate for the Project.

REBUTTAL TESTIMONY
OF
ROBERT J. SHEVENOCK II
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUE-2015-00117

Q. Please state your name, business address, and position with Virginia Electric and Power Company ("Dominion Virginia Power" or the "Company").

A. My name is Robert J. Shevenock II, and my business address is One James River Plaza, 701 East Cary Street, Richmond, Virginia 23219. I am a Consulting Engineer in the Electric Transmission Line Engineering department at Dominion Virginia Power.

Q. Have you previously submitted testimony in this proceeding?

A. Yes. I submitted pre-filed direct testimony on behalf of Dominion Virginia Power to the State Corporation Commission of Virginia ("Commission") in this proceeding on November 13, 2015.

Q. What is the purpose of your rebuttal testimony?

A. I will respond to the Commission Staff ("Staff") report sponsored by Staff Witness David Essah ("Staff Report" or "Report") filed in this proceeding on May 27, 2016. Specifically, I will address Staff's recommendations concerning the finish of the structures and conductors, as well as the suggestion that shorter structure heights could be utilized ("Shorter Structure Option") than proposed in the Application ("Company Proposal").

Q. **Are you sponsoring an exhibit in this proceeding?**

A. Yes. Company Exhibit No. __, RJS, consisting of Rebuttal Schedule 1, was prepared under my supervision and direction and is accurate and complete to the best of my knowledge and belief.

Q. **On Page 11, Lines 13 and 14, of the Staff Report, Mr. Essah states that there is a projected cost savings with weathering steel poles compared to galvanized steel poles. Was this projected cost savings considered in the selection of the finish of the proposed steel poles?**

A. The selection of the weathering steel was based on the public feedback received by the Company, and the fact that this finish would be a closer match to both the wooden poles being replaced and the newer construction along the corridor that also used weathering steel as stated on Page 11, Lines 14-16, in Staff Witness Essah's Report. If galvanized poles were to be installed for the Project, it would be at an additional expense of approximately $627,437 to the estimated cost of the Project, as noted in the Company's discovery response to Staff's Interrogatory No. 1-11 and at the bottom of Page 11 of the Staff's Report.

Q. **On Page 21 of its Report, Staff recommends the use of "non-reflecting or deglared conductors" to reduce visual impact at additional cost to the Project. Does the Company agree with this recommendation?**

A. No. The Company does not believe it is appropriate to add incremental costs to the Project in order to accelerate the natural aging process by less than a year.

Q. Why are non-reflective conductors not being used for the proposed Project?

A. The Company proposes to install ACSR conductor that will dull naturally over time and is less expensive than the non-reflective conductor.

Q. How long will it take for the proposed ACSR conductor to dull?

A. While it is not my area of expertise, the Company has obtained information from the conductor manufacturer regarding the non-reflective conductor. The manufacturer communicated that it typically takes approximately six to nine months to dull, depending on weather.

Q. What is the incremental cost for non-reflective conductors?

A. As noted in the Staff Report, the incremental cost of installing non-reflective conductor for the proposed Project is approximately $60,000 according to the manufacturer. Non-reflective treatment typically adds 3-5% to the price of the conductor.

Q. Have deglared conductors been addressed by the Commission previously?

A. Yes, the Commission previously addressed deglared conductors in the Company's 2011 Application for approval and certification of the Hollymead 230 kV double circuit transmission line project, Case No. PUE-2011-00015 ("Hollymead Project"). During that proceeding, a Respondent provided testimony recommending that the Commission require the Company to install "transmission lines . . . coated with an antireflective finish to minimize their visibility." (Testimony of Ronald L. Kerber at 2, filed June 3, 2011.) For the Hollymead Project, the incremental cost of the non-reflective conductor was approximately $36,000, and the structure height ultimately proposed by the Company for Commission approval was reduced from 100 to 80 feet.

The Hearing Examiner's Report concluded that "Since the average structure height has been reduced from 100 feet to 80 feet, the view of the line will be obscured by trees along the majority of the right-of-way. [Thus, there was] no need to further mitigate the visual impact of the line by incurring the additional expense of installing non-reflective conductors. The ASCR conductors proposed by the Company will naturally weather over time." (Hearing Examiner's Report at 40, issued Aug. 22, 2011.) Preceding the Hearing Examiner's Report, the Commission Staff took no position. The Commission approved the Hollymead Project without requiring anti-reflective conductors, stating: "We adopt the Hearing Examiner's finding that the additional cost of installing non-reflective conductors has not been justified." (Final Order at 13, n. 34, issued Oct. 19, 2011.)

In conclusion, the Company does not believe that it is appropriate to require the use of non-reflective conductor which adds incremental cost to the Project. This position is consistent with Commission precedent and supported by the limited acceleration of the natural aging process according to the manufacturer.

Q. Please explain why the Company selected the proposed structure design.

A. As I stated in my direct testimony, the existing double circuit 500/230 kV tower will allow the installation of the proposed 230 kV line between Remington and Remington Junction. The double circuit single shaft steel pole structure proposed by the Company in its Application for the remainder of the Project length will allow the installation of a second circuit along the existing right-of-way between Remington Junction and Gordonsville Substation, in accordance with the requirement of Va. Code § 56-46.1 C to make use of existing rights-of-way.

Q. Staff suggests on Page 22 of its Report that the Project could potentially be constructed using shorter structures than currently proposed under the Company Proposal. Is it feasible to use the Shorter Structure Option?

A. Yes, there are portions of the route where it is technically feasible to use the Shorter Structure Option if the right-of-way width could be expanded to 140 feet. These portions of the route are identified in Figure 1 of Rebuttal Schedule 1 to Company Witness Jon M. Berkin's rebuttal testimony.

Q. Please describe the configuration for the Shorter Structure Option.

A. In the Company's response to Staff's Interrogatory No. 4-50, the Company described an alternative double circuit 230 kV H-Frame structure that could support the existing 115 kV line segments and the proposed 230 kV line using the Company's standard design. The distance from the lowest conductor attachment to the top of the double circuit H-frame is 38.4 feet, which is 22.23 feet shorter than the proposed double circuit steel pole under the Company Proposal. Assuming a structure location-for-structure location replacement, the double circuit H-frame tangent structure would have an approximate 22.23-foot reduction in height compared with the proposed double circuit steel pole. A drawing of the relevant tower configuration is included as my Rebuttal Schedule 1.

Q. What are the incremental costs associated with using the Shorter Structure Option along portions of the route?

A. The use of the Shorter Structure Option for those identified portions of the route would cost approximately $313,000 more per mile than the Company Proposal, excluding forestry and real estate costs. As Company Witness Berkin testifies, approximately 24.1 miles of the length of the proposed Project can potentially be expanded to 140 foot right-

of-way, assuming certain conditions are met. Thus, excluding forestry and real estate costs, the maximum estimated incremental cost for the Shorter Structure Option if installed for all 24.1 miles identified by Company Witness Berkin would be approximately $7.5 million. If the Company ultimately utilized the Shorter Structure Option on less than that total length – *e.g.*, conditions specified by Company Witness Baka could not be met for certain portions – then the estimated incremental cost estimate (excluding forestry and real estate costs) would be lower.

Due to the expanded right-of-way associated with the Shorter Structure option, there would also be additional costs associated with that option to clear wooded areas along the route. As Company Witness Berkin states in his rebuttal testimony, constructing the line using the Shorter Structure Option for the maximum 24.1 miles would require the clearing of 37.9 additional acres of forested land. The Company estimates that its forestry costs, including clearing and rehabilitation, would be approximately $18,281 per acre. This cost would be multiplied by the additional forested acres needed to be cleared to accommodate the ultimate number of miles utilizing the Shorter Structure option. Company Witness Berkin's rebuttal testimony also addresses the environmental impacts associated with expanding the right-of-way to accommodate the Shorter Structure Option along these portions of the route.

Q. What structure type does the Company propose to use in the existing right-of-way of 100 feet (and constrained to 70 feet in certain locations) if the existing right-of-way cannot be expanded to 140 feet in order to accommodate the Shorter Structure Option?

A. On such segments or portions of the route (those areas where the right-of-way will be either 70 or 100 feet wide), the Company will use a double circuit single shaft steel pole, as described for the Project.

Q. Does the Company have concerns about switching between the proposed single shaft steel pole structures for the Company Proposal and the alternative shorter H-frame structures for the Shorter Structure Option along the route?

A. As Company Witness Baka explains, the Company has identified portions of the route of approximately three miles or longer where the Shorter Structure Option could be used in order to mitigate the visual impacts of switching between different structures.

Q. On pages 21-22 of its Report, Staff also describes a "2-single-circuit" structure configuration that would be shorter than the Company Proposal. Is the use of single circuit 230 kV H-frame structures technically feasible?

A. Yes; however, the existing right-of-way would need to be expanded from its existing width of 70 and 100 feet to 180 feet to accommodate a hypothetical single circuit 230 kV H-frame alongside the existing 115 kV structures using the Company's standard design. Based on the Company's additional routing analysis, it does not recommend the use of this configuration.

Q. On Page 22 of its Report, Staff indicates for the "2-single-circuit" scenario that there would be a total number of 688 structures required for the Project. Does the Company agree with this statement?

A. To clarify, the hypothetical single circuit scenario presented in the Company's response to Staff's Interrogatory No. 4-50 assumed the existing 115 kV line would remain as is and the new 230 kV line would be constructed on single circuit steel H-Frame structures parallel to it, which would require a 180-foot of right-of-way width. With this assumption, the 688 structures included in the Staff's chart should be modified to reflect that this total would include the 342 proposed 230 kV single-circuit structures installed adjacent to the 342 existing 115 kV single-circuit structures between Remington Junction and Gordonsville Substation. The 688 structures would also include the four existing 500/230 kV structures between Remington Junction and Remington Substation that will be used for the Project, as noted at the bottom of Page 22 in the Staff's Report. Again, the Company does not recommend the use of this configuration.

Q. There was extensive discussion by public witnesses regarding the use of the Hollymead Project structures for the proposed Project. Is that feasible?

A. No, the Hollymead Project included the rebuild of an existing single circuit 230 kV line that was on an existing 120-foot right-of-way to add a second 230 kV line. In addition, the loop in-and-out nature of the Hollymead Project created an interrelation between the circuits that limits the loading on the upper circuit to the load at Hollymead and the Proffit Delivery Point when the lower circuit is de-energized. This serves to reduce the maximum operating temperature of the conductor in the upper circuit which in turn reduces the sag of the conductor in the upper circuit, thereby providing the necessary

clearance to the de-energized lower circuit. With the proposed Project, the loading of the upper circuit will not be limited or otherwise related to the lower circuit, as was the case for the Hollymead loop. The present standard double circuit H-frame design proposed as an option for the Project does not have phase conductors of the different lines located above one another and offers advantages for obtaining outages should maintenance issues occur in the future, but requires a width of 140 feet for the right-of-way.

Q. What is the Company recommending for Commission approval in this proceeding?

A. The Company is recommending approval of the Company Proposal – approximately structure location-for-structure location replacement of facilities within the existing right-of-way. However, the Company has identified those portions of the Project route where it appears to be feasible to utilize the Shorter Structure Option based on the potential to expand the existing right-of-way to 140 feet and requests the Commission to permit the Company the flexibility to install the Shorter Structure Option provided certain conditions can be met. The use of the Shorter Structure Option in certain locations may be appropriate in reasonably minimizing adverse impacts of the Project; however, the additional right-of-way required for the Shorter Structure Option would result in increased Project costs of approximately $313,000 per mile, excluding forestry and real estate costs for expanding the existing right-of-way; as well as increased land use, environmental, and cultural resource impacts, as Company Witness Berkin testifies.

The Company seeks the flexibility to pursue the use of the Shorter Structure Option for discrete portions of the route, subject to the conditions specified by Company Witness Baka, if the Commission deems the incremental Project costs to be appropriate for the Project.

Q. Has the Company provided any updates to the estimated cost of the Project under the Company Proposal?

A. Yes. While it is not part of the estimates I have sponsored, as provided in response to Staff Interrogatory No. 2-23, the Company has updated its substation costs from $15.9 million to $17.4 million, resulting in a total estimated Project cost of $106.2 million. This updated cost estimate is based on the use of the Company Proposal, and does not reflect the use of the Shorter Structure Option as described herein.

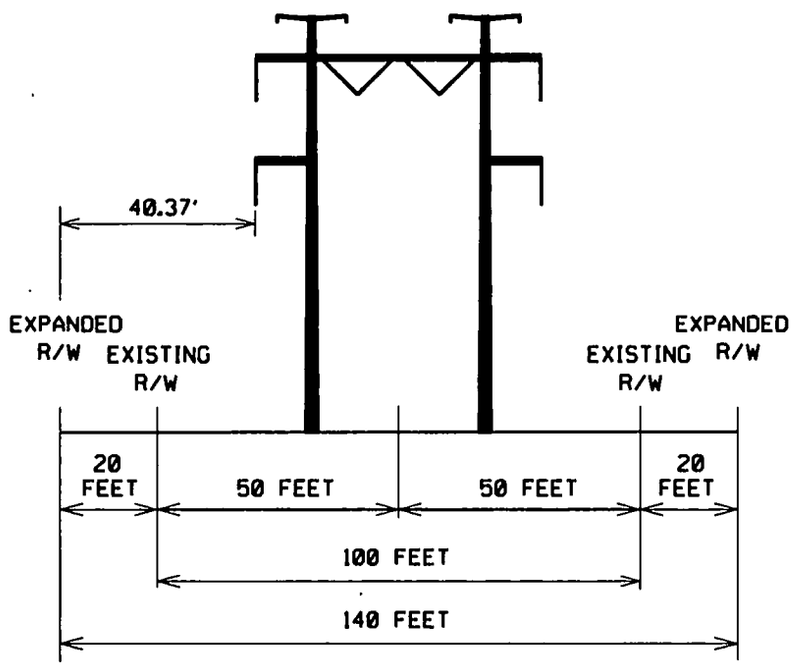
Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

Company Exhibit No. __
Witness: RJS
Rebuttal Schedule 1
Page 1 of 1

TYPICAL DOUBLE CIRCUIT H-FRAME

PROPOSED	EXISTING
230KV CIRCUIT	115KV CIRCUIT



TYPE OF STRUCTURE:	STEEL H-FRAME
FOUNDATION :	CONCRETE
APPROXIMATE AVERAGE HEIGHT:	85 FEET
WIDTH AT CROSSARM:	59 FEET
WIDTH AT BASE:	39 FEET
RIGHT OF WAY WIDTH:	140 FEET

$DGNSPEC$

WITNESS REBUTTAL TESTIMONY SUMMARY

Witness: Jon M. Berkin

Title: Partner at Environmental Resource Management ("ERM").[1]

ERM Witness Jon M. Berkin testifying on behalf of the Company responds to the State Corporation Commission of Virginia ("Commission") Staff report sponsored by David Essah. Specifically, Mr. Berkin responds to and presents evidence for the Commission's consideration regarding Staff's suggestion that the use of reduced structure heights for the Project may be appropriate ("Shorter Structure Option").

Mr. Berkin notes that the Environmental Routing Study calculated the potential impacts of the proposed Project using a 100-foot right-of-way for the entire route, as proposed by the Company in its Application ("Company Proposal"). In response to Staff's suggestion that the Project could be constructed using the Shorter Structure Option, Mr. Berkin testifies that the use of the Shorter Structure Option would require an expanded right-of-way, and therefore would result in additional land use and environmental impacts, among other considerations. Mr. Berkin further explains that the Company has undertaken an analysis of right-of-way width alternatives along the existing corridor and identified those areas where there are impediments to expanding the right-of-way, such as the presence of primary buildings that would require demolition. This analysis also considered the Company's goal to minimize the visual impacts of switching between different structures by identifying route segments of no less than three miles where the right-of-way could potentially be expanded to 140 feet.

Mr. Berkin identifies three sections on the Project route of at least three miles in length where it may be possible for the Company to expand the right-of-way to 140 feet to accommodate the Shorter Structure Option without requiring demolition of primary buildings, subject to the conditions discussed by Company Witness Baka.

Mr. Berkin also explains that there are unique constraints within the Town of Orange along U.S. Route 15 where the right-of-way cannot be expanded beyond the existing 70 feet, as well as several other locations along the route where the right-of-way could not be expanded without the removal of residential and commercial buildings.

Finally, Mr. Berkin discusses the environmental impacts associated with expanding the right-of-way to 140 feet for the Shorter Structure Option. Expanding the right-of-way to 140 feet in the three identified sections of at least three miles in length would require approximately 116.7 additional acres of new right-of-way and three new parcels would be crossed.

[1] Natural Resource Group, LLC was acquired by ERM.

REBUTTAL TESTIMONY
OF
JON M. BERKIN
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUE-2015-00117

Q. Please state your name, business address, and position and place of employment.

A. My name is Jon M. Berkin, and my business address is 1000 IDS Center, 80 South Eighth Street, Minneapolis, Minnesota 55402. I am employed as a Partner at Environmental Resource Management ("ERM").[1]

Q. Have you previously submitted testimony in this proceeding?

A. Yes. I submitted pre-filed direct testimony on behalf of Virginia Electric and Power Company to the State Corporation Commission of Virginia ("Commission") in this proceeding on November 13, 2015.

Q. What is the purpose of your rebuttal testimony?

A. Dominion Virginia Power retained ERM to conduct a route selection analysis and produce the Environmental Routing Study, which was included as part of the application materials filed by the Company in this proceeding. I will respond to the Commission Staff ("Staff") report sponsored by Staff Witness David Essah ("Staff Report" or "Report") filed in this proceeding on May 27, 2016. Specifically, I will respond to Staff's suggestion at pages 22 and 23 of its Report that the use of reduced structure heights for the Project may be appropriate ("Shorter Structure Option").

[1] Natural Resource Group, LLC was acquired by ERM.

Q. Are you sponsoring an exhibit in this proceeding?

A. Yes. Company Exhibit No. ___, JMB, consisting of Rebuttal Schedules 1 and 2, was prepared under my supervision and direction and is accurate and complete to the best of my knowledge and belief.

Q. What right-of-way was used to determine the impacts presented in the Environmental Routing Study filed as part of the Company's Application?

A. The Environmental Routing Study calculated the potential impacts of the proposed Project using a 100-foot right-of-way for the entire route ("Company Proposal").[2] As stated in the Application, the Project as proposed is located entirely along the existing approximately 38.2 mile-long right-of-way; however, 21.6 miles of the existing corridor is 100 feet in width, while the remaining 16.6 miles of the existing corridor is 70 feet in width.[3] As proposed, the Company intends to expand to 100 feet where practicable, as addressed in Company Witness Greg Baka's pre-filed direct testimony.

My rebuttal testimony notes locations along the route where it does not appear possible for the Company to expand the existing 70-foot right-of-way to 100 feet without relocation or demolition of primary structures. In addition, the Company's ability to expand existing 70-foot right-of-way to 100 feet within existing easements held by the Virginia Outdoors Foundation ("VOF") or the Virginia Department of Historic Resources ("VDHR") is uncertain without the respective agency's consent.

[2] The Environmental Routing Study and Schedules to this testimony use a route length of 38.1 miles. The 0.1 mile difference versus the 38.2 mile total route length identified in the Company's Application results from the specific site layout at Remington and Gordonsville Substations and is not included in the environmental impact evaluation. *See* n. 1 of the Appendix at p. 1.

[3] The right-of-way width for the 0.6-mile section of the Project between Remington Substation and Remington Junction is 200 feet wide. For that section, the new 230 kV line would be installed on existing structures that presently support an existing 500 kV line. The Remington-Remington Junction segment is not relevant to the discussion of the potential Shorter Structure Option.

Q. On page 22 of the Report, Staff notes that the Project could potentially be constructed using shorter structures than currently proposed. Could the route for the proposed Project accommodate the Shorter Structure Option as Staff suggests?

A. The use of the Shorter Structure Option would require an expanded right-of-way, and therefore would result in additional land use and environmental impacts, among other considerations. The Company has undertaken an analysis of right-of-way width alternatives along the existing corridor and identified those areas where there are impediments to expanding the right-of-way, such as the presence of primary buildings that would require demolition. This analysis also considered the Company's goal to minimize the visual impacts of switching between different structures by identifying route segments of no less than three miles where the right-of-way could potentially be expanded to 140 feet.

My rebuttal provides testimony on the portions of the Project route where it may be possible for the Company to expand the existing right-of-way to 140 feet to accommodate the Shorter Structure Option and discusses the related incremental environmental and land use impacts compared to the proposed Project in the Company's Application. In particular, this testimony presents additional evidence on those locations along the route where the Shorter Structure Option might be feasible, subject to certain conditions the Company believes are important in this instance, as discussed in more detail by Company Witness Baka.

Q. How is the Company presenting the route alternative analysis?

A. I have prepared and sponsor with my rebuttal testimony a map identified as Figure 1 and accompanying table (Table 1) included as my Rebuttal Schedule 1 that identifies the

areas where it may be feasible to expand the right-of-way to 140 feet in width to accommodate the Shorter Structure Option and characterizes the key impacts that would result from the expansion of the right-of-way.

The analysis identified three sections of the route of at least three miles in length where it may be possible for the Company to expand the right-of-way to 140 feet in width without requiring demolition of primary buildings: the first section extends 8.4 miles from mile post ("MP") 3.0 to 11.4; the second section extends 11.6 miles from MP 14.5 to 26.0; and, the third section extends 4.1 miles from MP 34.0 to 38.1. A 140-foot right-of-way can potentially be established, assuming certain Company conditions are satisfied, for a total of 24.1 miles, which would represent approximately 65% of the length of the Project proposed to be installed on double circuit 230/115 kV structures.

Q. Are there unique constraints associated with your analysis where the right of way cannot be expanded beyond even the existing 70-foot right-of-way?

A. Yes. A portion of the route crosses a heavily developed area within the Town of Orange along U.S. Route 15, which contains a number of residential and commercial developments, including the Hillcrest, Shannon Hills, and Daisy Hills Subdivisions. Much of the current right-of-way across this section of the route measures only 70 feet in width. As depicted in Figure 2 in my Rebuttal Schedule 2, there are 13 buildings abutting the current right-of-way within the Town of Orange, which would encroach upon the right-of-way if it was expanded to 100 feet in width. These structures include three residences, one agricultural building, and nine commercial buildings. The presence of these buildings precludes the possibility of expanding the right-of-way through these parcels.

Q. In addition to those 70-foot right-of-way constraints impacting the Town of Orange, are there specific constraints to expanding the right-of-way to 100 or 140 feet elsewhere along the route?

A. Yes. While most constraints to expanding the right-of-way are located within the Town of Orange, there are several other locations along the route where the right-of-way could not be expanded without the removal of residential and commercial buildings. In particular, the route crosses two residential developments in Fauquier County between MP 0.9 and MP 1.3, the Meadows and Riverton Subdivisions, where the right-of-way could not be expanded to 140 feet without encroaching upon several residences. In addition, there are isolated residences, agricultural, and commercial buildings elsewhere along the route as well outside the Town of Orange. In total, outside the Town of Orange the route would encroach on an additional one building if it was expanded to 100 feet, and 18 buildings (including the aforementioned one) at 140 feet. These buildings include 12 residences, two agricultural buildings, and four commercial buildings.

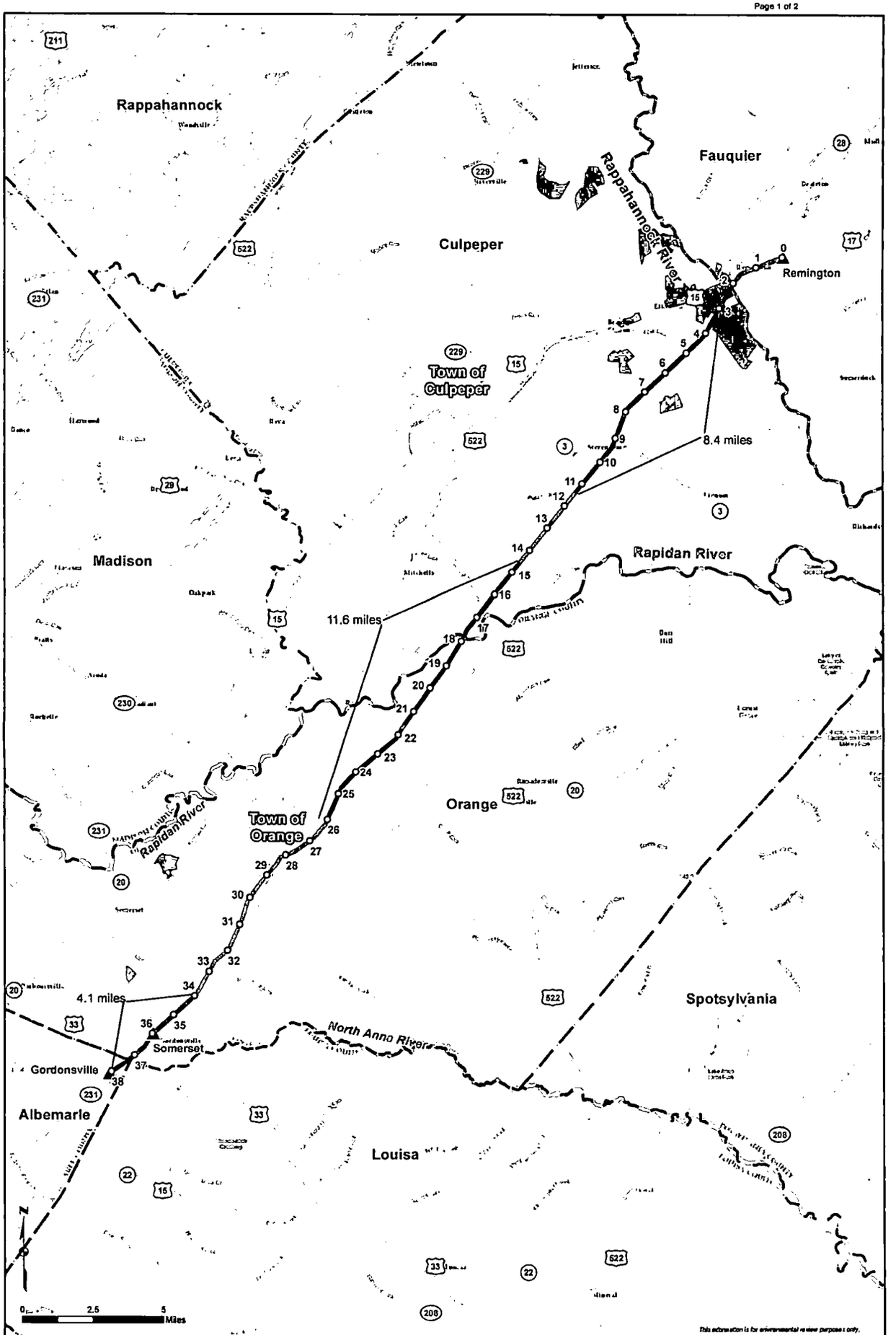
Q. What are the environmental impacts associated with expanding the right-of-way to 140 feet in width?

A. My Rebuttal Schedule 1, Table 1, summarizes the land use constraints and environmental impacts, including on wetlands and buildings, and the additional acres of easement land required to expand to a 140-foot right-of-way along the three sections identified on Rebuttal Schedule 1, Figure 1, as compared to the proposed Project route under the Company Proposal. If the right-of-way were to be expanded to 140 feet in these three sections, approximately 116.7 additional acres of new right-of-way would be required and three new parcels would be crossed. An additional 3.9 acres of wetlands and 37.9

acres forested land would be crossed by the expanded right-of-way. While no new VOF easements would be crossed by the expanded right-of-way, an additional 32.5 acres of VOF easements would be affected. Similarly, while no new VDHR easements would be crossed, an additional 2.1 acres of VDHR easement land would be affected.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.



Dominion

- Milepost
- Existing Substations
- Existing ROW (14.0 miles)
- 140' ROW (24.1 miles)
- Major River
- County Boundary
- VDHR Easement
- VOF Easement

Figure 1
Remington Gordonsville
230 kV Transmission Line Project
Overview of Right-of-Way Width Options

FILE: M:\Client\D-F\DOM\RPG_ArcGIS\2016\06\Routes_Overview_DOM_RPG_Routes_Overview_Rem_to_Gord.mxd | REVISED: 07/08/2016 | SCALE: 1:200,000 when printed at 11x17 DRAWN BY: JPB

TABLE 1

Remington-Gordonsville 230 kV Transmission Line
Route Right-of-Way (ROW) Width Alternatives Environmental Features Comparison Table

Environmental Features	Unit	Proposed Route (Option A)[a]	Additions due to 140-foot ROW[b]
Land Use Features/Constraints			
New Permanent ROW	acres	59.8	116.7
Private Parcels Crossed	number	262	3
Total Buildings Within ROW	number	52	2
Houses Within ROW	number	4[c]	0
Outbuildings Within ROW	number	36	2
Commercial Buildings Within ROW	number	6	0
Agricultural Buildings Within ROW	number	6	0
Environmental Constraints			
Wetlands Crossed by Centerline and in ROW (total)[d]	acres	26.6	3.9
Forested Land Crossed (total)[e]	acres	8.2	37.9
Conservation Easements Crossed			
Virginia Outdoors Foundation	number	26	0
	acres	113.5	32.5
Cultural Resources Constraints			
Easements (VDHR) Within ROW	number	4[f]	0
	acres	14.7	2.1

[a] The currently proposed ROW is 100 feet wide along the entire Remington-Gordonsville Line #2153.
[b] A 140-foot-wide ROW would be required to accommodate shorter structures. This would include the proposed 100-foot-wide ROW plus an additional 40 feet of new permanent ROW along sections of the Remington-Gordonsville Line #2153 where the 140- foot-wide right-of-way could be established for at least 3 miles. This assumes 20 feet of additional right-of-way would be added to either side of the 100-foot-wide ROW. The Company has identified 3 sections of the route where the right-of-way could be expanded to 140 feet in width.
[c] The Company does not currently anticipate that any residences will have to be demolished or relocated for the proposed Project.
[d] Wetland data for the proposed right-of-way were derived from a desktop wetland summary included as an appendix to the environmental routing study. Data for the 140-foot-wide ROW include the same desktop data for the 100-foot-wide portion of ROW and NWI data for the additional 40 feet of right-of-way. An initial review indicated that the NWI data is likely to underestimate the acres of wetlands crossed.
[e] Data derived from digitized 2015 aerial photography.
[f] The Environmental Routing Study indicated that 3 VDHR easements would be crossed by the Proposed Route, subsequent to the filing of the SCC Application, an additional VDHR easement crossing was identified.

160720038

Company Exhibit No. __
Witness: JMB
Rebuttal Schedule 2
Page 1 of 5

1:4,000

0 250 500 Feet

Milepost
Existing Corridor
Within 100' ROW
Within 140' ROW
70' ROW
100' ROW
Parcel
VOF Easement

Page 1 of 5

Dominion

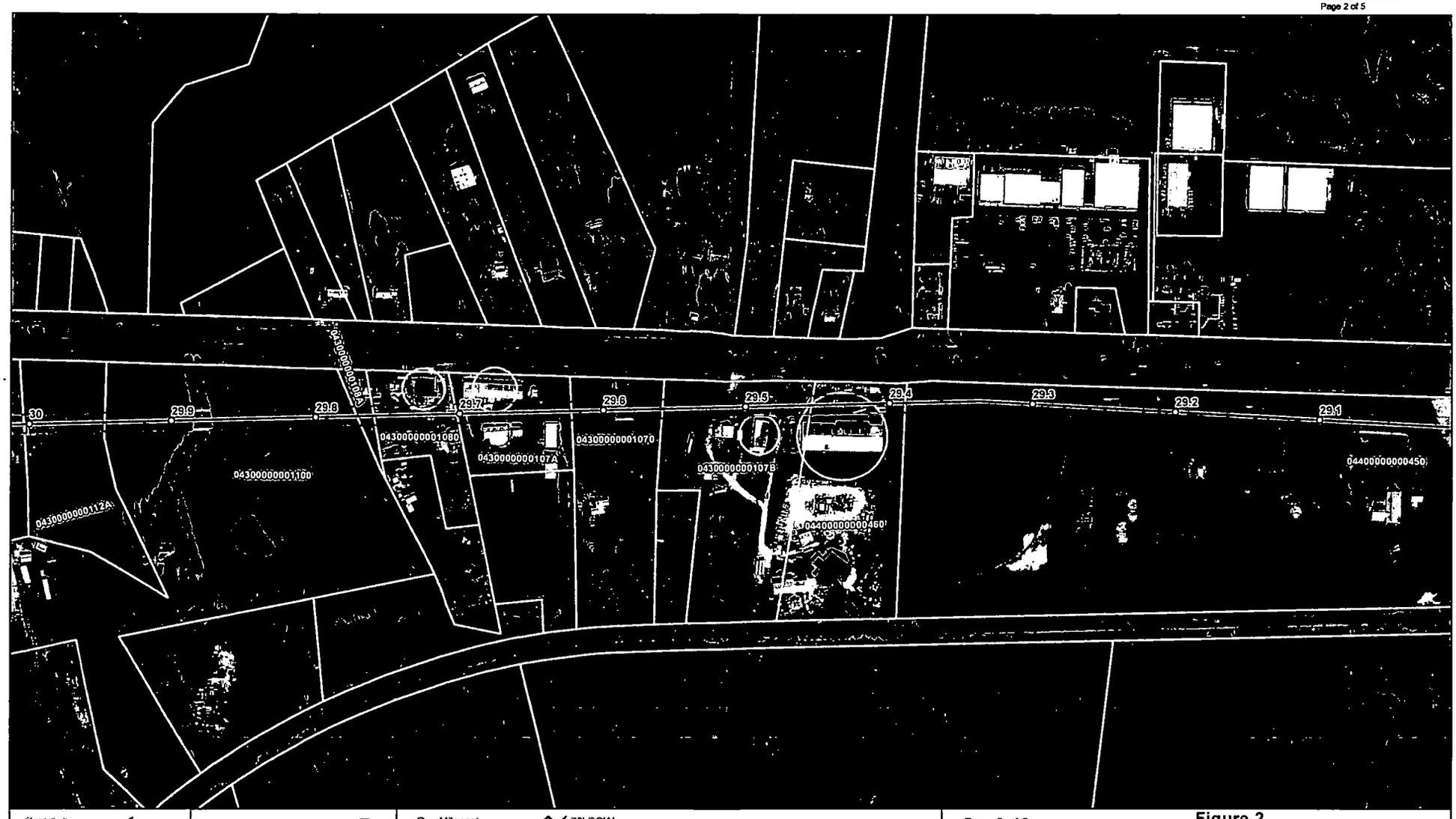
Figure 2
Remington Gordonsville
230 kV Transmission Line Project
Right-of-Way Width Options
Existing Corridor - Town of Orange

FILE: M:\Client\D-F\DOM\RPG_ArcGIS\2016\06\Variable_ROW_maps_DOM_RPG_Variable_ROW_Orange_Area.mxd | REVISED: 06/29/2016 | SCALE: 1:4,000 when printed at 11x17

DRAWN BY: JPB

160720038

Company Exhibit No. __
Witness: JMB
Rebuttal Schedule 2
Page 2 of 5



160720038

Company Exhibit No. __
Witness: JMB
Rebuttal Schedule 2
Page 3 of 5

Page 3 of 5

Figure 2
Remington Gordonsville
230 kV Transmission Line Project
Right-of-Way Width Options
Existing Corridor - Town of Orange

160720038

Company Exhibit No. __
Witness: JMB
Rebuttal Schedule 2
Page 4 of 5

1:4,000

0 250 500 Feet

- Milepost
- Existing Corridor
- Within 100' ROW
- Within 140' ROW
- 70' ROW
- 100' ROW
- Parcel
- VOF Easement

FILE: M:\Clients\D-FDOM\RPG_ArcGIS\2016\06\Variable_ROW_mapsets_DOM_RPG_Variable_ROW_Orange_Area.mxd | REVISED: 06/29/2016 | SCALE: 1:4,000 when printed at 11x17

DRAWN BY: JPB

Page 4 of 5

Dominion

Figure 2
Remington Gordonsville
230 kV Transmission Line Project
Right-of-Way Width Options
Existing Corridor - Town of Orange

160720038

Company Exhibit No. __
Witness: JMB
Rebuttal Schedule 2
Page 5 of 5